

Management Techniques for Oregon's Territorial Sea:
Lessons from the U.S. National Marine Sanctuary Program
and the Great Barrier Reef Marine Park Authority

by

Anne B. Kristensen

AN INTERNSHIP REPORT

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Master of Science

Completed December 2, 1992

Commencement June 1993

TABLE OF CONTENTS

Introduction	1
The U.S. National Marine Sanctuary Program	3
The goals of the NMSP	6
Some Trends in History of NMSP Implementation	7
Evolution of the multiple use management concept	7
Sanctuary size trends	8
Increasing cooperation and collaboration	13
Changing role of Congress	14
The role of state and local governments	16
The 1992 reauthorization	19
Ocean Management Techniques	23
Classification of ocean management techniques	23
Use of ocean management techniques in the NMSP	27
Levels of management technique implementation	32
NMSP Management Techniques and Oregon's Ocean Planning	35
Comparison of NMSP and OORMP goals	35
Management issues facing Oregon	38
NMSP management techniques--Applicability to Oregon's ocean	45
The Great Barrier Reef Marine Park	66
Goals of the GBRMP zoning program	68
GBRMP management techniques	69
GBRMP management techniques--Applicability to Oregon's ocean	71
Conclusions	75

LIST OF TABLES AND FIGURES

<u>Table</u>	<u>Page</u>
1 Description of Sanctuaries	8
2 Comparison of goals of the OORMP and the NMSP	36

<u>Figure</u>	<u>Page</u>
1 Map of current and proposed National Marine Sanctuaries	5
2 Marine protected areas and other enclosures in the Santa Barbara Channel, off southwestern California	34
3 The Oregon Ocean Stewardship Area	40
4 The Great Barrier Reef Marine Park	67

INTRODUCTION

In 1990, Oregon became the first state in the nation to complete and adopt an ocean management plan. The Oregon Ocean Resources Management Plan (OORMP) "extends Oregon's comprehensive statewide planning and coastal zone management program seaward to provide a coordinated, comprehensive policy and management framework for state and federal agencies and Oregon's local governments" (Hout 1990). Oregon's unique experiment in state-level ocean management grew out of several trends and perceived threats: the growing environmental consciousness of the 1970s, federal proposals for offshore oil and gas and marine mineral development, and the increasing awareness that if Oregon did not get its own program in order, it would have little to say about how the ocean offshore would be used in the future.

To address these environmental and public policy concerns, the 1987 Oregon State Legislature passed Senate Bill 630, the Oregon Ocean Resources Management Act (OORMA). The act established a broad-based task force charged with developing a plan for the "coordinated, comprehensive management of ocean uses and resources off the Oregon coast" (OORMTF 1991). The act also laid out some policies and guidelines that "established clear priorities among competing ocean uses and activities, and required the development of ocean management plans" (Hout 1990). Ocean planning in Oregon thus had a strong basis in legislation.

Following completion of the OORMP in 1990, the 1991 Oregon state legislature passed new ocean management legislation implementing several 1990 plan recommendations. One of these was the establishment of a permanent Oregon Ocean Policy Advisory Council (OOPAC) to replace the task force that developed the plan. And, as a first assignment, the legislature directed the OOPAC to develop a more detailed territorial sea management plan (TSMP) for state waters and lands within the 3 nautical-mile (nm) territorial sea.

Among the management issues that will be studied in the TSMP process are conservation and habitat protection, fisheries, marine birds and mammals, intertidal plants and animals, and recreation and cultural resources. Strategies will be developed for dealing with each of these issues or resources within Oregon's territorial sea (0-3 miles). In the process, the OOPAC will be developing and applying a variety of management techniques. Some of these techniques may be new, but most will likely be variants of techniques applied in other areas and programs in the U.S. and elsewhere. The management techniques used in two such programs, the U.S. National Marine Sanctuaries Program (NMSP) and the Great Barrier Reef Marine Park (GBRMP) program are of particular interest.

The overall purpose of this paper is to examine the management techniques used in the NMSP and the GBRMP and

assess their overall utility and applicability to Oregon's territorial sea planning effort. Principal emphasis is given to evaluation of NMSP management techniques, although many of the techniques used in the GBRMP may be quite useful in some of Oregon's nearshore areas.

This paper is organized as follows. First, there is a overview of the U.S. National Marine Sanctuary Program, including program goals, history and present status, and sanctuary locations. Trends in multiple use management, sanctuary size, intergovernmental cooperation, Congressional intervention in program management, public involvement, and the 1992 Congressional reauthorization are also reviewed. Following this, the various management techniques used in the NMSP are discussed, along with their potential applicability for addressing the management issues outlined in the Oregon Ocean Resources Management Plan. Management techniques applied within the Great Barrier Reef Marine Park are then outlined and discussed. Finally, some conclusions are outlined regarding the applicability and usefulness of management techniques used in these programs to Oregon's territorial sea planning effort.

THE U.S. NATIONAL MARINE SANCTUARY PROGRAM

The NMSP was established in 1972 as Title III of the Marine Protection, Research, and Sanctuaries Act (MPRSA). This Act authorizes the Secretary of Commerce to designate

distinct off-shore areas to be set aside for the purpose of "preserving or restoring such areas for their conservation, recreational, ecological, or aesthetic value" (Brautaset 1985). Currently, the NMSP is administered by the Sanctuary and Reserves Division (SRD) of the Office of Ocean and Coastal Resource Management (OCRM) within the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce. Ten National Marine Sanctuaries have been designated in the twenty years of the programs existence. Also, the Sanctuaries and Reserves Division (SRD) of the Marine and Estuarine Management Division is working on four additional proposed sanctuaries in United States waters (Dept. of Commerce 1991b).

Currently, there are sanctuaries along both the Pacific and Atlantic coastlines and in American Samoa (figure 1). These sanctuaries encompass nearshore, open water, and benthic environments in temperate and tropical waters. Along the Pacific coast, there are sanctuaries at the Channel Islands, Monterey Bay, Gulf of the Farallones, Cordell Banks, and the proposed Olympic Coast National Marine Sanctuary. East coast sanctuaries include the Florida Keys (previously the Key Largo and Looe Key National Marine Sanctuaries), U.S.S. Monitor, Gray's Reef, and the proposed Stellwagen Bank National Marine Sanctuaries. There is also the proposed Flower Garden Banks National Marine Sanctuary on the Gulf coast. Finally, there is the Fagatele

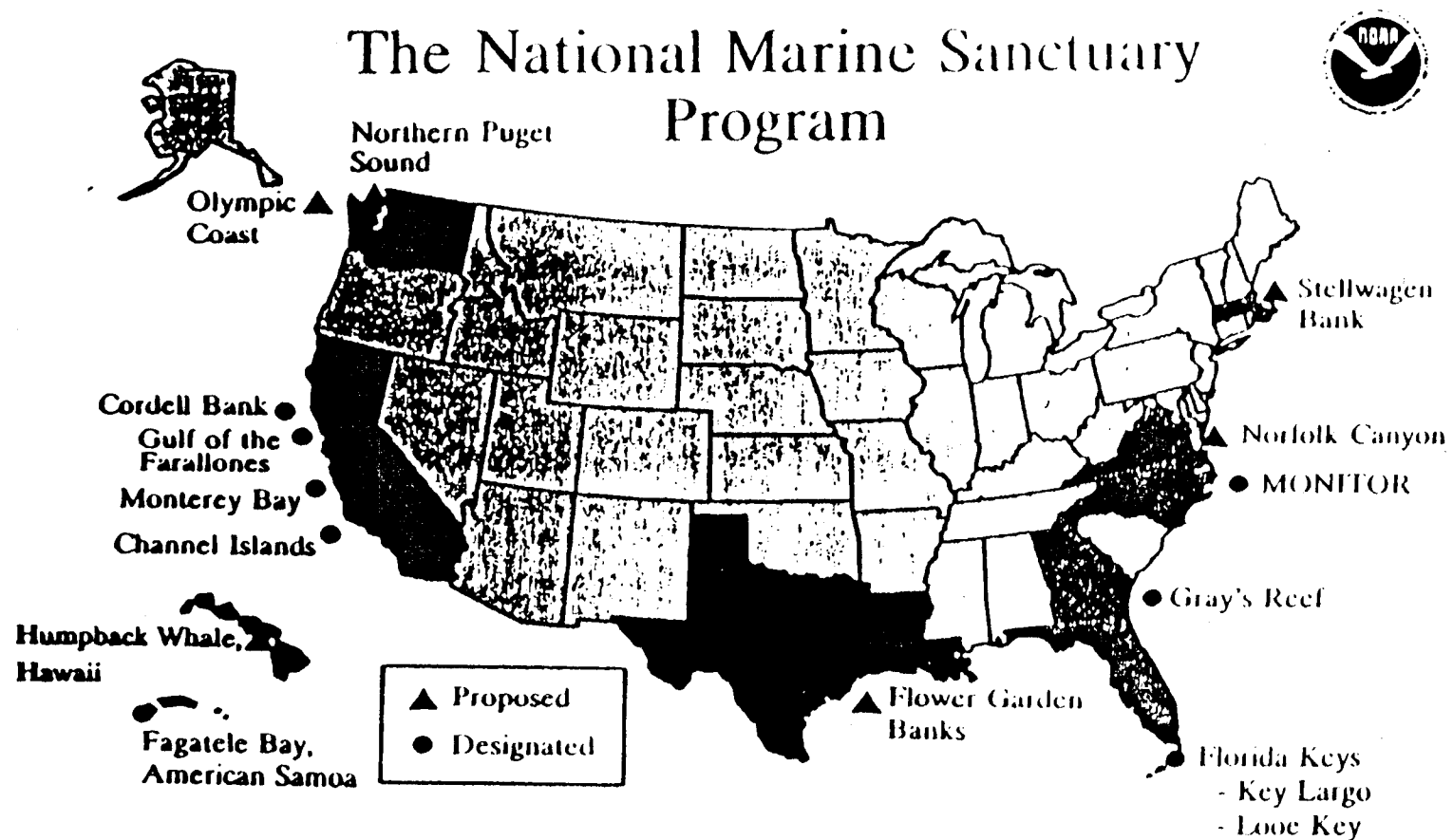


Figure 1. A map of current and proposed National Marine Sanctuaries. (Dept. of Commerce 1991b)

Bay National Marine Sanctuary in American Samoa. These sanctuaries work together and as separate entities to pursue the goals of the National Marine Sanctuary Program.

Goals Of The National Marine Sanctuary Program

When the NMSP was established, its primary objective was the preservation of resources (Tarnas 1988). Though resource protection remains a primary goal today, there have been frequent changes in this original intent of the Act. The current goals are listed in the 1988 reauthorized act as well as in each plan. They are:

- 1) Enhance resource protection through comprehensive and coordinated conservation and management, tailored to the specific resource, that complements existing regulatory authorities;
- 2) Support, promote and coordinate scientific research on, and monitoring of, the site-specific marine resources to improve management decision making in National Marine Sanctuaries;
- 3) Enhance public awareness, understanding, and wise use of the marine environment through public interpretative and educational programs;
- 4) Facilitate, to the extent compatible with the primary goal of resource protection, all public and private uses of the resources of these marine area not prohibited pursuant to other authorities; and

5) Identify areas of the marine environment of special national significance due to their natural resource or human-use values (Dept. of Commerce 1991b).

SOME TRENDS IN HISTORY OF NMSP IMPLEMENTATION

The evolution of the NMSP over time has resulted in significant changes in the application of the concept of multiple-use management, in sanctuary size, in the level of cooperation with other agencies, in the degree of Congressional intervention, and in public involvement. Each of these are reviewed in turn below.

Evolution of the Multiple Use Management Concept

In the 1972 version of Title III of the MPRSA, multiple-use management was not stressed, though provisions were made for its use. In 1982, the Program Development Plan (PDP) was established; it redefined the mission and goals of the NMSP (Dept. of Commerce 1982a). Among other things, the PDP stressed long-term management, coordinated research, and provisions for maximum public and private use (Brautaset 1985). This resulted in multiple-uses being encouraged, not just permitted as in the 1972 version of the Act. In 1984, President Reagan signed legislation amending and reauthorizing the NMSP. Some of the changes made provided assurance of multiple use management within designated sanctuaries (Foster 1988). Thus, with successive

reauthorizations, multiple-use management became a stronger focus in the NMSP. This trend continued with the 1988 reauthorization. The establishment of special use permits to address the growth of commercial and public uses of the sanctuaries allowed authorization of "activities that are compatible with the purpose for which the sanctuary was established" (Kalo 1990). Multiple uses would continue to grow with these permits that "allow certain commercial activities and promote public use and understanding of the sanctuaries" (Senate Report 1988a). Thus, the history of multiple-use management in the NMSP has been one of slow introduction and increasing acceptance. Currently, activities are allowed unless they are perceived as a threat to the areas resource values. Multiple-use management is now a firmly entrenched part of sanctuary operation and a primary sanctuary goal (Goal #4 above).

Sanctuary Size Trends

Changes have also been occurring in other areas of sanctuary management. Though not of direct management concern, the size of sanctuaries designated has fluctuated through time (Table 1). The first two sanctuaries designated in 1975 were the U.S.S. Monitor and Key Largo. Both of these sanctuaries are small and focus on specific resources. The U.S.S. Monitor sanctuary is the site of this sunken Civil War ship and the Key Largo sanctuary small site

Table 1

Description of Sanctuaries

Name Of Sanctuary	Date Of Designation	Size Of Sanctuary	Location Of Sanctuary	Habitat In Sanctuary
U.S.S. Monitor	January 1975	5.32 square miles	Southeast of Cape Hatteras, North Carolina	Submerged vessel
Key Largo	December 1975	100 square miles	South of Miami, Florida	Coral reef
Channel Islands	September 1980	1,252 square miles	Off of Santa Barbara, California	Offshore islands and kelp forests
Looe Key	January 1981	5 square miles	East of the Florida Keys, Florida	Coral reef
Gray's Reef	January 1981	17 square miles	East of Sapelo Island, Georgia	Live bottom coral reef
Gulf of the Farallones	January 1981	948 square miles	Northwest of San Francisco, California	Offshore Islands and coastal waters
Fagatele Bay	April 1986	0.25 square miles	Tutuila Island, American Samoa	Deep water coral formations
Cordell Bank	May 1989	397 square miles	Northwest of San Francisco, California	Submerged mountain-top
Florida Keys	November 1990	2,600 square miles	Florida Keys, Florida	Coral reef and keys
Monterey Bay	September 1992	4,100 square miles	Monterey Bay, California	Bay and submarine canyon

Description of Sanctuaries

Olympic Coast	Proposed	Undecided	West of the Olypic Peninsula, Washington	Offshore islands and coastal waters
Flower Garden Banks	Proposed	Undecided	South of Texas, Louisiana border	Submerged bank
Stellwagen Bank	Proposed	Undecided	Off Cape Cod, Massachusetts	Submerged bank

surrounding a tropical reef area, Gray's Reef, which protects a submerged live bottom coral area, and the much larger Gulf of the Farallones sanctuary, which encompasses offshore islands and coastal waters. In 1986, the smallest sanctuary was designated in American Samoa. The Fagatele Bay sanctuary encloses a deep water coral terrace formations unique to the Pacific high islands. In 1989 and 1990, two more large sanctuaries were designated. The Cordell Banks sanctuary encompasses off-shore open water and a submerged mountaintop while the Florida Keys sanctuary brings together the other two Florida Sanctuaries under one manager and increases the area covered to 2,600 square nautical miles (Dept. of Commerce 1992). Monterey Bay, the most recent addition to the National Marine Sanctuary system, is the largest sanctuary of all, encompassing 4100 square nautical miles.

There is an apparent trend in recent years towards larger sanctuary size. This can be best explained by looking at what environment is encompassed by each sanctuary. The smaller sanctuaries tend to be around the small tropical reefs that are found in the waters off Florida and American Samoa. The U.S.S. Monitor sanctuary surrounds a sunken ship. The medium sized sanctuary (Cordell Banks) encompasses the top of a sunken mountain. These smaller sanctuaries tend to surround distinct habitat

areas or resources, such as a specific reef, reef region, submerged bank, or sunken ship.

The larger sanctuaries tend to be located in generally productive ocean areas, not necessarily around a single specific habitat. In some cases, they may contain several different habitat types. The Channel Islands National Marine Sanctuary includes islands and kelp beds. The Gulf of the Farallones National Marine Sanctuary encompasses nearshore areas as well as deep water, off-shore islands, and submerged banks. The largest and newest (September 1992) of all the sanctuaries the Monterey Bay National Marine Sanctuary, includes a submerged canyon and kelp beds as well as near-shore areas. These three sanctuaries encompass very productive coastal ocean regions supporting many marine mammals as well as fish and seabirds. The Florida Keys sanctuary is relatively new and is also large. It combines the two existing Florida sanctuaries as well as additional reef areas.

Thus, it appears that the trend in sanctuary size is not related directly to time, but is related to the type of habitat or habitats that are to be protected. This trend can be viewed as if the smaller sanctuaries are there to protect specific resources and the larger ones are there to protect specific ecosystems. This tendency can also be seen by reviewing the regulations of the sanctuaries. The smaller sanctuaries that are protecting a specific resource

have regulations prohibiting actions specifically related to that resource. For example, the regulations of the Key Largo National Marine Sanctuary prohibits handling or standing on coral formations (Dept. of Commerce 1983c). In the larger sanctuaries, since there are so many types of resources, the regulations are less specific about each resource type. The regulations of the larger sanctuaries tend to be more general. The Gulf of the Farallones sanctuary regulates hydrocarbon activities, discharges, and alteration of the seabed, but does not mention any single specific resources to be managed (Dept. of Commerce 1987).

Increasing Cooperation and Collaboration

As the size of the sanctuaries increases, management and enforcement of regulations gets more difficult. Because of this, there has been a trend toward increasing cooperation and collaboration with other agencies. The 1980 reauthorization of the Act "specifically requires that sanctuary administrators conduct research and enter into agreements with other agencies for enforcement and other management services" (Finn 1982). This cooperation and collaboration is given further impetus by the fact that NOAA can only regulate the activities directly listed in the sanctuary management plan and only within sanctuary boundaries. Any activity outside the sanctuary that effects the resources inside has to be dealt with by other

agencies. "Thus, cooperative agreements must be established with coastal or terrestrial programs" (Tarnas 1988). For example, the Channel Islands National Marine Sanctuary is located around a National Park. Managers of the sanctuary must cooperate with Park managers to accomplish comprehensive management. In fact, the management of this sanctuary involves the cooperation and collaboration of the California Coastal Commission, the California Water Resources Control Board, the California Lands Commission, NOAA, the National Park Service, the federal Minerals Management Service, and the U.S. Coast Guard (Hoagland 1988).

The Changing Role of Congress

Congress has acknowledged this need for cooperation and collaboration by specifically stating in the 1988 reauthorization that "The Secretary shall take such action as is necessary to promote and coordinate the use of national marine sanctuaries for research purposes" and "The Secretary may enter into cooperative agreements with any nonprofit organization" (Senate Report 1988b). Thus, cooperation and collaboration are important means to ensure effective implementation and regulation of activities. The presence of a local sanctuary manager also helps ensure coordination of all management activities in the area of the sanctuary.

Besides mandating intergovernmental cooperation, Congress has also played a major role in the designation and management of marine sanctuaries in the last four years. Initially, sanctuary designations were subject only to the approval of the president (Finn 1982). In 1980, a Congressional disapproval mechanism was added to the designation process, whereby they may disapprove of a sanctuary designation in part or whole (Brautaset 1985). In 1984, reauthorization made more changes in Congress' role in the marine sanctuary program. This reauthorization removed the requirement of Presidential approval and gave Congress the ability to disapprove a designation by joint resolution. The role of Congress continued to increase in the next four years. In 1988, the slow pace of the designation process was a concern. This resulted in Congress establishing a schedule for designation of four proposed sanctuaries that were under consideration by NOAA (Senate Report 1988a). These four sanctuaries were the Cordell Banks, Monterey Bay, Western Washington Outer Coast, and Flower Garden Banks National Marine Sanctuaries. Congress also required NOAA to study proposed designations of three more sites. Thus, Congress has slowly been increasing its influence on the designation of new national marine sanctuaries. Unfortunately, even with specific requirements by Congress for designation, only two of the four scheduled designations have occurred.

The Role of the Public and State and Local Governments

Other groups that have had a changing influence in the designation and management of the National Marine Sanctuaries include the public, local governments, and state governments. When the NMSP began in 1972, public involvement was limited to nominating sites for consideration. Any citizen or organization could nominate a site for consideration by NOAA for placement on the List of Recommended Areas (LRA). This led to the first sanctuary designations in 1975, the U.S.S. Monitor and the Key Largo National Marine Sanctuaries. In 1982 the direct influence of the public in nominating sites was changed. NOAA established a Program Development Plan (PDP) which abandoned the LRA in favor of a Site Evaluation List (SEL) (Brautaset 1985). With this change, NOAA contracted out to Chelsea International to conduct the actual site selection process. Chelsea sent information packets to state and local officials, industry, conservation groups, and citizen groups to get their opinions. Thus, instead of having a direct influence in the designation of sites, public input was reduced to a consultation status after the sites were picked.

The other place where the public has historically had involvement in the NMSP is in public hearings. After a site is proposed for designation, a notice of such must be published in the Federal Register, along with proposed

regulations and a summary of the draft management plans. Notice is also given to the newspapers and electronic media in the communities that are affected by the proposal (Senate Report 1988a). Copies of the draft environmental impact statement must also be made available to the public. One month after the public notice and release of the draft environmental impact statements, at least one public hearing must be held (Senate Report 1988a). This hearing, located in the areas that will be most affected by the proposed designation, is to hear the views of all interested parties. Again, while the public is given notice and its view are heard at hearings, they have little direct influence on the designation or on the management of the proposed site.

The only continuous mechanism that I have found for public involvement in sanctuary management is in the field of education. Most sanctuaries have interpretive programs to help educate the public about the goals and objectives of the sanctuary and the need to use the resources of the sanctuary wisely. Some sanctuaries have started to develop feedback programs on the effectiveness of their interpretative programs (Dept. of Commerce 1991a). With this program the public is invited to comment on the interpretative programs and recommend future enhancements. While not a direct influence on the management of the sanctuary, this is a first step in involving the public in some aspects of sanctuary programs.

Local and State governments have more influence than the public in the designation and management of sanctuaries. In the designation process, "the Secretary (of Commerce) shall consult with 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 areas as a national marine sanctuary" (Senate Report 1988a). In fact, if a proposed sanctuary lies partially or totally within the seaward boundary of any State, the Governor can notify the Secretary of Commerce that all or part of the designation document and management plan is unacceptable. If this occurs, the designation or management strategy will not take effect in the area of the sanctuary lying within the seaward boundary of the state (Senate Report 1988a). Thus, the Governor's signature is a requirement for any sanctuary to be designated and managed in state waters.

Another method for state and local input into the management of sanctuaries is through cooperative agreements with the NMSP. Among other sanctuaries the Cordell Banks National Marine Sanctuary requires in its management plan that there be "participation by other agencies in the development of new procedures to address specific management concerns" (Dept. of Commerce 1989). Since sanctuaries can only enforce regulations inside the sanctuary, they must

rely on the state agencies in the area for protection and enforcement outside the sanctuary. This is important because in the marine environment, things that happen outside the sanctuary can influence the sanctuary waters if currents and winds force bring it into the sanctuary. Cooperation with outside managers is necessary to effectively manage the areas inside the sanctuary. Thus, the negotiation of a cooperative agreement between a state agency and sanctuary management can become a mechanism for state influence.

The 1992 Reauthorization

The 1992 reauthorization of the MPRSA has brought many changes to the National Marine Sanctuary Program. These changes will mainly be noticed in the areas of cooperation and collaboration, and also in the input of the public, and local and state agencies. One of the potentially major changes to the MPRSA is in the area of cooperation. The 1988 version of the Act only provides authority for comprehensive and coordinated conservation and management. In the 1992 reauthorization, both the House and the Senate agreed that the Act should specifically "require the development of coordinated plans for the management of these areas with assistance from appropriate Federal agencies, State, local, and native governments, and other public and private interests" (Coastal States Organization 1992).

Thus, the duties of the Secretary of Commerce and the sanctuary managers will change from having the authority to coordinate management, to being required to coordinate management. Also passed was an expansion of the groups with whom the Secretary can execute cooperative agreements; included would be State government, local governments, and regional and interstate agencies. This will not only increase the influence of the NMSP, but also increase the influence of the local and state governments through negotiations of cooperative management plans with sanctuaries.

Another change that will occur in this area of cooperation is that the Secretary will be required to cooperate with global programs as well as local programs. This change was supported by both the House and Senate and adds a provision requiring the cooperation of the Secretary of Commerce, Secretary of State, and Federal agency heads with foreign countries and international organizations. This will extend the influence of the National Marine Sanctuary Program into the international realm as well as acknowledge the global society in which we now live.

Recommendations from both the House and the Senate were also found in the area of public involvement. Changes in 1992 will result in a new section being added to the Act that would greatly increase the influence of the public and state and local governments in the management of the

sanctuaries. It will enable "the Secretary to establish one or more advisory councils to assist in the designation and management of sanctuaries" (Coastal States Organization 1992). These advisory councils will be made up of people from state and federal agencies that have expertise in environmental management. Councils would also include representatives from regional fisheries councils, local user groups, conservation and public interest organizations, educational organizations, and others involved in the use of the sanctuary (Coastal States Organization 1992). These changes in the Act will provide the much-needed public input on the management of the sanctuaries. And, with the House recommendation that the meetings of the council be open to the public and allow for public participation pass, the public will increase its influence on sanctuary management even more.

Some sanctuaries already have advisory councils. The newest sanctuaries, the Florida Keys and Monterey Bay National Marine Sanctuaries, were developed using these advisory councils. At the Florida Keys sanctuary, for example, a 22-member council was selected by the Secretary of Commerce in consultation with the Governor of Florida (Dept. of Commerce 1992). The council is made up of people from environmental groups, user groups, educational organizations, research organizations, and the general public. These members were selected to represent the varied

groups interested in the Florida Keys and act for the general public in the process of developing the management plan (Dept. of Commerce 1992). This has greatly increased the influence of the public and other local groups in the management decisions to be made in the Florida Keys sanctuary.

One final change that is occurring in the NMSP is in the site designation process. Currently, NOAA is revising its site selection process. Instead of contracting out to an agency, NOAA is working directly with each state to determine the best sites in state waters and the adjacent Exclusive Economic Zone (Croom 1992). This increases the influence of the state government, local government, and public in the selection of potential sites. Also, it makes the development of a potential sanctuary at least partially the responsibility of local people. If a sanctuary gets designated, it will therefore be the "peoples" sanctuary not just a federal government sanctuary located off a state's coast.

Additionally, this could improve enforcement. If local people are involved in the development of a system of rules, they may be more likely to follow those rules in the future.

OCEAN MANAGEMENT TECHNIQUES

Classification of Ocean Management Techniques

There are a variety of ways to classify management techniques for ocean management. One classification scheme that is particularly useful in this analysis is that of Kenchington (1991b). His scheme breaks management techniques into four categories: prohibition, limitations, permits, and education (Kenchington 1991b), which may be used singly or in combination. Enforcement may be through informal understandings or formal legislation.

Prohibition

The simplest type of management technique is "prohibition of access to a prescribed area" (Kenchington 1991b). This technique is straightforward, easy for the public to comprehend, and easy to enforce by the managers. If a person is caught inside a prohibited area, they are guilty. However, prohibiting everyone, including scientists and managers, from entering an area makes it difficult to manage in the long run because of lack of information. Thus, a "prohibition of access without approval" techniques has developed. This prohibits anyone who has not gotten approval for entry from being in an area. Another form of prohibition is the banning of certain activities in an area. Activities like bottom trawling or anchoring can be

prohibited in certain areas to prevent damage to the ocean bottom. Though it can cause problems with people feeling excluded from areas, these types of prohibition has some benefits because it is a black and white issue (Kenchington 1991b). Either a person is within a prohibited area or doing a prohibited action or they are not.

Limitations

A less black and white method of managing through "limitations." While some activities are so severe that they require the prohibition of the activity, many activities can continue at low levels without significantly affecting the environment. Limitations can keep activities at these unoffensive lower levels. Limitations can also decrease user conflict by reducing the number of meetings between conflicting user groups. There are several method of limitations. Spatial limitations include the popular method of zoning for a particular use or just describing the area which is closely managed. In fact, "zoning is the most widely accepted method to keep people out of the most sensitive or valuable or recuperating areas and to limit the impact of visitors" (Salm 1984). Temporal ~~limitations~~ can prohibit access to an area, restrict allowable equipment, limit the number of activities or people, and ~~require~~ certain skill levels of participants. These ~~temporal~~ limitations can last as short or as long as needed to

protect the environment. Another form of limitation is equipment limitation. This is currently practiced by many fisheries managers when restrictions are placed on the type of nets used, number of vessels used, and use of anchors. Equipment limitations can help lower the direct affects of human actions on the marine environment.

The next three types of limitation are of a different sort. Quotas are "an alternative to banning activities or restricting the area of operations or the type of equipment used" (Kenchington 1991b). Quotas may be placed on the limit of harvest or on the human carrying capacity of an area. In other words, you may set a quota on how many fish sports fishermen can catch or you may set a quota on how many sports fishermen can go out and fish. Another option is skill licensing like SCUBA licenses. Requiring skill licenses can be used to "establish codes of practice to minimize adverse environmental and social impacts of an activity" (Kenchington 1991b). If we require knowledge of the management regime of the area to obtain a skill license, the users will at least know the regulations and so be more likely to follow them. Compliance may be enforced further by loss of license for repeat offenders. A final type of limitation is resource allocation licenses. This is basically a method to distribute quotas through a licensing mechanism. For example you could get a license to catch five salmon.

Permits

A third type of management technique is the use of permits. They are a popular method of management found throughout the world in all areas of planning and management. Permits "provide scope for management discretion in establishing the conditions under which an activity may occur" (Kenchington 1991b). For each activity requested a manager can review the environmental, economic, and social effects and decide whether or not to permit that activity. Unfortunately, because each permit application has to be treated individually, the permit process is time and money consuming. But because it is treated individually, a permit can be adjusted to each particular situation. Thus, a permit system can manage at higher level of detail than a general plan but it is cumbersome and slow if the management area is large.

Education and Interpretation

One final method of management is education and interpretation. Though often overlooked as a management technique, education is the most promising management technique for the future. With the limited amount of funding for management, it is impossible to enforce many of the other management techniques. We may not be able to catch people in prohibited areas or to check to be sure that everyone has a permit. However, if we educate the public about the importance of the marine environment they may

begin to enforce and police themselves and others. With education, people will know why a certain activity needs to be limited or why the use of an area is prohibited. Marine education can be used to "provide individuals, groups, and societies with the opportunity to acquire the knowledge, values, attitudes, commitments, and skills needed to conserve the marine environment" (Dept. of Commerce 1989). Though the other previously mentioned management techniques are important, we must remember to also use education and interpretation as viable management tools.

Use of Ocean Management Techniques in the NMSP

The management techniques listed above are some of the basic tools which the Oregon Ocean Policy Advisory Council can use to manage Oregon's territorial sea. Most of these tools are used today to manage national marine sanctuaries in the U.S. The following discussion will detail some of the applications of these management techniques in the national marine sanctuaries. For a complete list of the management techniques used in the national marine sanctuaries, see Appendix A.

Use of Prohibitions in the NMSP

Prohibition, the most simple management tool, is also the most common management strategy used in the national marine sanctuaries. All sanctuaries have the same basic

theme of regulations that prohibit certain activities; among the most common are: oil and gas development; discharges; construction on the seabed; and removal or damaging cultural and historical resources. While these are the most common prohibited activities, each sanctuary has its own specific regulations. For example, the Key Largo National Marine Sanctuary (now part of the Florida Keys National Marine Sanctuary) has regulations prohibiting "Handling or standing on coral formations, or destruction of natural features and marine life, or the removal of natural features or marine life with the exception of lobster, crawfish, and stone crabs" (Dept. of Commerce 1983c). An example of prohibited entry comes from the Channel Islands National Marine Sanctuary which prohibits "aircraft from flying below 1000 feet within one nautical mile of any island within the sanctuary" (Dept. of Commerce 1983a). Thus, prohibiting actions or entry is used throughout the system of national marine sanctuaries and is one of the easiest ways to manage for (but not enforce) specific goals.

Use of Limitations in the NMSP

Limitations are also used in the National Marine Sanctuaries. An example of spatial limitation used in the Looe Key National Marine Sanctuary (now part of the Florida Keys National Marine Sanctuary) is zoning used to reduce user conflicts. Boating zones have been developed to lower

conflicts and damage by anchors. Temporal, quota, skill license, and resource allocation limitations are not as prevalent in the national marine sanctuaries. However, the fishing seasons designated by the regional fisheries Councils may be limited by time, number, skill, or amount in sanctuary waters. Equipment limitations can be found in several of the smaller reef and submerged bank sanctuaries. The proposed Flower Gardens Banks National Marine Sanctuary has regulations prohibiting the use of fishing gear except hook and line (Dept. of Commerce 1991a). The Key Largo National Marine Sanctuary limits equipment use by prohibiting the use of "spearguns, guns, harpoons, poison, electric charges, or similar methods for taking fish" (Dept. of Commerce 1983c). Thus, not only are activities prohibited but also the equipment needed to perform the activities are limited in several national marine sanctuaries.

Use of Permits in the NMSP

Permitting is not often a publicly visible part of sanctuary management, but it is still important. One of the most important things to remember about National Marine Sanctuaries is that any valid permit in effect before the designation of the sanctuary is still in effect after the designation unless it represents a major threat to resources at risk (Dept. of Commerce 1991b). Thus, if someone had a

permit to dredge in Monterey Bay, that permit is still valid after the designation of the sanctuary provided it does not endanger any resources at risk. Permits are also important in the sanctuary because the Secretary of Commerce has the authority to issue permits for specific activities in the sanctuaries. Permits can be issued "to establish conditions of access to and use of any sanctuary resource, or to promote public use and understanding of a sanctuary resource" (Senate Report 1988a). However, the permits will only be issued if the activity is compatible with the purposes of designation and doesn't threaten sanctuary resources.

One of the most common reasons for issuing permits is for research. At the Key Largo National Marine Sanctuary, the removal of resources, or the manipulation of resources, or activities prohibited by sanctuary regulations require a sanctuary permit. Thus, anyone doing research on shellfish within the sanctuary must get a permit to allow them to remove the shellfish from the area. Salvage operations also require a permit. Finally, all permit applications must discuss the environmental implications of the proposed activity before a permit can be issued.

Use of Education and Interpretation in the NMSP

The final management tools, education and interpretation, are two of the most important techniques

used in national marine sanctuary management. All sanctuaries have an entire section of their management plans dedicated to education and interpretation, and each strive to provide the best educational experience possible. This is because one of the main goals of the National Marine Sanctuary Program is to "enhance public awareness, understanding, and wise use of the marine environment through public interpretive and recreational programs" (Dept. of Commerce 1991b).

Examples of education and interpretation can be found throughout the sanctuary program. One of these is found at Cordell Banks where support for the sanctuary is encouraged by offering educational programs both on and off site suited to visitors with a range of diverse interests (Dept. of Commerce 1989). The Channel Islands National Marine Sanctuary collaborates with public and private organizations to provide interpretive services complementary to the sanctuary program (Dept. of Commerce 1983a). The proposed Stellwagen Bank sanctuary will provide brochures and informational materials. These will be distributed through whale watch vessels, recreational charterboat captains, and educational institutions sponsoring vessel trips to the site (Dept. of Commerce 1991c). Thus, with these examples it is apparent that education and interpretation are a vital part of sanctuary management in the National Marine Sanctuaries.

Levels of Management Technique Implementation

When discussing management techniques, it is also important to consider the governmental levels at which the techniques might be implemented. Basically, who has primary management and enforcement responsibility? In the National Marine Sanctuary Program, the federal government (NOAA) has primary responsibility for implementation and enforcement of most management techniques. However, some sanctuaries are located partially or entirely in state waters. This requires cooperative management and enforcement by several agencies in the same area.

Typically, when a sanctuary is in state and federal waters, the Sanctuary and Reserves Division of NOAA handles overall management. In the federal waters portion, the U.S. Coast Guard is responsible for enforcing regulations. Any activity involving hydrocarbon activities and mineral exploration is managed by the Mineral Management Service. In state waters, the state department of fish and wildlife oversees the management of living marine resources and enforcement. If there are any U.S. parks in the sanctuary, the National Parks Service administers the management of that park and usually has an agreement with the national marine sanctuary within which it is located. If there is a state park in the sanctuary, then the state parks department administers the management of the park and usually has an agreement with the surrounding sanctuary. Consequently,

sanctuary management is limited to and divided between state and federal governments.

An example of this complex framework is seen in the Channel Islands National Marine Sanctuary shown in Figure 2. The Sanctuary and Reserves Division of NOAA prepared a management plan. The National Park Service (NPS) has jurisdiction within one nautical mile of islands and undertakes enforcement subject to an agreement with the California Department of Fish and Game (CDF&G). The NPS also enforces sanctuary regulations throughout the sanctuary. The California Department of Fish and Game manages the living marine resources in state waters in the sanctuary and enforces the federal Marine Mammal Protection Act as well as the federal Endangered Species Act. CDF&W also can enforce sanctuary regulations throughout the sanctuary. Finally, the U.S. Coast Guard enforces all federal laws including sanctuary regulations in the navigable waters of the sanctuary and coordinates with the CDF&G (Dept. of Commerce 1983a). Thus, it is evident that sanctuary management involves a complex network of implementation and enforcement agencies.

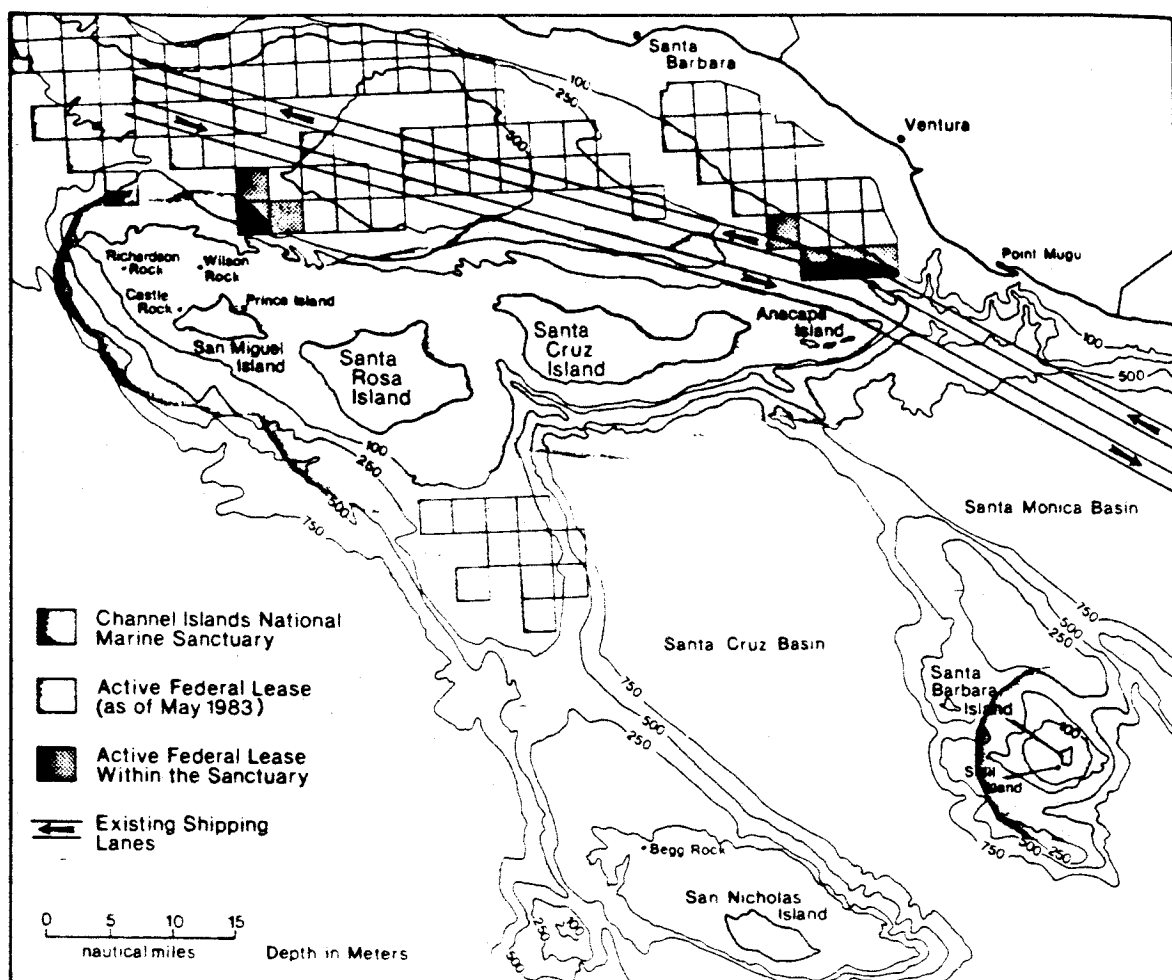


Figure 2. Marine protected areas and other enclosures in the Santa Barbara Channel, off southwestern California.
(Hoagland 1988)

NMSP MANAGEMENT TECHNIQUES AND OREGON'S OCEAN PLANNING

In assessing the applicability of management approaches used in national marine sanctuaries to Oregon's ocean planning area, it is important to compare the goals of both programs and what the issues are that need to be addressed. Then NMSP management techniques can be evaluated for applicability to Oregon's situation.

Comparison of NMSP and OORMP Goals

The goals of the National Marine Sanctuary Program and the goals of the Oregon Ocean Resources Management Plan are compared in Table 2. While the specificity and wording of the goals are quite different, almost all of the goals in the OORMP can be interrelated with one or more of the NMSP goals.

The first goals of each program deal with resource protection. Both declare that marine resources should be conserved. The second OORMP goal, giving priority to renewable resources, is also implied though not specifically stated in the first goal of the NMSP. Scientific research is the third goal of the OORMP and the second goal of the NMSP. In its fourth and fifth goals, the OORMP seeks co-management arrangements for consistent management of the EEZ with neighboring regions north and south. The NMSP states comprehensive and coordinated management as part of its

Table 2

Comparison of goals of the Oregon Ocean Resources
Management Plan and the National Marine Sanctuary
Management Program

Oregon Ocean Resources Management Plan Goals	National Marine Sanctuary Program Goals
1) Conserve living marine resources, including biological communities and habitats	1) Enhance resource protection through comprehensive and coordinated conservation and management tailored to the specific resources, that complements existing regulatory authorities
2) Give priority to renewable resources over nonrenewable resources	See NMSP goal #1
3) Support scientific research on marine ecosystems, ocean resources, and oceanographic conditions to develop better information upon which to make better ocean management decisions	2) Support, promote, and coordinate scientific research on, and monitoring of, the site specific marine resources to improve management decision making in National Marine Sanctuaries
4) Seek appropriate co- management arrangements with the federal government to ensure that ocean resources in the Ocean Stewardship Area are managed consistently in accordance with the policies of the Oregon Ocean Resources Management Plan	See NMSP goal #1
5) Coordinate and cooperate with adjacent states and encourage regional approaches to management of ocean areas, when appropriate	See NMSP goal #1
6) Involve local governments and the public in ocean resource management decisions	3) Enhance public awareness, understanding, and wise use of the marine environment through public interpretive and educational program

Table 2 continued

Oregon Ocean Resources Management Plan Goals	National Marine Sanctuary Program Goals
7) Develop marine management areas, where needed, to provide increased opportunities for public recreation, to protect biological communities and habitats, and/or advance scientific understanding of the ocean	See NMSP goals #1, #2, #3, and #5
No exact counterpart in OORMP, though goal #2 does begin to address this issue	4) Facilitate, to the extent compatible with the primary goal of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities
See OORMP goal #7	5) Identify areas of the marine environment of special national significance due to their natural resource or human-use values
(OOP, 1991)	(NOAA, 1991)

first goal. The sixth goal of the OORMP and the third goal of the NMSP both stress the need for public and local government involvement. However, the NMSP focuses more on education and interpretation as mechanisms for public involvement.

The final goal in the OORMP focuses on the development of marine protected areas or sanctuaries; its NMSP counterparts are NMSP goals 1, 2, 3 and 5. NMSP goal 5 states that special areas of marine significance should be identified. Finally, the NMSP ends with a goal not directly complemented in the OORMP though it is implied in Oregon's program. This is the controversial goal of multiple use management. Even though the goal is not exactly repeated in the OORMP, the OORMP was developed to address the rising amount of multiple uses of Oregon's ocean. From reviewing this list it is apparent that the goals of the two program are similar and so the management techniques of the NMSP may be useful in the management of the Oregon Stewardship area.

Management Issues Facing Oregon

Having established that the goals of the OORMP and NMSP are similar, what are the management issues facing the Oregon Ocean Policy Advisory Council. Detailed in the Oregon Ocean Resources Management Plan, are nine specific issue areas included in the plan: conservation of resources and habitat protection, fisheries, marine birds and mammals,

intertidal zones, recreation and cultural resources, air quality, water quality, oil and gas, and marine minerals. The geographic areas of focus for these issues encompasses the entire Ocean Stewardship Area (Figure 3) out to the edge of the continental rise. The following is a brief description of these management issue categories. For additional details, see Appendix B.

Conservation and habitat protection

Together the goals of the OORMA and the land use planning Goal 19 call for conservation of resources and habitat protection. The overarching issue facing the OOPAC is to devise a strategy and approach to conservation and protection of resources and habitats in the territorial sea. According to the OORMP, "ocean resources conservation means that the integrity, diversity, stability, complexity, and the productivity of marine biological communities and their habitats are maintained or, where necessary, restored" (OORMTF 1991). However, ocean resource management must also contain policies developed for economic survival and use by Oregonians. It is the difficult task of the OOPAC to develop a plan that addresses these complex issues of conservation and use.

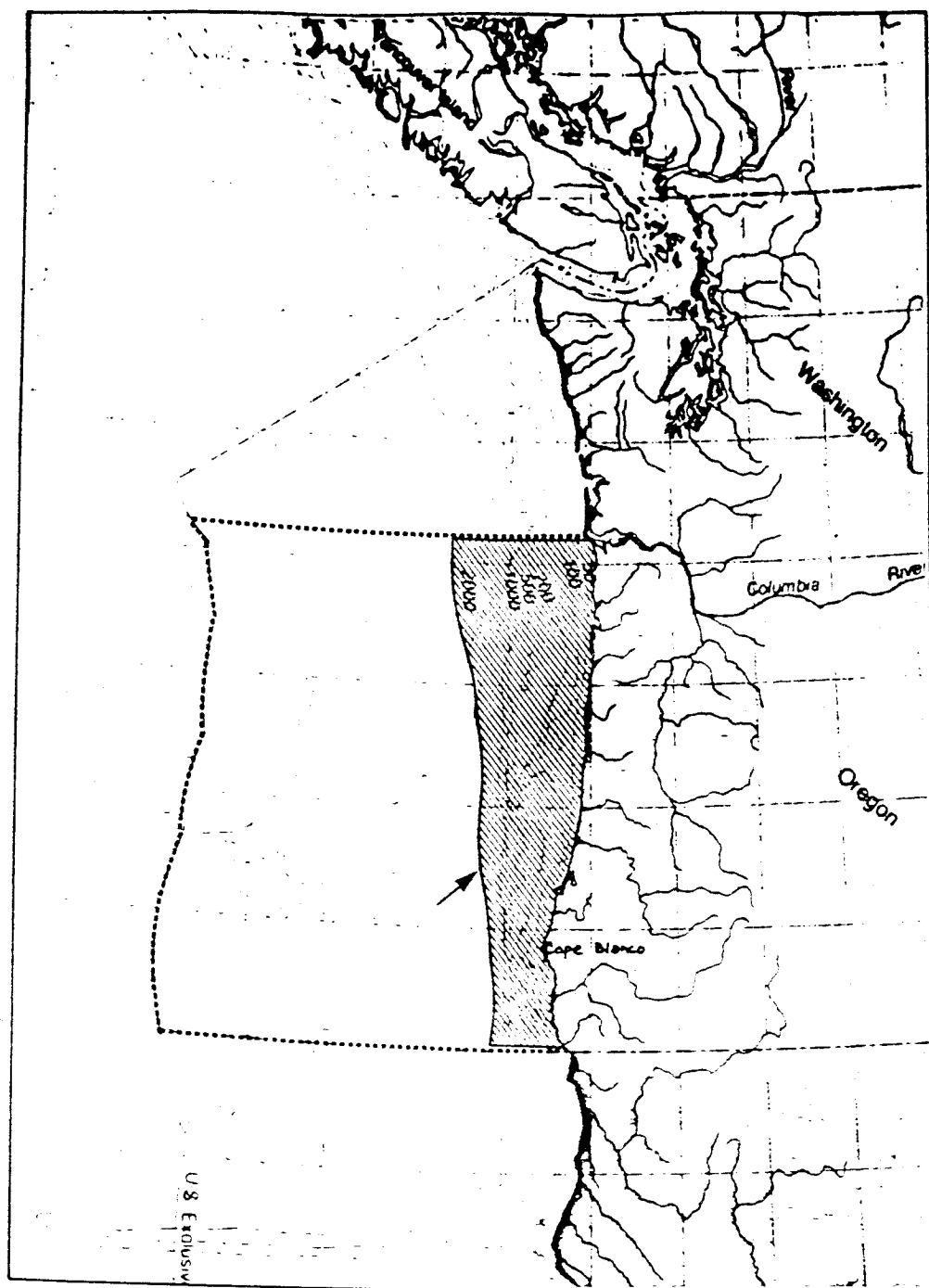


Figure 3. The Oregon Ocean Stewardship Area. (OORMTF 1991)

Fisheries

Another issue facing The OOPAC is fisheries protection and management. Coastal and ocean fisheries are a cornerstone of Oregon's coastal economy. Commercial landings in 1989 were valued at \$300 million in personal income (OORMTF 1991) Not only does fishing provide an economic base for communities, but it is also a way of life that is passed down from one generation to another. Oregon's commercial fisheries include crab, shrimp, salmon, groundfish, and tuna. Non-commercial fisheries are also an important. Tourists come to the coast for charterboat fishing and recreational fishermen crowd the bays and rivers during salmon season. Unfortunately, the productive waters of the Oregon coast are threatened by overfishing. The OOPAC will have to deal with this and other problems in the Territorial Sea Plan, including, habitat disruption and loss, pollution, and a paucity of scientific information addressing critical management issues.

Marine Mammals and Birds

Protection of marine birds and mammal populations are a third major issue facing the OOPAC. The off-shore rocks and islands and the steep cliffs along the coast provide superb habitat for marine birds to rest and nest. Sea lions and seals use the off-shore rocks and islands as resting, haulout, and pupping areas. Currently, pollution, loss of

habitat, and disturbance by humans are threatening the health and viability of these animals, even in the off-shore islands that are National Wildlife Refuges (Three Arch Rocks, for example). The OOPAC will need to address population decline, loss of habitat, limited information and understanding by the public and scientists, and fragmentation of agency responsibilities.

Intertidal Plants and Animals

Some say that we are loving our intertidal zone to death. School groups visit the intertidal zone daily at locations like Yaquina Head and the Marine Gardens, each foot stepping on many plants and animals and each hand turning over rocks, leaving defenseless animals to dry in the sun. The OOPAC will need to address growing tourism and coastal populations, lack of public information on appropriate behavior, depleted intertidal area, and fragmented agency responsibilities. Possibly, Marine Protected Areas for the intertidal zone may be needed to keep Oregonians and visitors from loving their coast too much.

Recreation and Cultural Resources

As the population of Oregon grows, so do the number of people who visit and live on the coast. The OOPAC will have to turn their attentions to the land adjacent to Oregon's

ocean. Recreation and cultural resources are one more issue facing the Council. Highway improvements, planning recreational areas, listening and informing the public, and safety concerns all face the Council. As more people come to the coast, more conflicts will arise. Too many boats, too many cars, not enough places to stay, and too many people in the intertidal zone are all concerns. Though some people don't want to plan to accommodate more tourists and residents because they fear that it will encourage such growth, protection of sensitive resources demands it. It will be better to plan now for future increases than to wait and have to make do when the time arrives.

Air and Water Quality

This influx of people not only affects the scenic and cultural resources of the Oregon Coast, but also the marine water and air quality. Increasing population will only increase the current problems of point source and non-point source pollution. Currently, municipal and industrial waste are discharged directly into the coastal ocean (OORMTF 1991) at several locations. Added to this are urban and agricultural runoff, vessel discharges, radioactive materials, toxic chemicals, and marine debris. While Oregon has an excellent beach cleanup program, OOPAC will need to address other water and air quality management issues.

Among these are, increased waste disposal and coordination of state and federal pollution control programs.

Oil and Gas Development

Another issue area that influences both general habitats and water quality is offshore oil and gas development. Oregon has placed a moratorium on leases for oil and gas exploration and development within the territorial sea until 1995 (OORMTF 1991). Additionally, there is a federal moratorium until 2000. However, several issues should be addressed now, before the problem is at our feet. Such as the need for an improved state oil and gas leasing process, how to deal with the future federal oil and gas leasing, and the potential for increased contaminants, habitat destruction, and oil spills.

Oil Spill Management

Oil spills are a management concern in their own right. With the Exxon Valdez spill in Alaska and a recent spill on the Washington coast, Oregonians are more aware now of oil spills than ever before. Short of banning oil tankers from the Oregon ocean, there is not much to be done to prevent oil spills. But we can develop effective plans for emergency response to these non-preventable oil spills. These management plans must address a range of concerns including use of dispersants, damage assessment, liability,

wildlife rehabilitation, and waste disposal. Well exercised plans that address these issues may be the only way to ensure in advance that oil spill impacts may be adequately mitigated.

Marine Minerals

The final management issue introduced in the OORMP is marine minerals. Research has shown that significant mineral resources may exist off the Oregon Coast. Current problems with marine minerals involve lack of public information, lack of definitive research, and conflicts among state and federal agencies. While marine mineral mining off the coast is not imminent it will be wise for the OOPAC to address these issues and establish a marine mineral process that will ensure all concerns are adequately addresses.

NMSP Management Techniques--Applicability to Oregon's Ocean

What management techniques used in the U.S. National Marine Sanctuaries might be useful in managing Oregon's coastal ocean? The easiest way to determine this is to divide the sanctuaries into groups of Pacific coast, reef, and bottom ecosystems. I will compare management recommendations listed in the OORMP with management strategies listed in the National Marine Sanctuary management plans. For the complete list of NMSP management

strategies, see Appendix C. Before proceeding, it is important to state that "sanctuary management does not encompass direct management of activities (other than those provided through the regulations) since this is a responsibility assigned to other state and federal agencies" (Dept. of Commerce 1983a). Thus, direct management techniques in the National Marine Sanctuary Program are limited mainly to regulations. Other, non-regulatory, management techniques are principally education and interpretation, and suggestions for interagency cooperation and collaboration. The national marine sanctuaries primarily act as coordinating agencies with the local sanctuary manager directing the coordination and cooperation in the sanctuary region.

Conservation and Habitat Protection

The first recommendation in this area is to "allow only those activities and uses of ocean resources in Oregon's Ocean Stewardship Area which are consistent with the goal of ocean resource conservation" (OORMTF 1991). Currently, each of the sanctuaries deals with allowable uses and activities through their regulations. Though each sanctuary's regulations are slightly different, almost all contain a central core that prohibits, some forms of, hydrocarbon operations, discharges of contaminants or other materials, alteration or construction on the seabed, and removal or

damage of cultural resources. Thus, activities that may threaten the conservation of ocean resources are prohibited. Appendix D contains a complete list of sanctuary regulations. These core regulations are augmented by additional regulations and management techniques outlined in each sanctuary plan.

On the Pacific coast, the Gulf of the Farallones deals with similar issues to recommendation 1. Allowing only uses compatible with resource conservation is achieved by monitoring visitor use impacts, participating in the review of major coastal (and offshore) development and activity proposals, and providing scientific information on the sensitivity of sanctuary resources for potential developments to land use regulatory agencies (Dept. of Commerce 1987). The Channel Islands sanctuary uses scheduling and joint development of operational procedures, zoning around islands, monitoring activities in the sanctuary to detect areas of concern, reviewing and consulting with other agencies, and research to promote conservation oriented uses (Dept. of Commerce 1983a). In the Cordell Banks sanctuary, participation of other agencies in the development of new procedures to address specific management concerns, monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so, exchanging information on commercial and recreational activities, and consulting with other agencies

on policies and proposals for the management of activities helps to allow only conservation oriented uses (Dept. of Commerce 1989). Finally, the proposed Olympic Coast sanctuary encourages all agencies to consider appropriate marine resource protection policies when reviewing and evaluating proposals and permits, encourages compatible commercial and recreational uses, and monitors human impact over time to determine carrying capacity in vulnerable areas (Dept. of Commerce 1991b).

The tropical reef sanctuaries include Looe Key, Key Largo, Fagatele Bay, and for our purposes the U.S.S. Monitor. Allowing only uses consistent with ocean resource conservation is addressed in the Looe Key sanctuary several ways. At Looe Key, anchoring on the fore reef is prohibited as well as damaging or taking of natural features including coral, invertebrates, and tropical fish. Also, designated mooring buoys and boating zones are used (Dept. of Commerce 1983d). Key Largo addresses this issue by an additional regulation that prohibits the operation of vessels in a manner which may cause damage to natural features (Dept. of Commerce 1983c). This is combined with participation with county, state, and federal agencies in consultations with contractors and developers to keep them informed of current and newly developed information about the sanctuary and the effect of manmade stresses. The Fagatele Bay regulations prohibit the use of several types of fishing gear as well as

disturbance of the benthic community by dredging, filling, dynamiting, and trawling (Dept. of Commerce 1984). The last reef sanctuary, the U.S.S. Monitor, prohibits trawling, salvage, and anchoring to conserve its resources (Dept. of Commerce 1983e).

Bottom reef sanctuaries also deal with regulating activities only those uses and activities that are consistent with the goal of resource protection are permitted. The proposed Flower Garden Banks sanctuary will regulate explosive use as well as monitor commercial and recreational activities in the sanctuary (Dept. of Commerce 1991a). Also, they will encourage other agencies to do so in order to detect incidents of particular management concern. Stellwagen Banks will also monitor commercial and recreational activities and will run monitoring studies to document changes in ecology, environmental quality, and human activities in the sanctuary (Dept. of Commerce 1991c). Gray's Reef management includes maintaining an on-site management capability that stays informed of resource conditions and human activities over time and recommends action if problems arise (Dept. of Commerce 1983b). Also, special research projects on census of sanctuary user groups, and a study of environmental impacts of selected activities on live bottom habitats and communities will help to determine what activities are consistent with conservation guidelines.

The second recommendation for conservation and habitat protection is to require an environmental inventory and impact assessment for all ocean resource management decisions. Unlike for the first recommendation, NMSP management techniques for this are not found in the sanctuary regulations, but rather, in the text of the management plans themselves.

The Gulf of the Farallones environmental inventories come from compiling information on resources at risk from accidental discharges, monitoring problems of chronic pollution and marine mammals and seabird/fishery interactions, monitoring heavily used intertidal sites, and supporting research projects that address confirmed baseline data gaps affecting marine resource management within the sanctuary (Dept. of Commerce 1987). At the Channel Islands sanctuary, environmental inventory is also important. There, they have designed a management-oriented and collaborative ecosystem monitoring program and are investigating options for additional cooperative agreements for exchanging information on fisheries, diving, surveillance, and enforcement activities (Dept. of Commerce 1983a). Cordell Banks also conducts environmental inventories. They support, promote and coordinate scientific research on, and monitoring of the site-specific marine resources to improve management decision-making in the sanctuary (Dept. of Commerce 1989). Also, Cordell Banks

gathers baseline data on the environment as well as baseline studies to determine the features and processes of the natural environment. Finally, studies to monitor the changes of human activity and their effects or predicted effects provide impact assessments for the Cordell Banks managers. Monterey Bay and the Olympic Coast sanctuaries monitor to document changes in environmental quality, ecology, and human activity (Dept. of Commerce 1990 and 1991b). They also do predictive studies to assess the causes and effects of environmental and ecological changes along with baseline studies on the natural environment.

At the tropical reef sanctuaries, environmental inventories and impact assessments are also important in making management decisions. At Looe Key, the managers undertake a comprehensive baseline resource mapping study and they design and implement temporary and permanent biophysical monitoring systems (Dept. of Commerce 1983d). Inventory and impact studies at Key Largo involve research focused on management issues, biophysical characteristics and processes, and applied social research (Dept. of Commerce 1983c). Also, Key Largo managers have established a comprehensive monitoring program for the sanctuary. Baseline studies on fish, invertebrates, and algal populations of Fagatele Bay are the Fagatele Bay sanctuary's methods for developing inventories for management decisions (Dept. of Commerce 1984). The U.S.S. Monitor sanctuary also

uses this baseline monitoring technique (Dept. of Commerce 1983e).

Accurate inventories and impact statements are equally important at bottom reef sanctuaries. Besides baseline data studies, Gray's Reef sanctuary has designed and implemented an information management system to incorporate information generated by proposed and ongoing projects and administrative activities (Dept. of Commerce 1983b). Additionally, they have established a mechanism to make this information available to potential users. At the proposed Stellwagen Bank sanctuary, managers are not only involved in baseline and monitoring studies, but they are also developing predictive studies to assess causes and effects of ecological and environmental changes and to anticipate management issues (Dept. of Commerce 1991c).

The third recommendation in the OORMP requires an environmental risk assessment for all proposals to develop nonrenewable ocean resources. Since most use and development of nonrenewable resources in national marine sanctuaries is prohibited by regulation, there are few other management techniques directly related to this OORMP recommendation. However, most of the sanctuaries do require the development of oil spill contingency plans which do address this risk issue.

On the Pacific Coast development of oil, gas, and minerals are a major threat to ocean resources, whether

enclosed in a sanctuary or not. Thus, most of these sanctuaries are developing contingency plans for oil spill emergencies. The Gulf of the Farallones sanctuary is compiling information on all resources at risk from accidental discharges (Dept. of Commerce 1987).

Furthermore, they require the evaluation of current response capabilities, research of alternatives for increasing future response capability, and they are preparing and implementing an emergency response and contingency plan. Similarly, the Cordell Bank sanctuary is reducing threats to sanctuary resources by developing contingency and emergency response plans. Possibly because of its location in an oil rich area, the Channel Islands is very explicit about risk assessment for oil and gas development. They require an evaluation of existing contingency plans, initiation of collaborative programs with federal/state agencies and industry, monitoring of the state of preparedness to deal with an emergency, and the exchange of information with government and industry emergency response teams (Dept. of Commerce 1983a). Currently, Monterey Bay and the Olympic Coast sanctuaries require description of emergency response procedures, listing of resources at risk, procedures for emergency research, and providing guidelines for damage assessment (Dept. of Commerce 1990 & 1991b).

With a less imminent threat of oil and gas development, the tropical reef sanctuaries have less management

techniques to deal with impact assessment for nonrenewable resource development. The Looe Key and Key Largo sanctuaries address this issue by evaluating the existing contingency plans and capabilities for responding to emergencies on the reef (Dept. of Commerce 1983d&c). The U.S.S. Monitor sanctuary does not directly address the problem. Contrary to this, in the Fagatele Bay sanctuary, the impact assessment is taken one step further than just oil and gas by the assessment of long-term chronic effects of toxins, heavy metals, petroleum hydrocarbons, pesticides, and nutrients from sewage and land drainage (Dept. of Commerce 1984). This is a much more comprehensive study than done in the other sanctuaries.

Both proposed bottom reef Flower Garden Banks and Stellwagen Bank sanctuaries outline procedures for emergency research and provide guidelines for damage assessment (Dept. of Commerce 1991a&c). Impact assessment at the Flower Garden Banks sanctuary also includes contingency planning and description of emergency response procedures and coordination requirements. At the Stellwagen Bank sanctuary emergency response procedures are required and there is a geographic information system depicting resources at risk. The Gray's Reef sanctuary does not directly address impact assessment for nonrenewable resources.

OORMP recommendation four in conservation and habitat protection calls for prohibiting a proposed activity when

the environmental impact is too high. This issue is addressed in each sanctuary during the development of regulations. Any activity that posed too great a risk to the environment is prohibited. Thus, the regulations in the sanctuary plans describe the management techniques used for prohibiting environmentally dangerous activities. While this is the main method for prohibiting environmentally risky activities, the Cordell Bank sanctuary has made allowances for oil and gas activities in the future unless they are determined to have an adverse effect on the resources of the sanctuary (Dept. of Commerce 1989).

Conflict resolution between resource uses is the topic of the fifth OORMP recommendation for conservation and habitat protection. Though there is no direct conflict resolution process developed in the sanctuaries, most sanctuaries have a basic group of strategies that they use to reduce conflicts and increase coordination. The Gulf of the Farallones, Cordell Bank, Flower Garden Banks, Channel Islands, Stellwagen Bank, Gray's Reef, Monterey Bay, and Olympic Coast sanctuaries all have the same four strategies. First commercial and recreational activities in the sanctuary are monitored and other agencies are encouraged to do likewise to detect areas of management concern. The second step is the exchange of information on commercial and recreational activities in the sanctuary. Next, consultation with other agencies on policies and proposals

for the management of activities which may affect protection of sanctuary resources is required. Finally, conflict is reduced by the development of materials aimed at enhancing public awareness of the sanctuary's resources and the need for protection. This final step is simply education and interpretation.

Some sanctuaries have added to these general four strategies for conflict resolution. The proposed Flower Garden Banks sanctuary also encourages participation by interested agencies and organizations in the development of procedures to address specific management concerns (Dept. of Commerce 1991a). Monterey Bay and Olympic Coast sanctuaries are developing advisory committees (called the Sanctuary Steering Committee at the Olympic Coast sanctuary). These committees will allow for more direct influence by federal, state, local, and tribal governments along with the public and industry in the development of management plans. This, in turn, will help reduce conflict among user groups. At the Gulf of the Farallones sanctuary daily work with other marine resource management agencies has been made a high priority.

At the Looe Key and Key Largo sanctuaries this conflict resolution process is accomplished through slightly different steps. Looe Key emphasizes the design, production, and distribution of basic orientation and information materials along with designing zones to exclude

conflicting uses (a boating zone) (Dept. of Commerce 1983d). Key Largo relies on education and interpretation combined with participation by county, state, and federal agencies in consultations with contractors and developers. This participation is designed to keep managers informed of current and newly developed information about the sanctuary reefs and the effect of human stresses on the reefs (Dept. of Commerce 1983c). Thus, the same effect of conflict resolution is created with slightly different management techniques.

Recommended management activities six and seven from conservation and habitat protection are very similar. In fact, promoting public education and interpretation (6) is one use of non-regulatory means to promote and achieve ocean resource conservation (7). In the national marine sanctuaries, these goals are achieved mainly through environmental interpretation and coordination among agencies when developing management plans. The use of coordination was already addressed in the preceding section on resolving conflicts among resource uses. This section will mainly deal with education and interpretation.

On the Pacific coast, the Gulf of the Farallones sanctuary develops public information materials, distributes these materials, holds workshops for reporting research results or discussing resource protection issues, and gets the local residents involved in the education program (Dept.

of Commerce 1987). The Cordell Bank sanctuary also develops public information materials and runs interpretive programs on and off the site (Dept. of Commerce 1989). Channel Islands develops and distributes public information, initiates cooperative agreements for interpretation with appropriate organizations in the region, and contacts with industry, recreation, and commercial groups to determine the appropriate educational material for promoting compatible use of the sanctuary (Dept. of Commerce 1983a). Both Monterey Bay and Olympic Coast sanctuaries have developed, or will develop, advisory committees to help design non-regulatory mechanisms and to help interpretation programs (Dept. of Commerce 1990 & 1991b). Additionally, both of these sanctuaries will assist in coordinating the existing interpretive programs in their areas.

The reef sanctuaries also are involved in interpretation and non-regulatory management. Looe Key and Key Largo collaborate with dive boat operators and other user groups to develop interpretation programs and design and distribute interpretive material on and off site (Dept. of Commerce 1983d&c). The U.S.S. Monitor sanctuary designs and distributes educational materials oriented towards middle and secondary schools (Dept. of Commerce 1983e). Fagatele Bay is also developing a curriculum program that focus on the sanctuary and its marine environments for local Samoan schools (Dept. of Commerce 1984).

The bottom reef sanctuaries like the proposed Flower Garden Banks continue the trend of designing and distributing interpretive materials. In addition, Gray's Reef and the proposed Stellwagen Bank have (or will) established mechanisms for using information gained through scientific research and in management decisions in their interpretive programs.

The eighth recommendation to promote conservation and habitat protection is to support techniques that mitigate adverse affects of activities on biological communities, There were no direct references to "mitigation" in any of the national marine sanctuary plans.

Management techniques for the ninth recommendation, to allow small scale pilot projects, were found in the sanctuary plans. Small scale projects for research purposes are common in the Pacific Coast sanctuaries. The Gulf of the Farallones sanctuary periodically monitors human-related disturbance levels on harbor seals, supports baseline data gap research, and supports pilot projects that clarify key ecological relationships, human related disturbances, and population monitoring (Dept. of Commerce 1987). The Channel Islands sanctuary monitors pinniped populations, food resources for the pinnipeds, and cetacean populations within the sanctuary (Dept. of Commerce 1983a). Cordell Bank and the proposed Olympic Coast sanctuaries are involved in baseline studies, monitoring, and predictive studies.

Finally, Monterey Bay is conducting focused data collection on oceanographic characteristics and studies on the integration of coastal, near shore, and open ocean processes (Dept. of Commerce 1990).

In the tropical reef sanctuaries, Looe Key is the site of baseline, bio-monitoring, and management feasibility studies (Dept. of Commerce 1983d). Key Largo studies include the development of environmental scenarios related to coastal development using water quality models to predict the effects of the development (Dept. of Commerce 1983c). Research at the U.S.S. Monitor is mostly related directly to the vessel and archeology. Fagatele Bay is involved with many small projects on reef recovery and the Crown of Thorns starfish. The bottom reef sanctuaries have small scale projects related to baseline monitoring of the environment and predictive studies of proposed management techniques.

In the OORMP, recommended policies for habitat protection, the NMSP example cannot offer many techniques. Expanding state agency decision making to ecosystems, identifying critical habitats, and enforcing laws must be done by the state itself. However, in the area of restricting uses or access for protection the NMSP can offer two techniques. The first would be to simply employ the sanctuary concept. Specific sanctuary areas could offer protection to species and habitats. Second, the zoning could be used. Though not widely used in the NMSP, zoning

is a viable method for protection. Boating, fishing, and commercial traffic zones are used in several sanctuaries as well as zones around offshore islands and reefs.

Fisheries

The next area of concern in the OORMP is fisheries. Once again, the NMSP management techniques are not very helpful in this area. This is because most sanctuaries do not regulate fishing, it being the province of the regional Fishery Management Councils and/or states. The sanctuaries instead abide by their management decisions. However, in some reef sanctuaries there are special zoning and gear limitations to reduce the effects of fishing on the reefs. For example, the Looe Key sanctuary prohibits use of spearguns, guns, harpoons, poison, electric charges or similar methods for taking fish (Dept. of Commerce 1983d). In addition, some sanctuaries prohibit damage to the substrate and that will limit what fishing techniques are allowed. The Gray's Reef sanctuary prohibits the use of bottom trawls or similar vessel-towed bottom fishing devices (Dept. of Commerce 1983b).

Marine Birds and Mammals

Marine birds and mammals are the next resource topic in the OORMP. Besides direct protection in the regulations of the sanctuaries, the NMSP does not offer many techniques for

the specific management of marine bird and mammal problems. Several recommendations in this area call for direct actions and so do not need management techniques from the NMSP. Others deal with education and cooperative arrangements. National marine sanctuary techniques for education and cooperation have already been discussed in the part six of conservation and habitat protection, promoting public education and interpretation . However, several sanctuary techniques for managing marine birds and mammals are relevant to the OORMP recommendations.

The Gulf of the Farallones sanctuary is involved in management related to marine bird and mammal recommendation four, the strengthening of state programs to complement federal protection programs and pursue co-management opportunities. The Gulf of the Farallones managers participate in the review of major coastal and offshore development proposals and make daily interaction with other marine resource agencies a high priority (Dept. of Commerce 1987). At the Channel Islands, improved coordination of surveillance and enforcement is achieved through scheduling and joint development of procedures (Dept. of Commerce 1983a). The Monterey Bay and the proposed Olympic Coast sanctuaries will have advisory committees that increase productive co-management, and they participate with other agencies in the development of new resource protection procedures (Dept. of Commerce 1990 & 1991b).

Marine bird and mammal recommendations five and six protect the areas around the nearshore rocks and islands while allowing for safe passage and anchorage of vessels if necessary. The sanctuaries with islands also have to address this issue. The Channel Islands sanctuary does this by not restricting access for fishing, recreation and research vessels in the sanctuary. However, other vessels are prohibited within one nautical mile of any island and aircraft are not permitted below 1000 feet within one nautical mile of any island within the sanctuary (Dept. of Commerce 1983a). Similarly, in the Gulf of the Farallones sanctuary, commercial vessels are prohibited and aircraft are not allowed below 1000 feet around sensitive areas (Dept. of Commerce 1987).

Intertidal Plants and Animals

The next resource issue area is intertidal plants and animals. The first recommendation here provides for protection of intertidal habitats. Because the Gulf of the Farallones, proposed Olympic Coast, and Channel Islands are currently the only sanctuary that encompasses any nearshore environments, they are the only sanctuaries to look to for relevant management techniques. However, almost all of the intertidal waters in these sanctuaries are managed by the local national park or national seashore. Recommendation two calls for promoting public awareness, understanding, and

appreciation of intertidal areas. This subject has previously been covered in conservation and habitat protection recommendation six and seven.

Rec → The NMSP also does not have many management techniques to offer about the next topic of recreation and cultural resources. Recommendation one in this area prohibits development activities that would impair cultural, scenic, or recreational values. Techniques from the NMSP are mainly limited to regulations on development on the seabed and on damage to historic or cultural resources. For example, Stellwagen Bank prohibits development activities for industrial materials, submerged pipelines and cables (Dept. of Commerce 1991c) and the Gulf of the Farallones prohibits damage to historic and cultural resources (Dept of Commerce 1987). Additionally, the U.S.S. Monitor sanctuary prohibits salvage and recovery (Dept. of Commerce 1983e). Once again, for the recommendation on education, education and interpretative techniques in the sanctuaries have previously been discussed in the section on conservation and habitat protection.

Marine Water Quality, Air Quality, Oil and Gas Development, and Marine Minerals

National marine sanctuary techniques for the final four resource issues are limited. Marine water and air quality is mainly addressed in the sanctuaries through basic

oceanographic monitoring research. The Fagatele Bay and Key Largo sanctuaries come closest to addressing water quality. Fagatele Bay, through its on going assessment of toxins and pesticides in its waters (Dept. of Commerce 1984), and Key Largo through its water quality model (Dept. of Commerce 1983c). The next resource issue, oil and gas development, is either prohibited or regulated in the sanctuaries. This direct management can be found in the sanctuary regulations in each management plan. Sanctuary management of oil spill has previously be discusses in the section on conservation and habitat protection part three, where oil spill contingency plans were discussed. Finally, NMSP management techniques for marine minerals are limited. This is primarily due the regulations in most sanctuaries prohibiting alteration of the seabed. Thus, the sanctuary regulations effectively prohibit oil and gas development as well as marine mineral mining while management of water and air quality and oil spills are limited.

This discussion of management issues in the Oregon territorial sea and management techniques in the national marine sanctuaries has provided a new view of management possibilities for the OOPAC. Obviously, some of the management techniques uses in the federally administered NMSP will not be useful in the state administered territorial sea plan, but they may lead to new state level management techniques. Additionally, because of the NMSP

federal status, some of the issues in the state ocean plan had no counterparts in the NMSP. Despite these problems, I consider this to be a successful approach for reviewing potentially applicable management techniques for management of the Oregon territorial Sea.

THE GREAT BARRIER REEF MARINE PARK

The U.S. national marine sanctuaries are not the only types of marine protected areas with potentially valuable management techniques applicable to the Oregon's nearshore ocean. One very successful protected area management is the Great Barrier Reef Marine Park (GBRMP) in Australia. The Great Barrier Reef Marine Park is a multiple-use management approach which aims to achieve reasonable use consistent with conservation (Kenchington 1990a). In fact, the GBRMP is the worlds largest multiple-use management area for marine resources (Kenchington 1990b), see Figure 4. The park covers an area of about 350,000 square kilometers and contains six species of turtle, 15,00 species of fish, and undetermined numbers of dugong (Kelleher 1986).

Similar in some respects to the U.S. national marine sanctuaries, the GBRMP is managed under the ultimate control of the GBRMP Authority, a federal department of the Australian government. However, the day-to-day management of the park is carried out by a the state of Queensland Parks and Wildlife Service, a state agency. The GBRMP Act

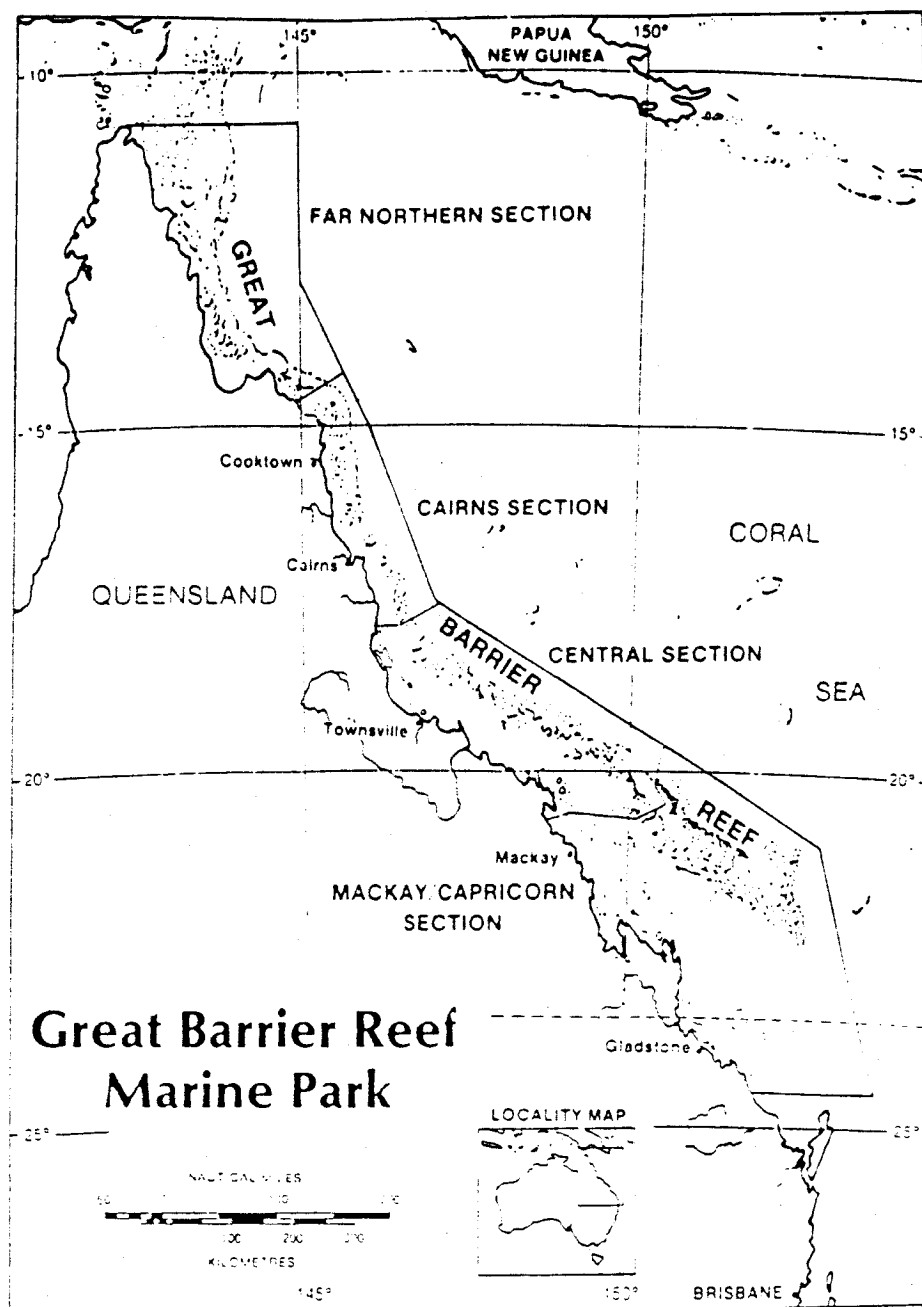


Figure 4. The Great Barrier Reef Marine Park.
(Kenchington 1991b)

provides the GBRMP Authority power to use all of the management techniques outlined earlier, but most management is based on detailed zoning plans, education programs, and permits. Zoning plans were developed with the help of the general public. Permits systems are used within the zones to limit activities. Public education is used to help achieve compliance within the zones but was also integral to the development of the zoning plans.

Goals of the GBRMP Zoning Program

In these zoning plans we see similarities to the goals of the OORMP. The Act states that in preparing a zoning plan, attention must be paid to:

- 1) The conservation of the Great Barrier Reef.
- 2) The regulation of the use of the Marine Park so as to protect the Great Barrier Reef while allowing the reasonable use of the Great Barrier Reef Region.
- 3) The regulation of activities that exploit the resources of the Great Barrier Reef so as to minimize the effect of those activities on the Great Barrier Reef.
- 4) The reservation of some areas of the Great Barrier Reef for its appreciation and enjoyment by the public.
- 5) The preservation of some areas of the Great Barrier Reef in its natural state undisturbed by man except for

the purposes of scientific research (Kenchington 1990b).

Thus, some of the same issues and goals exist in both the GBRMP and Oregon's territorial sea. Conservation, multiple use, and preservation goals are similar. The important thing about the use of zoning plans in the GBRMP is not only that they work well, but how they were developed.

GBRMP Management Techniques

The only activities generally prohibited in the GBRMP are oil exploration, mining, littering, spearfishing with SCUBA, and taking of large specimens of certain fish species (Kenchington 1990b). Because of the minimal regulations, zoning is very important to the successful management of the park. Development and implementation of these zoning plans in the GBRMP is one approach the OOPAC may find useful for certain areas. The GBRMP Authority "conducted proactive public participation programs as integral parts of its information gathering, planning, and education" (Kenchington 1990a) in the development of the zoning plans. Involvement of the public in the development of the zoning plans led to support for the resulting plans and gave the GBRMP Authority an additional information base to work with.

The GBRMP planning program had five stages, two of which included direct public involvement. The public was actively solicited for comments and information before the

development of a draft plan and then again before the development of the final plan. This process resulted in the formation of three different categories of zones which act as a type of spatial control. Provisions of the Act require that the zoning plans state exactly which areas may be entered and what activity can be undertaken there (Kenchington 1990a). Preservation and scientific research zones only allow human activity for strictly controlled scientific research. National park zones are used for research, education, and recreation. General use zones allow commercial and recreational fishing at levels that do not jeopardize the ecosystem (Kelleher 1986). Within these zones, activities are allowed or disallowed on an individual permit basis.

Permits allow for limiting activities and areas in which they can occur. For example, in the general use zones activities that require permits include: commercial collecting; establishment of tourist or educational programs; use of hovercraft; traditional hunting, and dumping of soil. In the marine national parks, camping, research, and tourist and educational facilities and programs require permits. In the preservation zones, even research requires permits (Kenchington 1990b). Thus, the managers of the GBRMP can limit activity and where it occurs on an individual permit basis.

GBRMP Management Techniques--Applicability to Oregon's Ocean

The OOPAC could use these techniques to deal with some of the Oregon stewardship area issues. In the area of conservation and habitat protection, zoning and permits would be useful for allowing only those activities and uses which are consistent with the goal of ocean resource conservation. They could also provide authority to prohibit activities that pose too great an environmental risk. Conflict resolution and prioritization of uses could be facilitated through a zoning and permit system. Finally, a zoning and permits system would allow for pilot projects needed to obtain scientific information for future management decisions.

Unlike the National Marine Sanctuary Program, the GBRMP example might offer suggestions for managing fisheries. Once again, zoning and permit systems could facilitate fisheries management in the territorial sea. Preservation zones could provide refuges to protect, enhance, and restore marine habitats important to fisheries as recommended in the OORMP. Permits systems could also "allow only those uses of nonrenewable resources within the Ocean Stewardship area that do not adversely affect commercial or recreational fisheries" (OORMTF 1991). Zoning could help manage for recommendation four, which calls for protecting special areas for fishing stocks. Also, permits could allow for uses of non-renewable resources on a case-by-case basis.

The management of marine birds and mammals could also benefit from a zoning and permitting system. Recommendation two calls for state protection to marine birds, mammals, and habitats, where critical (OORMTF 1991). This could be done with a zoning plan. Zoning could also prohibit activities around nearshore rocks and islands, with provisions for safe passage and anchoring where necessary. Recommendation nine provides for allowing harvest and scientific research in certain island areas with permission but not for exploration and development of nonrenewable resources. A zoning and permit system could also help implement this recommendation. However, effective zoning requires enforcement which is expensive, time consuming, and often difficult. Benefits of zoning plans must be balanced with costs of the plans.

Intertidal plants and animals need to be protected from too many human feet and over collecting. Zoning and permits may help implement some of the recommendations in this issue. The first recommendation calls for the protection of sensitive intertidal habitats and communities and the third for establishment of intertidal gardens. Zoning for protection and recreational use could work here. Also, permits would allow access for special purposes in the protected zones.

In the area of recreation and cultural resource management, the GBRMP strategy of permits and zoning may help to implement more recommendations. Zones in the

territorial sea could prohibit development in areas which would impair the cultural, scenic, or recreational values of the near shore areas. Permits would allow for consideration of each proposed development. Designating cultural and historical sites could be done within a zoning program allowing only public use of these areas.

Oil exploration and mining are prohibited in the GBRMP. Other than this, the GBRMP does not have much to offer in management techniques for the OORMP recommendations in marine water and air quality, oil and gas, oil spills, or marine minerals. Zoning could be used to prohibit activities that would harm water or air quality, prohibit oil and gas exploration, or marine mineral development in a certain areas. However, activities outside the zone may have adverse affects if water and air currents move the activity results inside the zone. Additionally, most of the recommended management techniques in the OORMP call for promotion of recycling, increased research, or coordination among agencies which are not necessarily encouraged through zoning programs. Thus, while the GBRMP is a good example of managing activities within zones, it is not specifically designed to help in the coordination and cooperation of management.

One more area in which the OOPAC is already involved but deserves specific attention here is public participation. The OORMP calls for public participation in

many of its recommendations and in the development of management strategies. The example of participation in the development of zoning plans in the GBRMP is an excellent example of public involvement. It was stated earlier that public comment was sought before developing the draft and final zoning plans. First, the staff of the GBRMP Authority gathered information on the environment and uses of a proposed zone and prepared materials for public participation. These materials mainly consisted of a descriptive mail-back brochure that contained a map, questionnaire, and prepaid mail-back panel (Kenchington 1990a&b).

The second phase of public participation was where the, staff sought the comments of the public on the accuracy and adequacy of the review materials and suggestions for the proposed zoning plans. Preparation for this began with a theme, advertising materials for television, radio, and the press, and distribution of brochures and other materials (Kenchington 1990a&b). All of this information helped to ensure an educated public present at the draft plan meetings. A draft plan was then developed and again the public's opinion sought.

After the draft plan was developed, brochures were once again distributed and public opinion was sought using similar methods to the earlier effort. All public comments were recorded and summarized as to their support for

certain parts of the zoning plan. Finally, the planning team met with all the information collected in the public participation phases and developed the final plan.

This process shows how important public opinion was to the GBRMP. Public opinion is also planned in the development of the Oregon Territorial Sea Plan. While OOPAC may not have the funds available to seek out public comment on the scale of the GBRMP, it should do all it can. Already OOPAC is taking a step in the right direction. Public comment currently is being acquired at the Open House Meetings being held by OOPAC up and down the coast of Oregon as well as at the meetings of the Council. If the OOPAC follows through with this process, the likelihood of success in developing a publicly accepted territorial sea plan is greatly increased.

CONCLUSIONS

Both the Great Barrier Reef Marine Park and the U.S. National Marine Sanctuary Program utilize management techniques that could be helpful in managing Oregon's Territorial Sea. The examples of zoning, permits, and public participation from the GBRMP might be adapted to deal with many of the resource issues facing the OOPAC. National marine sanctuaries utilize an assortment of management techniques that have applicability to Oregon ocean

management. OOPAC should evaluate these many management techniques in more detail as they consider plans for Oregon's territorial sea.

Drawing an example from the GBRMP, a permit and zoning program could be instigated by the OOPAC to manage specific activities in more conflictual areas of the territorial sea. In addition, permit systems allow for case-by-case determinations and so would allow more flexibility in conservation and habitat protection than would strict regulations prohibiting activities. Unlike examples from the NMSP, GBRMP zoning would provide methods for fisheries management. Similarly, permits would allow for a case-by-case review of non-renewable resource development plans. Basically, if enough time, money and enforcement is provided, zoning and permit plans could be used to carry out most of the recommended policies in the Oregon Ocean Resources Management Plan.

Due to funding and time constraints, however, some of the management strategies in the NMSP may work better for managing Oregon's territorial sea than the zoning and permit approach at the GBRMP. The focus on coordination, collaboration, and education rather than extended regulations works well within the NMSP. I divide the management techniques into four groups that have several suggestions to offer the OOPAC for carrying out the recommendations in the OORMP.

The first group of techniques focus on coordination. Some of the best examples from the NMSP in this area include the participation with other agencies, industry, and the public in the development of new policies and procedures. Advisory committees are also used effectively. Another example is the free sharing of scientific information to produce the best possible management decisions. Finally, consulting with other agencies on management decisions is also an important technique.

Active support of research applied to management needs is the second category of recommended techniques. Research should focus on resources at risk from disasters and on monitoring conditions of all resources in the management area. Filling gaps in baseline data is also a priority. Coordinated research and exchange of information would help prevent research overlap and make sure all managers are well informed. Another focus of research should be on information needs for management decisions and predictive studies on those management decisions. Finally, for the research to be truly beneficial, it must be made available to all potential user groups including the public.

Five principle management techniques are used to reduce or resolve conflicts. Activities in the management area must be monitored. Information on the activities and any research results should be exchanged between groups to provide for the most informed management decisions.

Managers should consult with all applicable agencies, industry, and the public on policies and proposals. Education and interpretation should be stresses as a viable management technique. Advisory groups like the OOPAC should be developed to help prevent conflicts in the management area. Finally, encouraging compatible commercial and recreational uses is crucial for effective resource management.

The final group of management techniques is education and interpretation. Without education and interpretation any management program will not get support of the public and this will cause problems in its implementation. The main NMSP techniques in this include five parts. First, develop and distribute materials to the public and to private industry. Second, hold workshops for research results and resource issue discussions. Get the local residents involved, but make sure the interpretation and education continue off-site as well as on site. Finally, consult with industrial, recreational, and commercial groups when developing the interpretation and education materials.

The above are some of the most common and successful management techniques used in the U.S. national marine sanctuaries. However, given current trends in the NMSP, there may be additional management techniques that offer more options to the OOPAC. For example, the trends towards increased multiple-use management, increased cooperation in

management, and increased sanctuary size could make future sanctuaries even more similar to the Oregon Ocean Stewardship Area. Thus, management in future sanctuaries may be similar to the needed management in the Oregon Ocean Stewardship Area.

Whatever the future of the NMSP or the GBRMP, the Oregon Ocean Policy Advisory Council is already making good progress. They have begun to implement public involvement policies, interagency cooperation procedures, and coordinated research programs. This paper is intended to provide additional perspectives on available management techniques. The National Marine Sanctuary Program and Great Barrier Reef Marine Park will thus help Oregon become the first state to develop and implement a territorial sea plan.

References Cited

- Brautaset, Lasse. 1985. The National Marine Sanctuary Program Reauthorized: Past Problems and Future Prospects. *University of Oregon Ocean Law Memo*.
- Christhilf, Franklin. 1986. "Our Nations's Marine Sanctuaries" Prepared for The Council on Environmental Quality. Annual Report to the Congress of the U.S.
- Coastal States Organization. 1992. National Marine Sanctuaries Reauthorization: A Comparison of H.R. 4310 and S.2788. Coastal States Organization.
- Croom, Miles. 1992. Manager, Marine and Estuary Management Division, NOAA. Personnel Communication. November 12.
- Department of Commerce/National Oceanic and Atmospheric Administration. 1983a. Channel Islands National Marine Sanctuary Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.
- Department of Commerce/National Oceanic and Atmospheric Administration. 1989. Cordell Bank National Marine Sanctuary Final Environmental Impact Statement/Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.
- Department of Commerce/National Oceanic and Atmospheric Administration. 1984. Fagatele Bay National Marine Sanctuary Final Environmental Impact Statement/Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.
- Department of Commerce/National Oceanic and Atmospheric Administration. 1991a. Flower Garden Banks National Marine Sanctuary Final Environmental Impact Statement/Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.
- Department of Commerce/National Oceanic and Atmospheric Administration. 1983b. Gray's Reef National Marine Sanctuary Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.
- Department of Commerce/National Oceanic and Atmospheric Administration. 1987. Gulf of the Farallones National Marine Sanctuary Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.

Department of Commerce/National Oceanic and Atmospheric Administration. 1992. Inside the Florida Keys National Marine Sanctuary. NOAA, Sanctuary Programs Division. Washington, D.C.

Department of Commerce/National Oceanic and Atmospheric Administration. 1983c. Key Largo Coral Reef Marine Sanctuary Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.

Department of Commerce/National Oceanic and Atmospheric Administration. 1983d. Looe Key National Marine Sanctuary Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.

Department of Commerce/National Oceanic and Atmospheric Administration. 1990. Monterey Bay National Marine Sanctuary Draft Environmental Impact Statement/Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.

Department of Commerce/National Oceanic and Atmospheric Administration. 1982. National Marine Sanctuary Program: Program Development Plan. NOAA, Sanctuary Program Division. Washington, D.C.

Department of Commerce/National Oceanic and Atmospheric Administration. 1991b. Olympic Coast National Marine Sanctuary Draft Environmental Impact Statement/Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.

Department of Commerce/National Oceanic and Atmospheric Administration. 1991c. Stellwagen Bank National Marine Sanctuary Draft Environmental Impact Statement/Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.

Department of Commerce/National Oceanic and Atmospheric Administration. 1983e. U.S.S. Monitor National Marine Sanctuary Management Plan. NOAA, Sanctuary Programs Division. Washington, D.C.

Finn, Daniel. 1982. Managing the Ocean Resources of the United States: The Role of the Federal Marine Sanctuaries Program. Springer-Verlag. Berlin. pp77-92.

Foster, Nancy., and Lemay, Michele. eds. 1989. Managing Marine Protected Areas: An Action Plan. NOAA, Marine and Estuarine Management Division. Washington, D.C.

- Hoagland, Porter. 1988. "The Channel Islands National Marine Sanctuary." *Oceanus*. Vol. 31 (1). pp66-74.
- Hout, Eldon. 1990. "Ocean Policy Development in the State of Oregon". Unpublished.
- Kalo, Joseph J. 1990. Coastal and Ocean Law. Houston. The John Marshal Publishing Co.
- Kelleher, Graeme. 1986. "Managing the Great Barrier Reef". *Oceanus*. Vol. 29 (2). pp13-19.
- Kenchington, Richard. 1990a. "Planning the Great Barrier Reef Marine Park", in Conserving our Marine Heritage. ed. R. Grahame (Waterloo, Canada: Proc. Symps. Univ.). pp35-54.
- Kenchington, Richard. 1990b. Managing Marine Environments. Taylor and Francis. New York.
- Oregon Ocean Resources Management Task Force. 1991. The Oregon Ocean Plan. The State of Oregon.
- Salm, Rodney. 1984. Marine and Coastal Protected Areas: A Guide For Planners and Managers. International Union for Conservation of Nature and Natural Resources. Switzerland.
- Senate Report 100-595, 100th Congress, 2nd Session, 1988.
- Senate Report 100-627, 100th Congress, 2nd Session, 1988.
- Tarnas, David. 1988. "The U.S. National Marine Sanctuary Program: An Analysis of the Program's Implementation and current Issues." *Coastal Management*. Vol. 16. pp275-303.

Appendix A

Management issues and techniques in the U.S. National Marine Sanctuaries

(from the sanctuary management plans)

1) Gulf of the Farallones

Resource Protection

- 1) Potential accidental spills and their effects on sanctuary resources.
 - a) Compile information on resources at risk from accidental discharges.
 - b) Evaluate current response capability within the sanctuary and investigate alternatives for increasing capability.
 - c) Prepare and implement an emergency response and contingency plan.
- 2) Chronic pollution of Sanctuary Waters.
 - a) Access historical patterns in oiled birds at the Farallons.
 - b) Continue to monitor chronic incidence of oiled birds within the Sanctuary.
 - c) Review and if needed revise discharge regulations to facilitate enforcement.
 - d) Assess trends in discharge violations to determine the need for increased patrolling on the water.
 - e) Develop agreements to provide for increased enforcement of regulations.
- 3) Marine mammal and seabird/fishery interactions.
 - a) Continue to monitor the incidence of marine mammal mortalities caused by gill-netting.
 - b) Provide regulatory agencies scientific information for the development of improved regulations and possible mitigating actions.
 - c) Collaborate with NMFS, CF&W, 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.
 - d) Coordinate with state and federal agencies in monitoring effects of new closures.
 - e) Support recommendations made at the 1984 Workshop on the Fate and Impact of Marine Debris.
- 4) Visitor use impacts on marine mammals, inter-tidal invertebrates, and other sensitive resources.
 - a) Continue monitoring and/or encourage other agencies to monitor inter-tidal and subtidal sites within the sanctuary that are heavily harvested.
 - b) Continue to monitor periodically (1-2 year intervals) human-related levels of disturbance on harbor seals and support research to assess potential effects on populations.

- c) Assess trends in illegal take violations to determine the need for increased patrolling on the water.
- d) 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.
- e) Develop and disseminate public information on the vulnerability of affected resources (invertebrates, seabirds, and marine mammals)
- f) Enforce existing regulations prohibiting collection.

Encouraging compatible use in the sanctuary: monitor activities, exchange information, consult with other agencies (NMFS, PFMC, EPA, MMS, US Corps, State lands commission, CDF&G), informing public)

- 5) Maintaining the quality of sensitive and/or critical habitats within the sanctuary.
 - a) Participate in the review of major coastal (and offshore) development proposals or new activity proposals that could affect sanctuary resources.
 - b) Provide scientific information in the sensitivity of sanctuary resources for potential developments to land use regulatory agencies.

Scientific Research Information

- 1) Incomplete baseline information about the (seasonal) distributions, abundance, and status of marine resources particularly within the Gulf of the Farallones.
 - a) Assess adequacy of baseline information for fish and invertebrates, cetaceans and possibly seabirds and pinnipeds in the Gulf.
 - b) Support research projects that address confirmed baseline data gaps affecting marine resource management within the sanctuary.
 - c) Prepare a data atlas of resources and uses in the sanctuary.
- 2) Incomplete information on the dependence of the population of the Gulf of the Farallones on food resources and critical habitats.
 - a) Continue to support and implement selected investigations that clarify key ecological relationships within the Gulf of the Farallones.
 - b) Feeding and movement studies.
- 3) Information on the effects of natural events and human-related activities on populations within the sanctuary.
 - a) Continue to support and implement investigations on the effects of human-related disturbances on populations.
 - b) Selected population monitoring to detect sudden or gradual changes.

Public Awareness

- 1) Basic public awareness of the Gulf of the Farallones N.M.S. as a distinct marine protected area.
 - a) Implement a well-planned identity program (brochures, posters, etc.) that stresses the sanctuary as the Gulf of the Farallones and the program playing an active role in marine resource management.
 - b) Maintain the sanctuary as a priority on the public agenda.
- 2) Obtaining public and agency support for and commitment to the sanctuary and its management program.
 - a) Workshops reporting research results or discussing resource protection issues.
 - b) Workshops, seminars, field volunteer programs.
 - c) Collaborate with other agencies
 - d) Local residents and organizations involved in education programs

Some Materials

Printed: brochures, posters, newsletter, stationery, press packages, training materials, school information

Personal Contact: Lecture series, tours, symposiums, volunteer programs

Signage and Exhibits: indoor and outdoor exhibits, habitat-specific wayside exhibits, portable exhibit for conferences, slide/tape program, film, videos

Media: press package, publicity for programs, news media tours, involving legislators, newsletter, news articles for organizations of marine interest groups, transit posters, public service radio and television spots, promotional material (shirts, posters etc.)

Facility development: Headquarters, Visitor center

Administration

- 1) Establishment of priorities and balance among priorities of sanctuary management over the next 5-10 years
 - a) Develop clear short-term objectives for the overall sanctuary management program that reflect priorities assigned to resource protection, research, and education.
 - b) Establish priorities both functionally and geographically.
 - c) Undertake an "outcome" evaluation of the program.
 - d) Make day-to-day work with other marine resource management agencies among the highest priorities.
 - e) Work toward the development of clear marine resource protection policies (for internal use) for sanctuary management.
- 2) Developing alternative mechanisms for implementation of research, education, and resource management projects.
 - a) Investigate the need for additional cooperative agreements.
 - b) Investigate alternative arrangements for the creation of a sanctuary cooperative association.

Regulation Policies

- 1) 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 islands
- 2) Discharges: Discharges are prohibited within the sanctuary with the exception of fish wastes and bait, water and other biodegradable effluent, dredged material at dumpsite, and municipal sewage.
- 3) Alteration of , or construction on the seabed: Prohibited within the sanctuary except for laying of pipelines, outfall construction, anchoring, bottom trawling, docks, piers, navigation.
- 4) Commercial vessel operations: Not restricted except around sensitive areas.
- 5) Overflights: Aircraft not permitted below 1000 feet around areas of biological significance except for enforcement.
- 6) Removing or damaging historical or cultural resources: Prohibited.

Enforcement: Coordination with Marine and Estuarine Management Division, Cal. Dept. of Fish and Game (NPS, NMFS, and USFW), and US Coast Guard.
Day to day enforcement by California Fish and Game

2) Looe Key

Resource Protection

- 1) Use concentrated in small area.
 - a) Determine the need for and feasibility of a designated boating access zone.
 - b) Install NMSP standard mooring buoys.
 - c) Refine surveillance and enforcement reporting procedures.
 - d) Develop and carry out an enforcement training program.
 - e) Implement measures to increase the program identity of interpretive, surveillance, and enforcement staff.
- 2) Capacity of the reef to sustain use.
 - a) Refine surveillance and enforcement reporting procedures.
 - b) Undertake a comprehensive baseline resource mapping study.
 - c) Design and implement a temporary and permanent biophysical monitoring system.
- 3) Conflicts among users.
 - a) Determine the need for and feasibility of a designated boat access zone.
 - b) Install NMSP standard mooring buoys.
 - c) Develop and carry out an enforcement training program.

- d) Collaborate with dive boat operators and other sanctuary user groups to initiate on-site interpretation.
 - e) Design, produce, and distribute basic orientation and information material for the Sanctuary.
- 4) Physical damage to reef by direct and indirect users.
- a) Determine the need for a new navigational marker equipped with a light, sanctuary signal and radar reflector.
 - b) Install NMSP standard mooring buoys.
 - c) Develop and carry out an enforcement training program.
 - d) Evaluate existing contingency plans and capabilities for responding to emergencies on the reef.
 - e) Undertake a comprehensive baseline resource mapping study.
 - f) Design and implement a temporary and permanent biophysical monitoring system.
 - g) Design, produce, and distribute basic orientation and information materials for the sanctuary.
- 5) Lack of sanctuary identity.
- a) Install NMSP standard boundary and core area markers.
 - b) Install NMSP standard mooring buoys.
 - c) Implement measures to increase program identity of interpretive, surveillance, and enforcement staff.
 - d) Collaborate with dive boat operators and other sanctuary user groups to initiate on-site interpretation
 - e) Establish a temporary sanctuary headquarters.
 - f) Install an outdoor interpretive exhibit at headquarters.
 - g) Determine the need to install land-based signage.
 - h) Investigate the feasibility of acquiring the land base for permanent headquarters.
 - i) Formulate program graphic standards.
 - j) Design, produce, and distribute basic orientation and information materials for the sanctuary.
- 6) Equal opportunities to appreciate the sanctuary.
- a) Expand the temporary sanctuary land based headquarters.
 - b) Install an outdoor interpretive exhibit.
 - c) Determine the feasibility of acquiring a land base for permanent headquarters.
 - d) Design, produce, and distribute basic orientation and information materials for the sanctuary.
- 7) Lack of public information on sanctuary.
- a) Undertake a comprehensive baseline resource mapping study.
 - b) Collaborate with dive boat operators and other sanctuary user groups to initiate onsite interpretation.
 - c) Establish a temporary sanctuary head quarters
 - d) Install an outdoor interpretive exhibit.

- e) Determine the need to install land based signage.
- f) Formulate program graphic standards.
- g) Investigate the feasibility of acquiring the land base for permanent headquarters.

8) Increased level of use.

- a) Determine the need for and feasibility of a designated boating zone.
- b) Install NMSP standard mooring buoys.
- c) Develop, and carry out an enforcement training program.
- d) Define surveillance and enforcement reporting procedures.
- e) Undertake a comprehensive baseline resource mapping study.
- f) Design and implement a temporary and permanent biophysical monitoring system.
- g) Establish a temporary sanctuary headquarters.
- h) Investigate the feasibility of acquiring a headquarters land base.
- i) Design, produce, and distribute basic orientation and information materials for the sanctuary.

Management Actions

In the Sanctuary:

- 1) Install NMSP standard boundary and core area markers.
- 2) Determine the feasibility of adding a sanctuary sign, and radar reflector to the navigational marker.
- 3) Determine the need for and feasibility of a designated boating access zone.
- 4) Install NMS standard mooring buoys.
- 5) Develop and carry out an enforcement training program.
- 6) Refine surveillance and enforcement reporting procedures.
- 7) Implement measures to increase the program identity of interpretive, surveillance, and enforcement staff.
- 8) Evaluate existing contingency plans and capabilities for responding to emergencies on the reef.
- 9) Undertake a comprehensive baseline resource mapping study.
- 10) Design and implement a temporary and permanent biophysical monitoring system.
- 11) Collaborate with dive boat operators and other sanctuary user groups to initiate on-site interpretation.

Outside of Sanctuary:

- 1) Establish a temporary headquarters.
 - 2) Install an outdoor interpretive exhibit at headquarters.
 - 3) Determine the need to install land-based signage.
 - 4) Investigate the feasibility of acquiring land for permanent headquarters.
 - 5) Determine the feasibility of developing services and facilities at the permanent headquarters.
- Including:
- a) Information about and orientation to the offshore sanctuary.

- b) Audio-visual programs introducing the sanctuary, resources, and NMSP.
- c) Guidance on recreational use of the sanctuary, identification of safety and hazards, and other general safety conditions.
- d) Opportunity to appreciate the sanctuary during inclement weather.
- e) Sanctuary offices.
- f) Research facilities.
- g) Marina facilities.
- h) Boat launching facilities.
- i) Parking.

General Management Actions:

- 1) Formulate program graphic standards
- 2) Design, produce, and distribute basic orientation and information material for the sanctuary.
 - a) Updating existing brochure.
 - b) Maps.
 - c) Preparing a habitat guidebook for divers and snorkelers
 - d) Designing a sanctuary poster.
- 3) Establish and finalize overall administrative procedures.

Resource Management:

- 1) Regulations
 - a) Damaging or taking of natural features, including coral, invertebrates (except for lobsters outside the Fore Reef) and tropical fish is prohibited.
 - b) Anchoring on the coral within the Fore Reef or damaging natural features with a vessel is prohibited.
 - c) Use of wire fishtraps and spearguns within the sanctuary and lobster traps in the Fore Reef is prohibited.
 - d) Removing or damaging any historical or cultural resource, signs or markers is prohibited.
 - e) Discharging with the exception of fish or parts and chumming materials, cooling water from vessels, and effluent from marine sanitation devices is prohibited.
- 2) SPD responsible for:
 - a) Assigning roles and responsibilities for surveillance and enforcement.
 - b) Monitoring the effectiveness of surveillance and enforcement activities.
 - c) Reviewing the effectiveness of existing regulations.
 - d) Considering and enacting new regulations only where appropriate.
 - g) Identifying and providing for research and information service to support regulatory management.

Florida Dept of Natural Resources is the main agency involved in the enforcement of regulations as outlined in a memoranda of Understanding with the SPD.
(Rangers, and USCG)
- 3) Contingency Plans for Major Environmental Accidents

4) Preparation of an Operational Plan for Resource Management

Recreational Management:

- 1) Visitor Orientation
 - Identity facilities and programs available
 - Boat launches, marinas, State Rec. Areas, dive boat landings.
- 2) Visitor Health and Safety
 - Navigation information, warning information
- 3) Activity management in the sanctuary
 - Mooring buoys (control boat density), monitoring use over time, work with commercial operators
- 4) Recreational management on the land base
- 5) Preparation of an Operational Plan for Recreational Management

Research Management:

- 1) Policies
 - coordinate with other agencies and protected areas, make effective use of most current international research, focus on management issues
- 2) Framework for research
 - applied biophysical and social research
- 3) Priorities for management of ongoing research
 - baseline studies, monitoring, feasibility studies on management actions and facilities
- 4) Guidelines for management of the research program
 - annual review, proposals, evaluation
- 5) Preparation of an Operational plan for research

Interpretive Management:

- 1) Interpretive Opportunities
 - on reef, on mainland, regional (extension)
- 2) Themes and messages
 - orientation, resources, sanctuary management, marine issues
- 3) Interpretive Programs
 - On-site aimed at recreational users, land-based aimed at vicarious users, land-based aimed at extension audiences
- 4) Preparation of an operational plan for interpretation

Administration:

- 1) Overall management roles
 - SPD (Sanctuary Programs Division)
 - overall responsibility, collaboration
 - Florida Dept. of Natural Resources

enforcement
Management Advisory Group
mechanism for public involvement, other agencies

3) Cordell Banks

Resources:

- 1) Establish cooperative agreements and other mechanisms for coordination among all the agencies participating in Sanctuary management.
- 2) Develop an effective and coordinated program for the enforcement of Sanctuary regulations.
- 3) Promote public awareness of and voluntary user compliance with regulations through an interpretive program stressing resource sensitivity and wise use.
- 4) Reduce threats to Sanctuary resources raised by major emergencies through contingency and emergency-response planning.

Research:

- 1) Establish a framework and procedures for administering research to ensure that research projects are responsive to management concerns and that results contribute to improved management of the Sanctuary.
- 2) Gather baseline data on the physical, chemical, and biological oceanography of the Sanctuary.
- 3) Initiate a monitoring program to assess environmental changes as they occur.
- 4) Identify the range of effects on the environment that would result from predicted changes in human activity.
- 5) Incorporate research results into the interpretive program in a format useful for the general public.
- 6) Encourage information exchange among all the organizations and agencies undertaking management-related research in the Sanctuary to promote more informed management.

Interpretation:

- 1) Provide the public with information on the Sanctuary, its goals and objectives, with an emphasis on the need to use these resources wisely to ensure their long-term viability.
- 2) Broaden support for the Sanctuary and Sanctuary management by offering programs suited to visitors with a range of diverse interests.
- 3) Provide for public involvement by encouraging feedback on the effectiveness of interpretive programs.
- 4) Collaborate with other organizations to provide interpretive services, including extension and outreach programs and other volunteer projects, complementary to the Sanctuary program.

Visitor Use:

- 1) Provide relevant information about Sanctuary regulations and use policies.
- 2) Collaborate with public and private organizations in promoting compatible use of the Sanctuary by exchanging information concerning the commercial and recreational potential of the Sanctuary.
- 3) Monitor and assess the levels of use to identify and control potential degradation of resources and minimize potential user conflicts.

Human Activities:

- 1) Commercial fishing
- 2) Recreational Fishing
- 3) Oil and Gas Activities
- 4) Commercial Shipping
- 5) Military Activity
- 6) Research and Education

Action Plan:

General:

- 1) Long term protection of resources is highest priority.
- 2) Combined management.
- 3) General public and interested organizations will play an important role in attaining resource protection goals.
- 4) Management actions tailored to specific issues.

Resource Protection:

- 1) General
 - a) Coordination of policies and procedures among the agencies sharing responsibility for resource protection
 - b) Participation by other agencies in the development of new procedures to address specific management concerns
 - c) Enforcement of Sanctuary regulations in addition to those already in place
- 2) Designation Document and Sanctuary Regulations
 - a) Existing regulations
 - b) Designation document: list of regulated activities
 - c) Discharges or deposits in the sanctuary are prohibited, also exterior discharges or deposits that affect the sanctuary
 - d) Removing, taking or injuring benthic resources on Cordell bank or within the 50 fathom isobath surrounding it is prohibited except by permit

- e) Oil and Gas activities are permitted in the future within the boundaries of the sanctuary by the DOI's OCS leasing program, prohibited if have an adverse affect on the resources (Banks not currently subject to OCS leasing)
 - f) Cultural and Historical Resources if discovered will be protected in the sanctuary.
 - g) Anchoring regulations will be considered if anchoring activities increase and threaten the Bank's resources.
- 3) Contingency Plans for major emergencies
- a) Coast Guard will provide regional response center facilities
 - b) Monitor and assess the state of preparedness
 - c) plan will provide descriptions of emergency response procedures, geographic information on resources, procedures for emergency research, and damage assessment guidelines
- 4) Encouraging compatible use of the sanctuary
- a) Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect areas of particular management concern.
 - b) Exchanging information on commercial and recreational activities in the sanctuary
 - c) Consulting with other agencies on policies and proposals for the management of activities which may affect protection of sanctuary resources
 - d) Developing materials aimed at enhancing public awareness of the sanctuary's resources and their need for protection
- 5) Surveillance and Enforcement
- a) USCG broad responsibility for enforcing all federal laws and in navigable waters under US jurisdiction, NMFS and CF&G who enforces federal. as well as California. fishing regulations in EEZ
 - b) If additional enforcement is required NOAA will provide it.
 - c) Interpretive programs will try it inform users to reduce enforcement needs (brochures)
 - d) Planning and coordination using research information and surveillance will be reviewed to determine adequacy
- 6) Research
- a) Baseline studies to determine the features and processes of the natural environment, to determine the abundance, distribution, and interaction of the living resources, and to describe the pattern of human activity in the sanctuary
 - b) Monitoring to document changes in environmental quality, in ecology, and in human activity
 - c) Predictive studies to assess the causes and effects of environmental and ecological changes
 - d) Selection and Management of research projects
 - e) Information exchange between agencies and interested groups
- 7) Interpretation

- a) Focused on improving public awareness of the sanctuary and providing information on resources and regulations
 - b) site visitor programs of fishing and whale watching excursions and other recreational visitors to sanctuary waters (written material describing the sanctuary and regulations, possible coordination of informational trips, rely on cooperation of charter boats)
 - c) Information center programs for those visiting the facilities at the PRNMS and other nearby information centers (brochures, posters, displays)
 - d) Outreach programs for interested groups not visiting either sanctuary (cooperation with environmental study groups, slide presentations, mobile exhibits)
- 8) Administration
- a) MEMD: manages NMSP, develops general budget, establishes policies and procedures, represented by the sanctuary manager
 - b) NPS: through interagency agreement the NPS cooperates and assists in carrying out on-site management activities
 - c) USCG: enforces fed laws including sanctuary regulations
- 9) Additional Information
- a) Fishing to continue to be subject to existing regulations:
Magnuson Act
 - b) No DOD activities necessary for national defense prohibited

4) Flower Garden Banks (proposed)

Regulated Activities:

- 1) Anchoring or otherwise mooring within the Sanctuary
- 2) Discharging or depositing, from within the boundaries or the Sanctuary, any material or other matter.
- 3) Discharging or depositing, from beyond the boundaries of the sanctuary, any material or other matter
- 4) Drilling into, dredging or otherwise altering the seabed of the Sanctuary; or constructing, placing or abandoning any structure, material or other matter on the seabed of the Sanctuary.
- 5) Exploring for, developing or producing oil, gas or minerals within the Sanctuary.
- 6) Taking, removing, catching, collecting, harvesting, feeding or injuring, or attempting to take, remove, catch, collect, harvest, or feed or injure, a Sanctuary resource.
- 7) Possessing within the Sanctuary a Sanctuary resource or any other resource, regardless of where taken, removed, caught, collected or harvested, that, if it had been found within the sanctuary, would be a Sanctuary resource.
- 8) Possessing or using within the Sanctuary, and fishing gear, device, equipment or means.
- 9) Possessing or using explosives or releasing electrical charges within the Sanctuary.

Public Comment:

Before listing a site on the SEL as an active candidate, NOAA seeks preliminary consultation in the Federal Register and local media in the region of the site through a press release. When placed on active list, NOAA sponsored a public scoping meeting at Texas A&M. Public asked to comment on readily identifiable issues, to suggest additional issues for examination, and to provide information useful in evaluating the site's potential as a NMS. Next phase was Draft EIS and management plan. Public hearing on the draft EIS and management plans were held.

Management Plan:

Resource Protection Objectives: highest priority management goal

- 1) Coordinate policies and procedures among the agencies sharing responsibility for protection and management of resources
- 2) Encourage participation by interested agencies and organizations in the development of procedures to address specific management concerns (monitoring, emergency response)
- 3) Develop an effective and coordinated program for the enforcement of sanctuary regulation
- 4) Enforce Sanctuary regulations in addition to other regulations already in place
- 5) Promote public awareness of, and voluntary user compliance with, Sanctuary regulations and objectives, through an education/interpretive program stressing resource sensitivity and wise use
- 6) Reduce threats to Sanctuary resources raised by major emergencies through contingency and emergency-response planning
- 7) Establish memoranda of agreement and other mechanism for coordination among all the agencies participating in sanctuary management
- 8) Reduce threats to Sanctuary resources

Research Objectives:

- 1) Establish a framework and procedures for administering research projects to ensure that they are responsive to management concerns and that research results contribute to improved management of the Sanctuary
- 2) Gather necessary baseline data on the physical, chemical, and biological oceanography of the Sanctuary.
- 3) Monitor and assess environmental changes as they occur
- 4) Identify the range of effects on the environment that would result from predicted changes in human activity
- 5) Incorporate research results into the interpretation program in a format useful for the general public
- 6) Encourage information exchange among all the organizations and agencies undertaking management-related research in the sanctuary to promote more informed management

Interpretation Objectives:

- 1) Provide the public with information on the Sanctuary, its goals and objectives, with an emphasis on the need to use these resources wisely to ensure their long term viability
- 2) Broaden support for the Sanctuary and Sanctuary management by offering programs suited to visitors with a range of diverse interests
- 3) Provide for public involvement by encouraging feedback on the effectiveness of the interpretation program
- 4) Collaborate with other organizations to provide interpretation services, including extension and outreach programs and other volunteer projects, that explain the purpose of the Sanctuary and the NMSP

Visitor Use Objectives:

- 1) Encourage the public to respect sensitive Sanctuary resources and qualities
- 2) Provide relevant information about Sanctuary regulations and use policies
- 3) Collaborate with public and private organizations in promoting compatible use of the Sanctuary by exchanging information concerning its commercial and recreational potential
- 4) Monitor and assess the levels of Sanctuary use to identify and control potential degradation of resources and minimize potential user conflicts.

Human Activities:

- 1) Oil and gas exploration and development
- 2) Commercial fishing
- 3) Recreational fishing
- 4) Recreational pursuits (SCUBA, spear fishing, collecting)
- 5) Shipping
- 6) Research
- 7) Anchoring
- 8) Military Activity

Action Plan:

General: Implementation requires cooperation among NOAA, USCG, DOS, DOI, oil and gas industry, interested organizations and the public in general.

Resource Protection:

- 1) General context
 - a) Coordination of policies and procedures among the agencies sharing responsibility for resource protection
 - b) Participation by other agencies and organizations in the development of procedures to address specific management concerns (monitoring, emergency response)

- c) Enforcement of Sanctuary regulations additional to those regulations already in place
- 2) Designation Document and Sanctuary regulations
 - a) NOAA proposes regulations governing
 - 1) Exploration for, development, or production of oil, gas or minerals
 - 2) Discharging or depositing materials or other matter
 - 3) Alteration of the seabed
 - 4) Possessing various marine resources
 - 5) Injuring or taking or attempting to injure or take Sanctuary resources
 - 6) Possessing or using explosives or releasing electrical charges
 - 7) Feeding fish
 - 8) Possessing or using fishing gear except hook and line gear
 - b) NOAA also proposes areas of the Sanctuary where oil, gas, and mineral activities are allowed (ie, outside the no-activity zones) see Part III, section IIA
- 3) Contingency Plans for Major Emergencies
 - a) Removal, remedial action is the responsibility of Regional Response Teams (USCG)
 - b) A sanctuary specific plan will be completed that
 - 1) Describes emergency response procedures and coordination requirements
 - 2) Outlines procedures for emergency research
 - 3) Provides damage assessment guidelines
- 4) Encouraging compatible use
 - a) Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect incidents of particular management concern
 - b) Exchanging information on commercial and recreational activities in the Sanctuary
 - c) Consulting with other agencies on policies and proposals for the management of activities which may affect protection of Sanctuary resources
 - d) Displaying Sanctuary boundaries on nautical charts with a notice summarizing sanctuary regulations governing anchoring and vessel discharges
 - e) Developing brochures and other information materials for the purpose of enhancing public awareness of the sanctuary's resources and their need for protection
- 5) Surveillance and Enforcement: surveillance greatest problem
 - a) Occasional surveys by USCG and MMS
 - b) NOAA plans to rely on observers from other agencies and cooperating organizations
 - c) Public Education and Information through brochures and other materials on regulations available at information centers and through outreach programs.
 - d) Planning and Coordination resulting from research and observations on sanctuary use patterns, frequently occurring violations and sensitive resources will be evaluated

Research

- 1) General context

- a) The research program should address management issues
 - b) Coordinate research to avoid duplication
- 2) Framework for Research
- a) Baseline studies to gather additional data on the features and processes of the ecosystem and to describe the pattern of human activity in the sanctuary
 - b) Monitoring to document changes in environmental quality, ecology, and human activity
 - c) Analysis and prediction studies to determine the causes and effects of environmental and ecological changes
- 3) Selection and Administration of Research (annual plan that is coordinated with a national plan)
- a) Important parts of the plan are that the management issues are identified, especially those that could be resolved through directed research, research already in progress, and the availability of funds, research workshops are held, a draft SRP is made and the highest ranking research projects are selected from the national plan for funding (pg 54-56)

Education

- 1) General context for management
 - a) Increased public understanding results in protection
 - b) Interpretation will focus on improving public awareness of the sanctuary and its resources and of the regulations designed to protect them
- 2) Interpretation Opportunities and Programs
 - a) Difference in information to other habitat oriented marine sanctuaries is the distance from shore of the habitat
 - b) Three different interpretations programs
 - 1) Site visitor programs: written material describing the sanctuary and its regulations, available at information centers and sent with to excursion boat operators known to have an interest in taking groups to the sanctuary area
 - 2) Information center programs: displays, video sequences or brochures and other literature will be made available at selected information centers in coastal areas
 - 3) Outreach programs: stress efforts to provide information to special-interest groups and industry associations that present a potential threat to FGB resources or that may otherwise play a role in resource protection. Targets include merchant vessels, crews of offshore platforms and platform service vessels, and commercial fishermen. Also, educational information for distribution throughout the school system and private organizations and the media

Administration

- 1) Framework
 - a) ensures that all management activities are coordinated
 - b) SRD: overall management
 - c) USCG: enforcement, removal of oil, haz mats
 - d) MMS: OSC hydrocarbon and mineral exploration, develop and production, formation and enforcement of special lease stipulations
 - e) DOS (dept of state): policy guidance on activities involving foreign policy issues and international law

5) Channel Islands

Sanctuary goals and management objectives:

- 1) Resource protection: primary goal
 - a) Establish cooperative agreements and other mechanisms for coordination and collaboration among all the federal and state agencies participating in sanctuary management
 - b) Promote public awareness of and voluntary user compliance with regulations through an educational program stressing resource sensitivity and wise use
 - c) Develop an effective and coordinated program for the enforcement of sanctuary regulations
 - d) Reduce threats to sanctuary resources raised by major emergencies through contingency and emergency response planning
- 2) Research: directed to resolving management concerns and understanding resources
 - a) Establish a framework and procedures for administering research to ensure that projects are responsive to management concerns and that results contribute to improved management of the sanctuary
 - b) Make effective use of research results by incorporating them into information and interpretation programs
 - c) Encourage information exchange among all the organizations and agencies undertaking management-related research in the sanctuary to promote more informed management
- 3) Interpretation: enhance public awareness and understanding
 - a) Enhance public access to relevant information on the sanctuary, its goals, and resources
 - b) Improve opportunities for a wider public access to the sanctuary and first-hand appreciation of significant sanctuary resources
 - c) Broaden public support for the sanctuary and sanctuary management by offering on-site and off-site programs suited to visitors of diverse interests, ages, and skills

- d) Provide for public involvement by encouraging feedback on the effectiveness of interpretive programs, collaboration with sanctuary management staff in extension/outreach programs, and participation in other volunteer programs
 - e) Collaborate with other organizations to provide interpretive services complementary to the sanctuary program
- 4) Visitor Use: encourage resource compatible multiple-uses
- a) Provide relevant information about sanctuary regulations, use policies, and standards
 - b) Collaborate with public and private organizations in promoting compatible use of the sanctuary by coordinating surveys and monitoring programs and by exchanging information concerning commercial and recreational use of the sanctuary
 - c) Assess the current levels of use and monitor use over time to identify and control potential degradation of resources and minimize potential user conflicts

Sanctuary Uses

- 1) Recreation
 - a) boating
 - b) wind surfing
 - c) sport fishing
 - d) diving
 - e) nature viewing
 - f) tide-pooling, hiking
 - g) chartered small aircraft
- 2) Commercial fishing and mariculture (kelp)
- 3) Commercial shipping
- 4) Offshore oil and gas activities
 - a) mainly off Santa Barbara but not in the sanctuary
- 5) Military activity
- 6) Research and education

Existing jurisdictions and management

- 1) NPS: administers the Channel Islands National Park, cooperative agreement with CINMS
- 2) CF&G: management of living marine resources in state waters (including those in the sanctuary) and enforcement

Action Plan

Resource Protection:

- 1) General Context for management
 - a) coordination of policies and procedures among the other federal and state agencies sharing the responsibility for resource protection
 - b) joint review of proposed changes to the sanctuary environment

- c) participation in the development of new procedures to address specific management concerns
- d) enforcement of reasonable regulation in addition to existing regulatory programs
- e) identification of specific resource areas and activities to receive priority for management

Management concerns

- 1) The size and configuration of the sanctuary and distance from the mainland
 - a) Identify specific resource areas and activities to receive priority for management in order to make programs for research and surveillance and enforcement more responsive to critical areas in the sanctuary
 - b) Investigate options for additional cooperative agreements (or change existing ones) to share the resource protection responsibility across the sanctuary (volunteer programs, additional staff)
 - c) Increase public and industry awareness of resource protection objectives and regulations through interpretation to reduce on-site violations
- 2) The need to continue to coordinate surveillance and enforcement
 - a) Improve the coordination of surveillance and enforcement activities through scheduling and joint development of operational procedures
 - b) Formulate operational procedures for the enforcement of sanctuary regulations
 - c) Investigate options for additional cooperative agreements (or change existing ones) to enhance resource protection
- 3) The need to assess available resource information and organize it into a usable comprehensive data base for the sanctuary
 - a) Improve access to information needed for management
 - b) Design a management-oriented and collaborative ecosystem monitoring program (compatible with the Sanctuary Information System)
 - c) Investigate options for additional cooperative agreements for exchanging information on fisheries, diving, surveillance, and enforcement activities
- 4) The significance of the Sanctuary pinnipeds
 - a) Implement the pinniped monitoring program
 - b) Investigate the food resources and specific nearshore areas upon which pinnipeds are most dependent
 - c) Develop educational materials designed to sensitize visitors to pinniped behavior and vulnerability to various types of disturbance
- 5) The significance of the sanctuary for the endangered brown pelican and significant seabird colonies
 - a) Investigate options for additional cooperative agreements (or changes in existing agreements) to carry out seabird-fishery interaction studies
- 6) Lack of information on the probability of and effects of accidental oil spills and chronic oil pollution in the sanctuary
 - a) Increase public and industry awareness of resource protection objectives, priorities and regulations (for pollutant discharge and vessel traffic)
 - b) Evaluate existing contingency plans to determine if additional capabilities and equipment are required to protect priority areas

- c) Initiate a collaborative program with federal/state agencies and industry to understand and reduce accidental pollutant spills and chronic discharges in and around the sanctuary
- d) Design a management-oriented and collaborative environmental monitoring program
- e) Collaborate with the USCG and other agencies in determining the need to monitor vessel traffic in the sanctuary
- f) Maintain a record of oil spills and other pollutant spills
- 7) The possible impacts of increased visitor use on significant Sanctuary resources
 - a) Identify specific resource areas and activities to receive priority for management
 - b) Increase public and industry awareness of resource protection objectives, priorities, and regulations
 - c) Design a management-oriented and collaborative program for monitoring visitor use in the sanctuary
 - d) Determine historic pinniped rookeries and haulout sites
- 8) Public awareness of the Sanctuary
 - a) Update as necessary and distribute orientation and other interpretive documentation on the sanctuary
 - b) Investigate the feasibility of expanding off-site marine interpretation cost effectively
 - c) Initiate additional cooperative agreements for interpretation (including the development of new facilities) with appropriate organizations throughout the region
- 9) The need for increased access to the Sanctuary and marine interpretation
 - a) Expand the marine interpretive exhibits and events, and the Channel Islands National Park Visitor Center
 - b) Investigate the feasibility of expanding off-site marine interpretation
 - c) Provide for additional on-site marine interpretation of the Sanctuary
 - d) Investigate the feasibility of increasing access to the Sanctuary

Surveillance and Enforcement

- 1) Hydrocarbon operations
 - a) Oil and gas exploration and development on leases executed on or after the effective date of the sanctuary regs are prohibited
 - b) Those from before effective date of regulations are permitted subject to authority and contingency requirements
- 2) Discharges
 - a) Prohibited with the sanctuary with the exception of vessel cooling waters, fish wastes and bait, marine sanitation device effluents, and effluents incidental to permitted hydrocarbon activities
- 3) Alteration or construction on the seabed
 - a) Except for permitted pipeline construction from existing leases, no alteration permitted within 2 nautical miles of any island
- 4) Commercial vessel operations
 - a) Access for fishing, recreational and research vessels is not restricted within the sanctuary.

- b) Other vessels, are prohibited within 1 nautical mile of any island, except to transport persons or supplies
- 5) Overflights
 - a) Aircraft are not permitted below 1000 feet within on nautical mile of any island within the sanctuary
 - b) Exceptions are in enforcement, kelp bed surveys and transportation of persons or supplies
- 6) Removing or damaging historical or cultural resources
 - a) Prohibited
- 7) Additional Regulations
 - a) CF&G codes, MMPA, etc.
- 8) Planning and Coordination of Surveillance and Enforcement Activities
 - a) Coordination of SPD, DOC, NOAA, CF&G, NPS, NMFS, USF&W, USCG
 - b) Planning of enforcement is undertaken by the CF&G throughout the sanctuary and by the NPS in collaboration with the CF&G in the nearshore waters and intertidal zone of the sanctuary
 - c) Reporting and analysis of trends
 - d) Public education and information: preventative enforcement
 - 1) Provide public with complete and easily understood information about regulations, the reasons for them, and the shared government responsibility for their enforcement
 - 2) Communication through brochures, signs, and other devices will be directed primarily at the major access points on the mainland (public marinas, dive shops, airports, yacht and dive clubs) and in the sanctuary
 - 3) Contact with industry, recreational and commercial groups, discussion will help determine the appropriate educational materials for promoting compatible use of the sanctuary

Contingency Plans for major Emergencies

- 1) SPD monitor and assess the state of preparedness as it relates to the sanctuary
- 2) Exchange information with government and industry emergency response teams

Encouraging Compatible Use of the Sanctuary

- 1) Monitoring commercial and recreational activities in the sanctuary and or encouraging other agencies to do so to detect areas of particular management concern
- 2) Exchanging information on commercial and recreational activities in the sanctuary
- 3) Reviewing and consulting with other agencies on policies or proposals for the management of activities with may affects protection of sanctuary resources
- 4) Developing information brochures and other materials aimed at informing the public about potential disturbances to significant resources, critical areas, and time periods

Research

- 1) Focus on management issues which relate to the protection of significant resources
- 2) Framework for research
 - a) What are the general characteristics and distributions of resources, habitats, and uses
 - b) What are the changes over time in resources, habitats, and uses
 - c) What are the possible cause and effect relationships accounting for changes observed in resources distribution, abundance, and diversity
- 3) Priorities
 - a) Undertake a comprehensive resource mapping study
 - b) Implement the pinniped monitoring program
 - c) Investigate the food resources and specific nearshore areas upon which pinniped populations are most dependent
 - d) Undertake baseline research on the cetacean populations of the sanctuary
 - e) Design a management-oriented and collaborative environmental monitoring program
 - f) Develop in cooperation with the National Fisheries Service, a systematic salvage effort for stranded marine mammals at San Miguel Island
- 4) Establish requirements to ensure that research results can be used effectively for management
- 5) Guidelines for management of the research program
 - a) Setting annual priorities for research
 - b) Selection and administration of projects
 - c) Information management system and exchange programs compatibility

Interpretation

- 1) Interpretive Opportunities
 - a) Resources visible from the surface and those underwater resources that can be observed from the water surface (pinniped rookeries and haul-out sites, seabird colonies, whales and other cetaceans, kelp bed residents, sea-cave scenery of the islands' shore, intertidal zones)
 - b) Resources visible when diving
 - c) Channel Islands National Park Visitor Center offers access for those who don't actually visit the sanctuary because of distance from mainland, limited means of access, or lack of interest in boating or diving
- 2) Interpretive Themes and Messages
 - a) Orientation (including ocean processes)
 - b) Resources (living and non-living)
 - c) Marine Issues (including man in the sanctuary)
 - d) Sanctuary Management
 - e) Visitor Use Safety
- 3) Interpretive Program
 - a) On-site programs aimed at visitors and recreational users traveling to the sanctuary
 - b) Land-based programs aimed at "vicarious" visitors, the interested public visiting the visitor center usually with the intention of learning more about the Channel Islands and their marine setting

- c) Land-based programs aimed at "extension audiences" that is individuals and groups with an interest in the CINMS but not likely to visit the sanctuary or the visitor center to learn about the area (and which therefore require an "outreach" or extension service)

Administration

- 1) Sanctuary Programs Division:
 - a) prepare management plan
- 2) NPS:
 - a) Manage the Channel Islands National Park
 - b) Administrative jurisdiction within 1 nautical mile of islands and undertakes enforcement subject to an agreement with the CF&G
 - c) enforce sanctuary regulations throughout the sanctuary
- 3) CF&G
 - a) management of living marine resources in state waters in the sanctuary
 - b) enforce specific federal laws (MMPA, ESA etc)
 - c) enforce sanctuary regulations throughout the sanctuary
- 4) USCG
 - a) enforcing all federal laws in navigable waters
 - b) coordinates with CF&G

(6) U.S.S Monitor

Goals and Objectives

- 1) Protect and preserve the Monitor and all of its associated records, documents and archaeological collections
 - a) Design and implement a management plan with an effective administrative system to insure long-term protection of the site
- 2) Insure the systematic scientific recovery and dissemination of historical and cultural information preserved at the Monitor site
 - a) Develop a resource studies plan for the Monitor which establishes methods for assimilating data, defining research alternatives, and identifying future alternative management options for the site
- 3) Enhance public awareness and understanding of the Monitor as a historic and cultural resource by providing educational and interpretive services
 - a) Develop appropriate publications
 - b) Provide written, audiovisual, and other materials as appropriate to communicate the historical and cultural message of the Monitor
 - c) Explore new communication approaches to bringing the Monitor closer to the general public

Administration

- 1) NOAA and the State of North Carolina cooperatively manage the site
- 2) State of NC provides
 - a) On-site implementation of the management plan
 - b) Coordination with the USCG in surveillance and enforcement
- 3) SPD
 - a) Supervision of implementation

Resources Studies Plan

- 1) Historical data through archival records and on-site investigation
- 2) Archaeological data
- 3) Environmental-oceanographic information
- 4) Engineering
- 5) Conservation
- 6) Public benefit

Interpretive programs

- 1) Publications
 - a) activities report
 - b) information for potential researchers
 - c) copies of conference papers
 - d) expedition reports
- 2) Materials oriented toward teaching institutions
 - a) educational material for middle or secondary school levels
 - b) diver's orientation materials
 - c) history of the ship
- 3) Multimedia materiel oriented toward reaching general public through film, videotapes, lectures, artifact loans
 - a) scientific documentary film
 - b) traveling exhibit
 - c) engineering model of wreck
 - d) feasibility study for TV broadcast

Regulations

- 1) Prohibition of
 - a) anchoring
 - b) salvage and recovery
 - c) diving
 - d) drilling or coring
 - e) cable laying
 - f) trawling
 - g) discharging waste materials
- 2) Surveillance and enforcement

- a) USCG in cooperation with NOAA

7) Key Largo

Goals and Objectives

- 1) Resource Protection Management
 - a) Provide resources necessary to enforce the sanctuary regulations
 - b) Ensure that federal regulations adequately protect sanctuary resources without being over burdensome
 - c) Design contingency operation plans for environmental disasters such as boat grounding, oil spills, fish kills and disease epidemics
- 2) Interpretive Management
 - a) Enhance public understanding of the marine environment and the programs used to protect the resources
 - b) Inform a maximum number of audiences, including users and non-users
 - d) Increase public understanding of marine issues related to and affecting the Sanctuary, including an appreciation of the need for sanctuary designation
- 3) Research Management
 - a) Establish a research plan that will provide maximum benefit to sanctuary management
 - b) Identify those projects that should be given highest priority and funding
 - c) Incorporate research results into the resource protection and interpretive programs

Sanctuary Uses

- 1) Scuba diving
- 2) Snorkeling
- 3) Sport fishing
- 4) Commercial fishing
- 5) Scientific research
- 6) Boating
- 7) Water skiing
- 8) Swimming

Management Issues

- 1) Visitor use is not proportioned evenly (mooring buoys to avoid anchorage)
 - a) Design and distribute a brochure with a map describing location and proper use of mooring buoys
 - b) Initiate a mooring buoy effectiveness study
 - c) Concentrate surveillance enforcement activities in areas receiving the most use
 - d) Provide information to user groups on diver and boat safety problems inherent with concentrated use
 - e) Continue to communicate with the Keys Association Dive Operators about reef health and usage
- 2) No land based laboratory facilities in the area for visiting scientists

- a) Try to get and repair lighthouse
- 3) Potential harm from coastal developments at Key Largo
 - a) Participate with county, state and federal agencies in consultations with contractors and developers to keep them informed of current and newly developed information about sanctuary reef's and the effect of manmade stresses
 - b) Monitor planning process to keep record of simultaneous dredging projects for future proposed developments
 - c) Develop environmental scenarios related to coastal development using the water quality model to predict the effect of coastal development on the Sanctuary reefs
 - d) Establish monitoring program for any diseased areas, record type, size, rate of spreading, quantify degree of stress
 - e) determine study needs regarding these diseases
 - f) Monitor progress being made in studies underway

Administration

- 1) Sanctuary Programs Division
 - a) Administers the program and provides all funding
- 2) Florida Dept. of Natural Resources
 - a) Implement (with NOAA) research, education, and enforcement programs and evaluate their effectiveness
- 3) Management Review Committee
 - a) Provide effective public participation and ensure communication among all users and interest groups
- 4) USCG enforces regulations along with FDNR rangers

Resource Protection Regulations

- 1) Handling or standing on coral formations, or destruction of natural features and marine life, or the removal of natural features or marine life with the exception of lobster, crawfish and stone crabs
- 2) Tampering with archaeological or historical resources
- 3) Tropical fish collecting
- 4) Use of spearguns, guns, harpoons, poison, electric charges or similar methods for taking fish is banned
- 5) Operating vessels in a manner which may cause damage to natural features or other boats or divers
- 6) Vessels must use mooring buoys when available and anchors must not be cast or dragged in a way that would damage coral
- 7) Dredging, filling, excavating and building activities, and discharge of refuse and polluting substances is regulated

Future Activities

- 1) Effectiveness study on the regulations

2) Effectiveness study on the mooring buoys

Research Management

- 1) Coordination with other nearby marine parks
- 2) Research will focus on management issues, biophysical and applied social research
- 3) Research activity must be compatible with all sanctuary goals
- 4) Basic research directions (biophysical and social)
 - a) Establish a comprehensive baseline picture of the sanctuary
 - b) Develop an effective monitoring program for the sanctuary
 - c) Establishing an effective research management program for the sanctuary
 - d) Conducting feasibility studies on research support programs
- 5) Annual review of research program
 - a) Recommendations from the Management Review Committee to the SPD and the sanctuary biologist
 - b) Immediate and evolving management issues that could benefit or be resolved through directed research
 - c) Achievements of research in progress or recently completed
 - d) Immediacy of need and environmental consequences
 - e) Funding considerations
- 6) Proposals for research

Interpretation

- 1) By addressing visitor safety, resource protection, public relations and overall management, the interpretive program may be utilized to help accomplish management goals.
- 2) Goals
 - a) Enhance resource protection through increased visitor awareness
 - b) Facilitate an appreciation for the reasons underlying sanctuary designation
- 3) Objectives
 - a) Inform visitors about sanctuary ecosystems and their sensitivities
 - b) Enhance understanding and appreciation of sanctuary regulations and why they are needed
 - c) Direct and orient visitors to the sanctuary and its services
- 4) Existing Facilities and Programs
 - a) Primarily working through reaching visitors through John Pennekamp coral Reef State Park programs and working closely with the commercial dive boat operators
 - b) Visitor Center: aquarium, auditorium, info desk
 - c) Glass bottom boat tours: Departs from the marina adjacent to the Visitor center
- 5) Future Activities
 - a) Educational materials will be used to help resolve each of the management issues
 - b) Brochure describing sanctuary regulations, diver boat safety problems and the location and proper use of mooring buoys will be designed by the sanctuary managers will be available at boat licensing locations

- c) Boat ramp signs will include the information above
- d) Long term plan to identify
 - 1) All potential audiences
 - 2) Sanctuary interpretive program needs
 - 3) Gaps in interpretive programs at the State Park
 - 4) Recommendations for future programs

(8) Gray's Reef

Human Activities

- 1) Recreational Fishing
- 2) Commercial Fishing
- 3) Recreational Diving
- 4) Research and Education
- 5) Tourism
- 6) Military Operations
- 7) Marine Minerals Development
- 8) Commercial Shipping
- 9) Ocean dumping and dredge disposal

Goals and Objectives

- 1) Maintain and enhance protection of the marine environment of the Gray's Reef National Marine Sanctuary
 - a) Implement a comprehensive resource protection plan tailored to sanctuary resources and uses that provides directions for resource management and protection
 - b) Maintain an on-site management capability that stays informed of resource conditions and human activities over time and recommends action if problems arise
 - c) Maintain the surveillance and enforcement presence needed to ensure compliance with sanctuary regulations and adequate protection of sanctuary resources
 - d) Inform the public on the sensitive nature of the sanctuary resources, the purpose of the sanctuary designation and the need for sanctuary regulations
 - e) Establish mechanisms to foster coordination and collaboration among federal and state resource management agencies on resource protection issues
 - f) Review the effectiveness of the Resource Protection Plan, activities, resource monitoring programs and public awareness programs and initiate changes as necessary
- 2) Promote and coordinate research to enhance scientific understanding of the sanctuary environment and improve management decisions making
 - a) Implement a comprehensive Resources Studies Plan based on existing knowledge of live bottom ecosystems and evolving management issues

- b) Encourage and support research and resource monitoring projects which are compatible with other activities in the Sanctuary and which provide maximum information about the ecosystem with minimum disturbance of its components
 - c) Collaborate with other organizations to enhance opportunities for research related to live bottom ecosystems and resource management
 - d) Establish mechanisms for using information gained through scientific investigation in management decision making and in interpretive and recreational programs
 - e) Provide a means form information exchange between sanctuary managers, scientific investigators, and the general public
 - f) Review the effectiveness of the Resource Studies Plan on an annual basis and initiate changes as necessary
- 3) Enhance public awareness, understanding and wise use of the Sanctuary
- a) Develop a comprehensive Interpretation and Recreation Plan tailored to sanctuary users and extension audiences and sensitive to evolving management issues. Dedicate appropriate facilities and staffing for interpretive and recreational programs
 - b) Promote the Sanctuary as a resource for educational, interpretive and recreational use consistent with conservation objectives
 - c) Broaden public support for sanctuary programs by providing extension or outreach programs to audiences of diverse interests, ages, and skills. Inform the general public about the sanctuary, its location, its significant resources and the need for management and protection
 - d) Provide a means for information exchange and public comment on the effectiveness of sanctuary interpretative and recreational programs
 - e) Collaborate with other organizations to enhance opportunities for interpretation and recreation related to live bottom habitats
 - f) Review the effectiveness of the Interpretation and Recreation Plan on an annual basis and initiate changes as necessary
- 4) Provide for multiple compatible uses of the Sanctuary
- a) Implement a comprehensive Sanctuary Administration Plan to coordinate activities related to the sanctuary
 - b) Identify the roles and responsibilities of parties involved in sanctuary administration and specify procedures for implementing essential components of the management plan
 - c) Encourage safe and enjoyable use of the sanctuary compatible with other sanctuary objectives. Encourage compatible use of live bottom areas both within and outside the sanctuary area
 - d) Establish a means to monitor sanctuary use and resource quality over time to minimize potential user conflicts and environmental degradation
 - e) Collaborate with other public and private organizations to promote communication and cooperation between sanctuary management and various sanctuary user groups
 - f) Review the effectiveness of the Sanctuary Administration Plan on an annual basis and initiate changes as necessary

- 1) Activities and Statutes of Other Authorities
 - a) Does not affect the programs or activities of the authorities in the Sanctuary except those prohibited by sanctuary regulations
 - b) All activities in the sanctuary are monitored to ensure consistency with the sanctuary purpose
- 2) Agency Communication and Coordination
 - a) NOAA consults and communicates with federal, state, and local government agencies as well as public, private and international organizations
 - b) Memoranda of Understanding with the South Atlantic Fishery Management Council and the Gulf of Mexico Fishery Management Council for fishery management
- 3) Statutes Applicable to Gray's Reef NMS
 - a) Abandoned Property Act
 - b) Antiquities Act
 - c) Black Bass Act
 - d) Clean Water Act
 - e) Fish and Wildlife Coordination Act
 - f) Fishery Conservation and Management Act
 - g) Intervention on the High Seas Act
 - h) Lacy Act
 - i) Marine Mammal Protection Act
 - j) MPRSA
 - k) National Historic Preservation Act
 - l) Oil Pollution Act
 - m) OCSLA
 - n) Ports and Waterways Safety Act
- 4) Sanctuary Regulations
 - a) Alteration of or construction on the seabed is prohibited
 - b) Use of bottom trawls, specimen dredges or similar vessel-towed bottom sampling and fishing devices is prohibited
 - c) Use of wire fish traps, poisons, electric charges, explosives or similar methods to take any marine animal or plant is prohibited
 - d) Taking or damaging any bottom formation, marine invertebrate, marine plant, or tropical fish is prohibited
 - e) Depositing or discharging any polluting material, except fish or fish parts, bait, chumming material, vessel cooling water, and effluent from approved sanitation devices is prohibited
 - f) Removing or damaging historic or cultural resources is prohibited
 - g) Some activities may be continued with a NOAA permit
- 5) Surveillance and Enforcement
 - a) NOAA is responsible to see that regulations are publicized and that sanctuary boundaries are adequately represented on nautical charts and through notices to mariners.
 - b) USCG enforces sanctuary regulations by occasional air and surface patrols
 - c) Interpretation is an important part of enforcement

Resource Studies Plan

- 1) Five major areas of study: Data and Information Management, Geology, Oceanography, Ecology, and Special Projects and Studies
- 2) Data and Information Management
 - a) Comprehensive sanctuary resource data base: Compile, annotate and update over time a current and historical bibliography of published and unpublished information on live bottom ecosystems. Establish a repository to house this information
 - b) Information Management System: Design and implement an information management system to incorporate information generated by proposed and ongoing projects and administrative activities. Establish a mechanism to make information available to potential users
 - c) Systematic Collections from Gray's Reef: Complete a systematic collection of fishes from Gray's Reef. Provide curatorial services. Locate and catalogue existing systematic collections from the vicinity of Gray's Reef. Identify missing information. Design a loan system.
- 3) Geology
 - a) Hydrography: Design and conduct an in-depth hydrographic survey to produce detailed maps suitable for use by researchers, resource managers and sanctuary visitors
 - b) Geomorphology: Studies will be recommended following analysis of finding from geology
 - c) Sediment dynamics: Studies will be recommended following analysis of findings from geology
 - d) Sedimentation: Studies will be recommended following analysis of findings from geology
 - e) Geology and origin of South Atlantic Live bottom reefs: Studies will be recommended following analysis of findings from geology
- 4) Oceanography
 - a) Weather and sea conditions monitoring: Identify essential weather and sea condition information that is currently lacking and assess alternative methods of acquiring the information. Investigate the feasibility of stationing at Gray's reef a NOAA weather buoy or other recording and transmitting instrumentation
 - b) Water circulation: Investigate the feasibility of deploying NOAA submersible current meters at Gray's Reef. Identify potential information gains and uses for this information
 - c) Water Quality: Conduct a water quality feasibility study to monitor, analyze and model water quality
- 5) Ecology
 - a) Biological inventory and community maps: Verify existing species lists. Recommend additional studies during the design phase of GEO-1. If feasible, conduct baseline mapping during GEO1
 - b) Resource monitoring: Complete an assessment of various visual techniques for monitoring fishes at Gray's Reef. Identify indicator species and appropriate

monitoring techniques. Implement a resource monitoring program coordinated with a census of sanctuary users.

- c) Selected studies on seaweeds at Gray's Reef: complete the survey and identification of seaweeds from Gray's Reef. Recommend selected seaweeds and monitoring techniques
- d) Selected studies on invertebrates at Gray's Reef: Complete the study in progress to determine faunal communities associated with selected sponges and octo-corals in live bottom areas. Recommend selected invertebrates and monitoring techniques. Recommend additional studies following analysis of studies in progress
- e) Selected studies on Fishes at Gray's Reef: Complete year-round observations in progress on the identity, distribution, seasonality and patterns of resource utilization of selected species of resident and tropically derived fishes at Gray's Reef. Augment knowledge with studies on infaunal and cryptic species.
- f) Selected Studies on Plankton at Gray's Reef: Identify studies as more information becomes available
- g) Selected studies on Sea Turtles at Gray's Reef: Investigate the feasibility of monitoring spatial and temporal movements and activities of Atlantic loggerhead sea turtles associated with natural and artificial reefs off Georgia. Determine the significance of these reefs to sea turtles
- h) Dynamics and variability of live bottom ecosystems: Incorporate information on live bottom areas into a conceptual ecosystems model. Use the model to identify information needs and to direct multidisciplinary research. Investigate the feasibility of developing a mathematical model to describe live bottom ecosystems.
- 6) Special Projects and Studies
 - a) Census of Sanctuary Users
 - b) Environmental impact of selected activities on live bottom habitats and communities
 - c) Illustrate field guides to selected taxa at Gray's Reef
 - d) Cultural and historical resource surveys
- 7) Implementation strategies
 - a) Priority: relevance, immediacy, scientific or educational merits, environmental consequences, and NOAA funding
 - b) Collaboration with other organizations

Interpretation and Recreation Plan

- 1) Sanctuary Visitors
 - a) Individual sport fishermen
 - b) Organized sport fishing club members
 - c) Charter boat fishermen
 - d) Commercial fishermen
 - e) Individual sport divers
 - f) Organized sport diving club members
 - g) Charter boat sport divers
 - h) Research scientists
 - i) Resource managers

- j) Educators with school groups
- k) Interpreters
- l) Surveillance and enforcement agents
- m) Transient vessel crew members
- 2) Extension audience
 - a) General public
 - b) Local community
 - c) Special interest groups (local and national)
 - d) Government agencies
- 3) The Sanctuary Story (theme)
 - a) Reasons for designation
 - b) Orientation
 - c) Research
 - d) Geology and origin
 - e) Live bottom reef communities
 - f) Sand bottom communities
 - g) Visitor safety
- 4) Interpretive and Recreational facilities and programs
 - a) On-site programs: limited due to location and vulnerability of resources
 - b) Off-site facilities: Visitor Center
 - c) Off-site programs: Sanctuary audience profile, live exhibits, fixed exhibits, audio-visual media, brochures, educational posters, maps, newsletter, coastal interpreter's workshop, speaker's bureau, sanctuary information clearinghouse.

Administration Plan

- 1) SPD: Overall responsibility for managing Gray's Reef NMS, but delegates certain on-site management and surveillance/enforcement responsibilities to state and other federal agencies, Coordinating body.
- 2) USCG: Enforces all applicable Federal laws on or under the high seas, responsible for enforcing regulations in Gray's Reef NMS. Some involvement in surveillance and enforcement
- 3) Georgia Dept. of Natural Resources: Cooperative agreement with NOAA for on-site coordination of research activities. The dept's law enforcement vessel may be used
- 4) University of Georgia: U of G Marine Resource Center on Skidaway Island will serve as the primary site for interpretation and recreation programs related to Gray's Reef
- 5) Sanctuary Steering Committees: Continued public involvement through committees

Management Plan Review

- 1) Management planning is a continuous process.
- 2) Annual plan review and 5 year revision

Public Involvement/timeline

- 1) Nominated for consideration as a marine sanctuary June 1978.
- 2) Nomination distributed by NOAA among Fed, State authorities, regional fishery management councils, environmental and special interest groups and interested individuals for review and comment in July 1979.
- 3) NOAA announces Active Candidate in the Federal Register
- 4) Issue Paper (resources, management issues) circulated in Oct. 1979 for public comment
- 5) Public workshops held in Nov 1979
- 6) Draft EIS circulated for public review May 1980
- 7) Public hearing held July 1980
- 8) Final EIS, (changed through public comment)
- 9) April 1981, sanctuary designation approved

9) Stellwagen Bank (proposed)

Sanctuary Goals and Objectives

- 1) Resource Protection
 - a) Establish cooperative agreements and other mechanisms for coordination among all the agencies participating in sanctuary management
 - b) Develop an effective and coordinated program for the enforcement of sanctuary regulations
 - c) Promote public awareness of and voluntary user compliance with regulations through an interpretation/education program stressing resource sensitivity and wise use
 - d) Reduce threats to sanctuary resources posed by major emergencies through contingency and emergency response planning
- 2) Research
 - a) Establish a framework and procedures for administering research projects to ensure that they are responsive to management concerns, and that research results contribute to improved management of the sanctuary
 - b) Gather necessary baseline data on the physical, chemical, and biological characteristics of the sanctuary
 - c) Gather necessary baseline data on cultural and historical resources of the sanctuary
 - d) Monitor and assess environmental changes as they occur
 - e) Identify the range of effects on the sanctuary environment resulting from changes in human activities
 - f) Incorporate research results into the interpretation/education program in a format useful for resource users and the general public
 - g) Encourage information exchange among all agencies and organizations conducting management-related research in the sanctuary to promote informed management.
- 3) Interpretation/Education

- a) Provide the public with information on the sanctuary, and its goals and objectives, with an emphasis on the need to use its resources wisely to ensure their long-term viability
 - b) Enhance and broaden support for the sanctuary and sanctuary management by offering programs suited to visitors with a range of diverse interests
 - c) Provide for public involvement by encouraging feedback on the effectiveness of interpretation/education programs
 - d) Collaborate with other organizations to provide interpretation/education services, including extension and outreach programs and other volunteer projects, that explain the purposes of the sanctuary and the NMSP
- 4) Visitor Use
- a) Provide relevant information about sanctuary resources and sanctuary uses policies
 - b) collaborate with public and private organizations in promoting compatible uses of the sanctuary by exchanging information concerning its commercial and recreational potential
 - c) Monitor and assess the levels of sanctuary use to identify and control potential degradation of resources and minimize potential user conflicts

Human Activity

- 1) Commercial fishing
- 2) Commercial charterboating
 - a) Whalewatching
 - b) Sportfishing
- 3) Commercial Shipping
- 4) Military Activity
- 5) Offshore Oil and Gas Activity
- 6) Sand and Gravel Mining
- 7) Ocean disposal activities
- 8) Ocean Discharges
- 9) Submerged pipelines
- 10) Fresh water aquifer
- 11) Aquaculture
- 12) Offshore Fixed Artificial Platforms
- 13) Recreational Activities/ Tourism

Action Plan

Overall Management and Development Concept

- 1) General Context
 - a) Highest management priority is long-term protection of the living and non-living resources
 - b) Allow for multiple-uses
- 2) Existing Management Programs

- a) Regional Management (within Massachusetts)
 - 1) Jurisdiction of 3 regional planning entities, most importantly the Cape Cod Commission
- b) Commonwealth of Massachusetts
 - 1) Massachusetts Coastalzone Management program
 - 2) Massachusetts Ocean Sanctuaries Program
- c) Joint State/Federal Programs
 - 1) EPA designated estuary of National Significance as part of the National Estuary Program
- d) International Management: the Gulf of Maine Initiative

Resource Protection

- 1) General context
 - a) Coordination of policies and procedures among agencies currently possessing resource protection responsibilities
 - b) Participation by other agencies in the development of new procedures to address specific management concerns and enhancement of enforcement
- 2) Designation document and Sanctuary Regulations
 - a) Sanctuary designation will not affect existing regulatory mechanisms applicable in the sanctuary area
 - b) Discharges are prohibited
 - c) Alteration of the seabed is prohibited
 - d) Development activities for industrial materials is prohibited
 - e) Submerged pipelines and cables are prohibited
 - f) Historical and cultural resource damage is prohibited
 - g) Taking of Marine Mammals, marine reptiles and seabirds
- 3) Contingency Plans for Major Emergencies
- 4) Encouraging compatible use of the sanctuary
 - a) Monitor commercial and recreational activities within the sanctuary, and encourage other agencies to undertake similar actions and to improve overall detection of areas for particular management concern
 - b) Exchange information on commercial and recreational activities occurring within the sanctuary
 - c) Consult with other agencies on proposals and policies for management of activities which may affect sanctuary resources
 - d) Develop material designed to enhance public awareness and appreciation of sanctuary resources and show the need for their protection
- 5) Surveillance and enforcement
 - a) Broadened enforcement responsibilities of the USCG
 - b) Cooperative enforcement of fishing harvest laws by USCG, NMFS, and the Commonwealth of Massachusetts
 - c) Public Education and Information
 - d) Planning and coordination

Research

- 1) General context for management
 - a) Research which addresses management issues
- 2) Framework
 - a) baseline studies to determine: feature and processes of the environment; abundance, distribution, and interactions among the living resources; and patterns of human activities
 - b) Monitoring studies to document changes in ecology, environmental quality, and human activities in the sanctuary
 - c) Predictive studies to assess causes and effects of ecological and environmental changes, and to anticipate management issues
 - c) Selection and management of research projects
 - 1) Annual sanctuary research plan
 - 2) Research project monitoring program
- 3) Information exchange
 - a) SRD encourages sanctuary research funded by other sources to complement research directly funded by NOAA
 - b) SRD will make research data available to other agencies and private institutions

Interpretation

- 1) General Context for management
 - a) Focus on improving public understanding by providing information on the Bank's functions and resources and on the regulations
- 2) Interpretive Opportunities
 - a) Visitors to the sanctuary: brochures and informational materials distributed aboard whalewatch vessels; through recreational charterboat captains; and through educational institutions sponsoring vessel trips to the site
 - b) Visitors to the sanctuary headquarters: focal point for interested public; information on the Bank system, its resources, recreational activities and the protective and safety regulation in effect: audio visual, and printed
 - c) Individuals and organizations not visiting either location: outreach programs to schools and organizations

Administration

- 1) Administrative Framework
 - a) Sanctuary and Reserves division: Prepares site specific management plan, ensures coordination of actions and agencies, develops budget
 - b) NMFS: implementation of fishery management plans, implementation of MMPA and ESA
 - c) USCG: enforcement
 - d) Sanctuary Advisory Committee: Assist interest groups in participating in the day-to-day management of the sanctuary
 - e) Other federal Agencies:

- EPA: sewage and ocean disposal
- MMS: OCSLA
- f) State, Regional, and Local Agencies
- CZM, Sanctuaries

(10) Fagatele Bay

Goals

- 1) Protect and preserve Fagatele Bay's natural resources and pristine character
- 2) Expand public awareness and understanding of marine environments found in the warm waters of the Pacific ocean, and thereby foster a marine conservation ethic
- 3) Expand scientific understanding of marine ecosystems found in the warm waters of the Pacific Ocean, especially coral reefs that have been infested by the crown of thorns starfish, and apply scientific knowledge to the development of improved resource management techniques
- 4) Allow uses of the sanctuary that are compatible with Goals 1-3, give highest priority to subsistence and public recreational uses

Objectives

- 1) Coordinate and, where necessary, refine administration of existing authorities by responsible government agencies to ensure that the sanctuary's resource values, including its pristine character, are protected and preserved
 - a) Create and periodically convene a Fagatele Bay Research Coordinating Committee
 - b) Under the committee, monitor and if necessary, improve the coordinated exercise of sanctuary research. secure a boat as necessary to monitor and enforce proper uses of the sanctuary
 - c) Under the committee and the American Samoa CMP, review and revise existing regulations of land-based activities which may affect Fagatele Bay and explore alternatives to regulation
 - d) Install one or more anchor buoys to protect the benthic community following a determination by the committee that the need for such buoys exists and that their installation will not interfere with realization of the sanctuary goals
- 2) Develop and implement a comprehensive public awareness program designed to promote understanding of the natural and human resource values of Fagatele Bay and marine environments
 - a) Develop and implement a curriculum program that will expand understanding of the sanctuary and marine environments for use in Samoan schools
 - b) Develop a public outreach program for Samoans and visitors
 - c) Establish links with similar marine reserve efforts located in the warm waters of the Pacific and encourage cross-fertilization of public awareness program ideas
 - d) Construct an interpretive center for the public that describes and explains the natural and human resource values of the sanctuary and the marine environment
 - e) Facilitate access to the sanctuary for public awareness purposes by developing a boat launch and mooring site in Leone Bay and acquire a boat suitable for the public awareness program's needs

- 3) Establish a coordinated research program for the sanctuary
 - a) Establish a Fagatele Bay Research Committee to monitor and assist if necessary improve the coordinated research efforts conducted in accordance with the five-year research agenda
 - b) Facilitate access to the sanctuary for research purposes by developing a boat launching and mooring site and acquiring a boat suitable for the research program's needs
- 4) Promote other sanctuary uses, including subsistence and public recreation, which are deemed compatible with the goals and monitor such uses to ensure that they do not interfere with the realization of those goals
 - a) Facilitate access to the sanctuary for research purposes by developing a boat launching and mooring site and acquiring a boat suitable for the research program's needs
 - b) Facilitate access to the sanctuary and protect the benthic community by installing one or more anchor buoys
 - c) Facilitate access to the sanctuary by seeking to develop an overland access route to the sanctuary deemed feasible and prudent by the committee

Known federal Authorities

- 1) Clean Water Act
- 2) Discharges (CWA)
- 3) Oil Pollution: (CWA)
- 4) Recreational Vessels (CWA)
- 5) Dredging and Discharging Dredged Materials
- 6) MPRSA (ocean dumping)
- 7) MMPA
- 8) Rivers and Harbors Act
- 9) Fishery Conservation and Management Act of 1976
- 10) ESA
- 11) CZMA

Implications for Management

- 1) The Interpretive Program will
 - a) Raise public awareness concerning the value of marine resources, the importance of coral reef ecology, and the role healthy reef's play in enhancing fishery resources
 - b) Provide a coordinated curriculum development program between American Samoa, Hawaii, Guam, and other agencies throughout the Western Pacific
 - c) Provide a Visitor/Interpretive Center
 - d) Inform the public about the crown-of-thorns starfish and their role in coral reef ecology
 - e) Encourage compatible recreational activities, such as snorkeling, scuba, underwater photography, swimming, sports fishing, and boating
- 2) The Resource Studies Plan will

- a) Provide information on the life-history and ecology of the crown-of-thorns starfish that will aid in the development of coral reef management techniques
 - b) Evaluate the long-term effects of coral destruction by the crown-of-thorns starfish
 - c) Monitor and assess restoration and recovery process of the coral reefs that experiences natural perturbations
 - d) Provide baseline data on the fish, invertebrate, and algal populations of Fagatele Bay
 - e) Encourage cooperative research projects between those institutions and agencies concerned with the crown-of-thorns starfish
 - f) Assess the long-term chronic effects of toxins, such as heavy metals, petroleum hydrocarbons, pesticides and other chlorinated hydrocarbons, and nutrients from sewage and land drainage
- 3) The Administration and Operations Program will
- a) Provide administrative staff to manage resources of the proposed FBNMS
 - b) Provide a focus for coordination between DPO, OMR, DPR, the Dept of Ed and other relevant territorial agencies concerned with resource management
 - c) Provide a focus for coordination between territorial and federal resource management agencies
 - d) Provide a coordinated enforcement effort with regard to federal and territorial resource protection statutes Including
 - 1) Prohibiting the taking of corals or bottom formation except by permit for education or scientific purposes
 - 2) Prohibiting the harvesting of crown-of-thorns starfish, except by permit
 - 3) Prohibiting commercial fishing in selected areas
 - 4) Prohibiting the use of fishing poles, handlines seines, trawls, terammel nets, or any fixed net, and the use of poisons, dynamite, and spearguns for sport and subsistence fishing
 - 5) Prohibiting the discharge of any pollutant or material including flushing of ships tanks and disposal of items overboard, except when authorized
 - 6) Prohibiting the disturbance of the benthic community by dredging, filling, dynamiting, and trawling
 - 7) Prohibiting taking by harassment of marine mammals, and endangered species as define by the MMPA and ESA

(11) Monterey Bay

Sanctuary Goals and Objectives

1) Resource Protection

- a) Coordinate policies and procedures among the agencies sharing responsibility for protection and management of resources
- b) Encourage participation by interested agencies and organizations in the development of procedures to address specific management concerns
- c) Develop an effective and coordinated program for the enforcement of sanctuary regulations
- d) Enforce Sanctuary regulations in addition to other regulations already in place
- e) Promote public awareness of, and voluntary compliance with sanctuary regulations and objectives, through an educational/interpretive program stressing resource sensitivity and wise use
- f) Ensure that the water quality of Monterey Bay is maintained at a level consonant with Sanctuary designation
- g) Establish memoranda of agreement and other mechanisms for coordination among all the agencies participating in sanctuary management
- h) Ensure that the appropriate management agency incorporates research results and scientific data into effective resource protection strategies
- i) Reduce threats to sanctuary resources

2) Research

- a) Establish a framework and procedures for administering research to ensure that research projects are responsive to management concerns and that results contribute to improved management of the sanctuary
- b) Incorporate research results into the interpretive/education program in a format useful for the general public
- c) Focus and coordinate data collection efforts on the physical, chemical, geological, and biological oceanography of the sanctuary
- d) Encourage studies that integrate research of the variety of coastal habitats with nearshore and open ocean processes
- e) Initiate a monitoring program to assess environmental changes as they occur due to natural and human processes
- f) Identify the range of effects on the environment that would result from predicted changes in human activity or natural phenomena
- g) Encourage information exchange among all the organizations and agencies undertaking management-related research in the sanctuary to promote more informed management

3) Education

- a) Provide the public with information of the sanctuary and its goals and objectives, with an emphasis on the need to use these resources wisely to ensure their long-term viability
- b) Broaden support for the sanctuary and sanctuary management by offering programs suited to visitors with a range of diverse interests
- c) Provide for public involvement by encouraging feedback on the effectiveness of education programs and collaborate with other organizations to provide interpretive

services, including extension and outreach programs and other volunteer projects, complementary to the sanctuary program

- d) Collaborate with sanctuary management staff in extension and outreach programs, and participation in other volunteer programs

4) Visitor Use

- a) Encourage the public who use the sanctuary to respect sensitive sanctuary resources and qualities
- b) Provide relevant information about sanctuary regulations and use policies
- c) Collaborate with public and private organizations in promoting compatible use of the sanctuary
- d) Monitor and assess the levels of use to identify and control potential degradation of resources and minimize potential conflicts

Human Activities

- 1) Commercial fishing and mariculture
- 2) Oil and Gas activities
- 3) Commercial shipping
- 4) Military Activity
- 5) Research and Education
- 6) Aquaculture
- 7) Ocean waste disposal
- 8) Ocean dredging and sand mining
- 9) Recreational activities and tourism

Action Plan

- 1) First task is to establish liaison with the appropriate agencies to ensure the sanctuary mandate can be carried out through a cooperative management strategy
 - a) CDF&G, CDP&R, Regional Water Quality control Boards, USCG, USF&W, Local businesses, Association of Monterey Bay Area Governments, town and cities, agricultural and fishing representatives, and research institutions
- 2) MBNMS Advisory Committee will be created
 - a) Appointed representatives of governmental agencies, research and education, and commercial and environmental interests
 - b) Determine the management priorities and bring other agencies together
- 3) Coordinate and support resource management programs in other agencies
- 4) Assist in coordination and support of existing interpretive and education programs

Resource management

- 1) Coordination of policies and procedures among the agencies sharing responsibility for resource protection

- 2) Participation by other agencies in the development of new procedures to address specific management concerns
- 3) Enforcement of sanctuary regulations in addition to those already in place

Designation document and sanctuary regulations

- 1) Exploring for, developing, or producing oil, gas or minerals in the sanctuary is prohibited
- 2) Depositing or discharging from any location within the boundaries of the sanctuary materials or other substances except fish, fish parts, chumming materials or bait used in or resulting from normal fishing operations in the sanctuary; biodegradable effluents incidental to vessel use generated by marine sanitation devices approved by the USCG; water generated by routine vessel operations excluding bilge pumping; or engine exhaust is prohibited
- 3) Depositing or discharging from beyond the boundaries of the sanctuary the items above that subsequently enter the sanctuary and injure a sanctuary resource or quality is prohibited
- 4) Moving, possessing, or injuring or attempting to move, possess, or injure a sanctuary historical resource is prohibited
- 5) Drilling through, dredging or other wise altering the seabed of the sanctuary; or constructing, placing or abandoning any structure or material on the seabed of the sanctuary, except as a result of: anchoring vessels, normal fishing operations, routine harbor maintenance; installation of navigation aids; maintenance of mariculture; and the construction of docks and piers is prohibited
- 6) Taking of marine mammals in the sanctuary or seabirds in or above the sanctuary is prohibited
- 7) Flying motorized aircraft at less than 1000ft above the sanctuary within 3 nautical miles of state of CA designated reserves, parks, beaches or refuges is prohibited

Potential future regulations on

- 1) Vessel Traffic
- 2) Thrill craft

Contingency Plans for Major Emergencies

- 1) Describe emergency-response procedures and coordination requirements for MEMD and Sanctuary staff
- 2) Provide a geographic information system depicting resources at risk
- 3) Outline procedures for emergency research
- 4) Provide damage assessment guidelines

Encouraging compatible use of the sanctuary

- 1) Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect areas of particular management concern
- 2) Collecting and publicizing information on commercial and recreational activities in the sanctuary
- 3) Consulting with other agencies on policies and proposals for the management of activities which may affect protection of sanctuary resources
- 4) Developing educational materials aimed at enhancing public awareness of the sanctuary resources and their need for protection

Surveillance and Enforcement

- 1) State-Federal cooperative enforcement system involving
 - a) State of Ca Resources Agency, USCG, USFW, NMFS and NPS

Research (Coordination)

- 1) Baseline studies to determine the features and processes of the natural environment; to determine the abundance, distribution, and interaction of the living resources; distribution and status of cultural resources and to describe the pattern of human activity in the sanctuary from prehistoric times to the future
- 2) Monitoring to document changes in environmental quality, in ecology, and in human activity
- 3) Predictive studies to assess the causes and effects of environmental and ecological changes
- 4) Selection and Management of research projects
 - a) Preparing an annual plan
 - b) Monitoring progress
- 5) Information exchange

Education

- 1) General context
 - a) Many educational opportunities
- 2) Educational Programs
 - a) Site visitor programs and information for regular users such as fishing and whale watching excursions, other recreational visitors to sanctuary waters and local public and school groups
 - b) Information center programs for those visiting the facilities at the MBNMS headquarters and other nearby information centers
 - c) Outreach programs for interested groups not visiting the sanctuary

Administration

- 1) Administrative framework
 - a) MEMD: management plan, funding

- b) SAC: assist the interested groups in participating in sanctuary management
- c) Federal Agencies: USCG, NMFS, EPA, Military
- d) State, regional and local agencies: State of California Resources Agency, CACC, Water Quality Control Board, State Lands Commission, Air Resources board and Historical Resources Commission

(12) Olympic Coast (proposed)

Sanctuary goals and objectives

1) Resource Protection

- a) Develop cooperative and integrated programs and policies for the sanctuary and encourage better coordination among all agencies (federal, state, tribal and local) that participate in the sanctuary's resource management.
- b) Encourage all agencies to consider appropriate marine resource protection policies when reviewing and evaluating development proposals or permit applications for the sanctuary and for adjacent areas.
- c) Participate in the development of improved marine resource protection policies, laws, and regulations for the sanctuary.
- d) Improve such management techniques as contingency planning and emergency response efforts to reduce threats to resources.
- e) Encourage commercial and recreational uses of the sanctuary that are compatible with protection of its significant resources.
- f) Assess current levels of use and monitor human impact over time to determine visitor carrying capacity in vulnerable areas and to minimize potential use conflicts.

2) Research

- a) Establish a data base and management system among responsible federal, state, tribal, and local resource management agencies.
- b) Assess the sanctuary's information base to identify gaps in knowledge that can affect ability to manage the area.
- c) Conduct studies of species or marine communities to identify resources most in need of management attention.
- d) Promote the sanctuary as a site for management-related marine research by providing financial and logistical support for scientific investigations that address critical marine resources protection issues.
- e) Design research projects that respond to management concerns and that contribute to improved management of the sanctuary.
- f) Make effective use of research results by incorporating them into interpretive and resource protection programs.
- g) Encourage information exchange and cooperation among all the organizations and agencies undertaking management-related research in the sanctuary to promote more informed management.

3) Interpretation and Education

- a) Provide the public with accurate information about the sanctuary, current marine resource protection issues and activities, and the NMSP.
- b) Use the sanctuary to illustrate to the public the broader marine issues, concerns, and management policies that are currently being addressed in marine protected areas around the world.
- c) Offer the public opportunities for first-hand appreciation of the sanctuary by improving access to appropriate areas within the sanctuary and by other means that are compatible with resource protection objectives.
- d) Broaden public support for the sanctuary by offering programs suited to visitors of diverse interests, ages, and backgrounds.
- e) Collaborate with local organizations to provide interpretive services complementary to the sanctuary program and to develop a strong network of support in the local community.
- f) Stimulate public involvement by establishing volunteer programs, having sanctuary staff participate in school and community outreach programs, and encouraging the public to express their opinion of the program's effectiveness and usefulness.

Regulations

- 1) OCS oil and gas exploration, production and development activities are prohibited throughout the sanctuary.
- 2) Discharges or deposits within the sanctuary are prohibited. Exceptions include vessel cooling waters, fish, fish parts, chumming materials, bait, and marine sanitation device effluent.
- 3) Removing, possessing, injuring, or attempting to remove, possess or injure historical or cultural resources is prohibited.
- 4) Alteration of, or construction on, the seabed; placement or abandonment of any structure or material on the seabed; attempting to alter the seabed for any purpose other than anchoring, trawling, harbor maintenance, navigational aids, aquaculture, or docks and piers is prohibited.
- 5) Taking of marine mammals, reptile, or birds is prohibited.
- 6) Low flying aircraft less than 1000 feet above the sanctuary within 1 nautical mile of Olympic National Park and national wildlife refuges is prohibited.
- 7) Contingency plans for oil spill will be developed.

Encouraging Compatible Use of the Sanctuary

- 1) Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect areas of particular management concern.
- 2) Exchanging information on commercial and recreational activities in the sanctuary.
- 3) Consulting with other agencies on policies and proposals for the management of activities which may affect protection of sanctuary resources.
- 4) Developing materials aimed at enhancing public awareness of the sanctuary's resources and their need for protection.

Research

- 1) Baseline studies on the general characterizations and distributions of species and marine communities.
- 2) Monitoring the long and short-term changes in habitats, marine populations, and marine communities; and what are the influences of natural variability and human-caused disturbances on these changes.
- 3) Experimental/Predictive studies on the cause and effect relationships accounting for changes observed in resource distribution, abundance, and diversity.

Interpretation and Education

- 1) Education for visitors on the site (brochures on regulations, wildlife and sanctuary).
- 2) Education for visitors to local information centers (parks, museums and universities) and sanctuary headquarters.
- 3) Outreach programs to serve those who are unable to visit the site or centers.

Administration

- 1) SRD: prepares plan, overall management
- 2) Sanctuary Steering Committee: Agencies, interested groups, and individuals will actively contribute to the management of the OCNMS.
 - a) Federal, state, local, and tribal government
 - b) User groups
 - c) Local community
 - d) Tribal members
- 3) USCG, NPS, USF&W and state cooperation.

Appendix B

Oregon's Ocean Resources Management Plan goals and recommendations

(from the OORMP 1991)

Within the Ocean Stewardship Area, Oregon will: **(GOALS)**

- 1) Conserve living marine resources, including biological communities and habitats.
- 2) Give priority to renewable resources over nonrenewable resources
- 3) Support scientific research on marine ecosystems, ocean resources, and oceanographic conditions to develop better information upon which to make better ocean management decisions
- 4) Seek appropriate co-management arrangements which the federal government to ensure that ocean resources in the Ocean Stewardship Area are managed consistently in accordance with the policies of the Oregon Ocean Resources Management Plan
- 5) Coordinate and cooperate with adjacent states and encourage regional approaches to management of ocean areas, when appropriate
- 6) Involve local governments and the public in ocean resource management decisions
- 7) Develop marine management areas, where needed, to provide increased opportunities for public recreation, to protect biological communities and habitats, and/or to advance scientific understanding of the ocean

Conservation and Habitat Protection

Ocean Resource Conservation in Oregon

- 1) Oregon Ocean Resources Management Act:
Oregon will conserve the long-term values, benefits and natural resources of the ocean both within the state and beyond by giving clear priority to the proper management and protection of renewable resources over non-renewable resources
- 2) Goal 19: identifies Oregon's principal ocean resources conservation techniques
Identification of environmental resources that may be affected by a resource use
Assessment of the effects of a proposed resource use
Use of contingency plans for emergencies

Recommendations

- 1) Allow only those activities and uses of ocean resources in Oregon's Ocean stewardship area which are consistent with the goal of ocean resources conservation
- 2) Require an environmental inventory and impact assessment for all ocean resource management decisions
- 3) Require an environmental risk assessment for all proposals to develop nonrenewable ocean resources
- 4) Prohibit a proposed activity when the environmental impact and risk assessments show that the value of affected biological communities and habitats is high etc.
- 5) Resolve conflicts between ocean resource uses to protect and prioritize renewable resources
- 6) Use non-regulatory means to promote and achieve ocean resource conservation
- 7) Promote public education and interpretation
- 8) Support mitigation techniques
- 9) Allow small scale pilot projects to obtain needed information

Habitat Protection recommendations

- 1) Expand state agency decision making on ocean resource uses and activities to include consideration of entire ecosystems
- 2) Identify critical habitats within the Oregon Ocean Stewardship Area which require special management or protection
- 3) Enforce federal and state laws protecting migratory birds, marine mammals, and endangered, threatened, and sensitive species
- 4) Restrict uses or access to protect species or their habitats

Fisheries

Fisheries Management

- 1) The Oregon Fish and Wildlife Commission
- 2) The Magnuson Act
- 3) The Regional Fishery Management Council

Issues

- 1) Pollution
- 2) Habitat Disruption and Loss
- 3) Inadequate Information

Conclusions and Recommendations

- 1) Conserve, protect and where needed, enhance or restore marine habitats that are important to commercial and recreational fish species

- 2) Give clear priority to the proper management and protection of renewable resources (fisheries)
- 3) Allow only those uses of nonrenewable resources within the Ocean Stewardship area that do not adversely affect commercial or recreational fisheries and that do not adversely affect the long-term viability of fish populations or the quality of marine habitats
- 4) Protect special areas for fishing stocks
- 5) In other "important fisheries Areas" allow specific uses of nonrenewable resources if the ODF&W determines it OK
- 6) Support research on marine ecosystems, fish populations, and fish habitat needs to promote sound management decisions
- 7) Develop public education and interpretations programs about the commercial and recreational fishing industry etc.

Marine Birds and Mammals

Management Issues

- 1) Population Declines and loss of Habitat
- 2) Fragmented State and Federal Responsibilities
- 3) Limited Scientific Information
- 4) Limited Public Understanding

Conclusions and Recommendations

- 1) Promote public awareness and appreciation of marine birds, mammals, and their habitats. Develop public education and interpretation programs to increase public understanding
- 2) Provide state protection to marine birds, mammals, and habitats where critical
- 3) Develop provisions in Oregon's plan for the territorial sea that will improve protection of sensitive species and provide for the development of site-specific management programs
- 4) Strengthen state programs to complement federal bird and mammal protection programs. Actively pursue co-management opportunities
- 5) Prohibit activities around nearshore rocks and islands which threaten the continued viability of marine birds and mammal populations
- 6) Support the use of the nearshore rocks and islands for safe passage and anchorage where necessary to protect human lives
- 7) Support a range of resource management and protection measures which include both regulatory and non-regulatory approaches including increased enforcement efforts of existing state and federal agencies
- 8) Allow fishing and harvest of renewable resources around all of the nearshore rocks and islands unless the ODF&W determines that it adversely affects populations. With the exception of permitted fisheries activities and safe anchorage and passage, prohibit all other activity within 1/4 mile of the

thirty three sensitive areas. Prohibit exploration and development of non-renewable resources within 3 miles of all nearshore rocks and islands.
Allow scientific research.

- 9) Support the contribution of volunteer wildlife rehabilitation centers and provide state support
- 10) Increase communication among the ODF&W, Oregon State Police, ODP&R and wildlife rehabilitation centers on marine mammals protection
- 11) Develop protocols for involvement of wildlife rehabilitation centers in oil spill response planning and implementation

Intertidal Plants and Animals

Management Issues

- 1) Limited Public Awareness
- 2) Impoverished Intertidal Areas
- 3) Growing tourism and coastal populations
- 4) Fragmented State Agency Responsibilities

Recommended Policies

- 1) Protect sensitive intertidal habitats and communities from pollution and from overuse and abuse
- 2) Promote public awareness, understanding, and appreciation of intertidal habitats.
- 3) Establish Intertidal Marine Gardens, where necessary, to protect particularly vulnerable intertidal areas and to provide opportunities for public enjoyment and learning
- 4) Develop provisions in Oregon's plan for the territorial sea to protect intertidal plants, animals, and habitats.

Recreation and Cultural Resources

Management Issues

- 1) State Planning for Recreation
- 2) Highway 101 Improvements
- 3) Public Concerns

Recommended Policies

- 1) Prohibit development activities in the territorial sea which would impair the cultural, scenic, or recreational values of the near shore areas

- 2) Prepare a comprehensive coastal and marine parks and recreation assessment and plan to accommodate increased recreational demand while protecting coastal and ocean resources
- 3) Pursue an aggressive program to identify and acquire additional public recreation resources and sites on the Oregon coast and to provide for public recreation opportunities in the marine environment
- 4) Plan for improvement to Highway 101 which maintain, restore, or enhance recreational, scenic and interpretive opportunities
- 5) Place strong emphasis on education, information and interpretation to protect marine resources, provide for economic development ;and enhance visitor appreciation of coastal resources and economies
- 6) Designate cultural and historic sties, including shipwrecks, as important resources for the general public and not private exploitation.

Marine Water and Air Quality

Management Issues

- 1) Federal Pollution Control Programs
- 2) State Pollution Control Programs
- 3) Increased Waste Disposal
- 4) New Kinds of Waste

Recommended Policies

- 1) Emphasize pollution prevention rather than cleanup and remedial measures
- 2) Require that highest and best controls be used to minimize emissions from ocean activities and assure that they do not degrade the existing high quality of Oregon's marine and coastal air
- 3) Require that discharge of pollutants into the airshed of Oregon's Ocean Stewardship Area is consistent with the policies of this plan and such standards as may be developed to carry out this plan
- 4) Increases information and data to analyze the effects of air pollution from ocean resources development on marine and onshore air quality
- 5) Assert Oregon's leadership role in protecting marine water quality through improved state management capability and through a coordinated program of federal, state and local government
- 6) Encourage citizens, local governments, businesses and ocean users to minimize waste disposal in the ocean by reducing waste at its source, conserving water, controlling pollution sources on land and in the water, promoting proper waste disposal , and recycling
- 7) Emphasize prevention of marine water pollution by promoting recycling and debris collection in Oregon's, minimize coastal discharges and toxic discharges

- 8) Establish marine air and water quality monitoring systems and promote research to analyze the effects of pollution on intertidal and oceanic ecosystems
- 9) Support and participate in interstate and international efforts to reduce and eliminate marine debris and pollution
- 10) Promote the use of products that can be recycled or manufactured without adverse affects on marine water quality

Oil and Gas

Management Issues

- 1) State Oil and Gas leasing
- 2) Federal OCS Leasing Program
- 3) Congressional Moratoria on Offshore Leasing
- 4) Presidential Action Canceling OCS Lease Sale #132
- 5) Public Concerns

Recommendations

- 1) In state waters: Prohibit oil and gas exploration and development within the state territorial sea
- 2) In Federal waters: Call upon the Secretary of the Interior to cancel Lease Sale #132
- 3) In Federal waters: Oppose any federal lease sale for the Washington-Oregon OCS Planning Area until at least the following conditions are met to the satisfaction of the OOPAC.

Oil Spills

Management Issues

- 1) Vulnerability t a Coastal Spill
- 2) Prevention
- 3) Volunteer Management
- 4) Dispersal Guidelines
- 5) Damage Assessment
- 6) Liability for Damages
- 7) Wildlife Rehabilitation
- 8) Debris Disposal
- 9) Vessel Safety

Recommendations

- 1) Emphasize strategies to prevent spills from occurring in Oregon waters
- 2) Commit sufficient resources to maintain ongoing spill planning activities so that plans can be updated, expanded, and exercised on a continual basis
- 3) Promote efforts within industry to assure that oil spill response equipment and trained cleanup personnel will be available to respond immediately to a spill during any activity involving petroleum production or transport in Or waters
- 4) Emphasize the importance of policies and strategies for dealing with wildlife rehabilitation, oiled debris disposal, volunteer management, damage assessment, and dispersal use
- 5) Ensure that any party engaging in petroleum exploration, production, storage, or transport in or near Or waters shall develop and acquire approval from the appropriate authority for oil spill contingency plans
- 6) Insist that federal laws be changed to clearly remove all limitation on the liability of any party responsible for spill oil or hazardous material into the water of the state
- 7) Coordinate with other coastal states to encourage the US Congress to designate the USCG as the sole federal agency with authority to review industry spill prevention and response plans for adequacy
- 8) Oregon's coastal oil spill prevention and response plan shall be a part of the state's territorial sea plan

Marine Minerals

Management Issues

- 1) State regulation for Minerals
- 2) Federal Marine Mineral Program
- 3) State-Federal Task Forces
- 4) Public Concerns

Recommended Policies

- 1) Prohibit commercial exploration contract under Senate Bill 606 for at least 5 years
- 2) Amend ORS 274.611-640 to clarify that an exploration contract neither confers proprietary rights to any minerals found nor obligates the state to proceed with any steps toward mineral leasing or development
- 3) Clarify and refine state marine mineral policies in the territorial sea plan
- 4) Include in the TSP a research plan for academic and public agency research related to marine minerals, environmental conditions, biologic resources, and socio-economic conditions
- 5) Require an inventory and effects assessment under Statewide Planning Goal 19, Ocean Resources, prior to any commercial exploration contracts and

require that the proposed exploration plan will avoid adverse impacts from exploration activities

- 6) Prohibit exploration and development of marine minerals within 3 miles of all nearshore rocks and islands until the TSP is complete. Allow scientific research if OK by ODFW
- 7) Prohibit commercial mineral exploration and development in Important Fishery Areas as identified in the Ocean Plan
- 8) Use the adopted policies of the OORMP to coordinate all state and federal marine mineral activities

Appendix C

Comparison of OORMP recommendations and NMSP management techniques.

(from the OORMP and the NMSP)

Bold text indicates the recommendation from the OORMP

Plain text indicates the management technique from the NMSP

Conservation and Habitat Protection

Recommendations

1) Allow only those activities and uses of ocean resources in Oregon's Ocean stewardship area which are consistent with the goal of ocean resources conservation

Gulf of the Farallones

Review and if needed revise discharge regulations to facilitate enforcement

Monitor visitor use impacts

Encouraging compatible uses

Participate in the review of major coastal (and offshore) development proposals or new activity proposals that could affect sanctuary resources

Provide scientific information in the sensitivity of sanctuary resources for potential developments to land use regulatory agencies

Continue to support and implement investigations on the effects of human-related disturbances on populations

Hydrocarbon activities prohibited

Discharges prohibited

Alteration of, or construction on the seabed prohibited

Commercial vessel operations restricted around sensitive areas

Overflights prohibited below 1000 feet around areas of biological significance except for enforcement

Removing or damaging historical or cultural resources is prohibited

Looe Key

Concentrated use area: NMS standard mooring buoys, designated boating zone,

Regulationss: only applicable for small protected areas

Cordell Banks

Participation of other agencies in the development of new procedures to address specific management concerns

Discharges prohibited

Removing, taking or injuring benthic resources on Cordell Bank or the 50 fathom isobath prohibited
 Consideration of anchoring regulations
 Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect areas of particular management concern
 Exchanging information on commercial and recreational activities
 Consulting with other agencies on policies and proposals for the management of activities which may affect protection of sanctuary resources

Flower Garden Banks

Discharging prohibited
 Drilling, dredging, altering the seabed prohibited
 Exploring for, developing or producing oil, gas or minerals prohibited
 Possessing or using explosives or releasing charges within the sanctuary is prohibited
 Coordinate policies and procedures among the agencies sharing responsibility for protection and management of resources
 Identify the range of effects on the environment that would result from predicted changes in human activity
 Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect incidents of particular management concern
 Rely on observers from other agencies and cooperating organizations for surveillance
 Monitoring to document changes in environmental quality, ecology, and human activity

Channel Islands

Improve the coordination of surveillance and enforcement activities through scheduling and joint development of operational procedures
 Prohibition of new oil and gas exploration and development
 Prohibition of discharges (with exceptions)
 Alteration or construction on the seabed prohibited
 Access of vessels other than fishing, recreational, and research within 1 nautical mile of any island within the sanctuary is prohibited
 Aircraft are not permitted below 1000 feet within one nautical mile of any island within the sanctuary
 Coordination of surveillance and enforcement activities
 Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect areas of particular management concern
 Reviewing and consulting with other agencies on policies or proposals for the management of activities which may affect protection of sanctuary resources

Research focus on management issues which relate to the protection of significant resources

U.S.S. Monitor

Prohibition of drilling, coring, and discharge of waste materials

Cooperative enforcement and surveillance

Key Largo

Participate with county, state, and federal agencies in consultations with contractors and developers to keep them informed of current and newly developed information about the sanctuary and the effect of manmade stresses

Prohibition on operating vessels in a manner which may cause damage to natural features or other boats or divers

Regulation of dredging, filling, excavating, and building activities and discharge of refuse and polluting substances

Gray's Reef

Maintain an on-site management capability that stays informed of resource conditions and human activities over time and recommends action if problems arise

Maintain the surveillance and enforcement presence needed to ensure compliance with regulations and adequate protection of resources

Establish a means to monitor sanctuary use and resource quality over time to minimize potential user conflicts and environmental degradation

Alteration of or construction on the seabed is prohibited

Depositing or discharging any polluting materials is prohibited (exceptions)

Removing or damaging historic or cultural resources is prohibited

Special research projects on census of sanctuary users, and environmental impact of selected activities on live bottom habitats and communities

Stellwagen Bank

Coordination for sanctuary management and enforcement

Standard regulations

Monitor commercial and recreational activities within the sanctuary, and encourage other agencies to undertake similar actions and to improve overall detection of areas for particular management concern

Exchange information on commercial and recreational activities occurring within the sanctuary

Consult with other agencies on proposals and policies for management of activities which may affect sanctuary resources

Monitoring studies to document changes in ecology, environmental quality, and human activities in the sanctuary

Fagatle Bay

Monterey Bay

Standard regulations

Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect areas of particular management concern

Coordinated enforcement and surveillance

Monitoring to document changes in environmental quality, in ecology and in human activity

Olympic Coast

Encourage all agencies to consider appropriate marine resource protection policies when reviewing and evaluating development proposals or permit applications for the sanctuary and for adjacent areas

Encourage commercial and recreational uses of the sanctuary that are compatible with protection of its significant resources

Assess current levels of use and monitor human impact over time to determine visitor carrying capacity in vulnerable areas and to minimize potential use conflicts

Standard regs

2) Require an environmental inventory and impact assessment for all ocean resource management decisions

Gulf of the Farallones

Compile information on resources at risk from accidental discharges

Monitor problems in chronic pollution, marine mammal and seabird/fishery interactions

Continue monitoring and/or encourage other agencies to monitor inter tidal and subtidal sites within the sanctuary that are heavily harvested

Support research projects that address confirmed baseline data gaps affecting marine resource management within the sanctuary

Continue to support and implement selected investigations of the effects of human-related disturbances on populations

Collect and organize all existing data and studies relevant to sanctuary resources and prepare data atlas

Looe Key

Undertake an comprehensive baseline resource mapping study

Design and implement a temporary and permanent biophysical monitoring system

Cordell Banks

Support, promote and coordinate scientific research on , and monitoring on the site-specific marine resources to improve management decision-making in NMS's

Gather baseline data on the physical, chemical and biological oceanography of the sanctuary

Identify the range of effects on the environment that would result from predicted changes in human activity

Baseline studies to determine the features and processes of the natural environment to determine the abundance, distribution, and interaction of the living resources, and to describe the pattern of human activity in the sanctuary

Monitor to document changes in environmental quality, in ecology, and in human activity

Predictive studies to assess the causes and effects of environmental and ecological changes

Flower Garden Banks

Gather baseline data on the physical, biological, and chemical oceanography of the sanctuary

Identify the range of effects on the environment that would result from predicted changes in human activity

Encourage information exchange

Channel Islands

Design management-oriented and collaborative ecosystem, environmental, and visitor use monitoring program

Collaborate with other agencies

U.S.S. Monitor

Baseline information studies

Key Largo

Research will focus on management issues, biophysical and applied social research

Establish a comprehensive monitoring program for the sanctuary

Gray's Reef

Design and implement an information management system to incorporate information generated by proposed and ongoing projects and administrative activities. Establish a mechanism to make information available to potential users

Detailed studies on geology, oceanography, ecology, and special projects and studies

Stellwagen Bank

Baseline studies to determine: feature and processes of the environment; abundance, distribution, and interactions among the living resources; and patterns of human activities

Monitoring studies to document changes in ecology, environmental quality, and human activities in the sanctuary

Predictive studies to assess causes and effects of ecological and environmental changes, and to anticipate management issues

Fagatele Bay

Provide base-line data on the fish, invertebrate, and algal populations of the bay

Monterey Bay

Baseline studies to determine the features and processes of the natural environment; to determine the abundance, distribution, and

interaction of the living resources; distribution and status of cultural resources and to describe the pattern of human activity in the sanctuary from prehistoric times to the future

Monitoring to document changes in environmental quality, in ecology, and in human activity

Predictive studies to assess the causes and effects of environmental and ecological changes

Olympic Coast

Same as Monterey Bay

3) Require an environmental risk assessment for all proposals to develop nonrenewable ocean resources

Gulf of the Farallones

Compile information on resources at risk from accidental discharges

Evaluate current response capability within the sanctuary and investigate alternatives for increasing capability

Prepare and implement an emergency response and contingency plan

Looe Key

Evaluate existing contingency plans and capabilities for responding to emergencies on the reef

Cordell Banks

Reduce threats to sanctuary resources raised by major emergencies through contingency and emergency-response planning

Flower Garden Banks

Reduce threats to sanctuary resources raised by major emergencies through contingency and emergency-response planning

Describes emergency response procedures and coordination requirements

Outlines procedures for emergency research

Provides damage assessment guidelines

Channel Islands

Evaluate existing contingency plans to determine if additional capabilities and equipment are required to protect priority areas

Initiate a collaborative program with federal/state agencies and industry to understand and reduce accidental pollutant spills and chronic discharges in and around the sanctuary

SPD monitor and assess the state of preparedness as it relates to the sanctuary

Exchange information with government and industry emergency response teams

U.S.S. Monitor

Key Largo

Grays Reef

Stellwagen Bank

Outline and describe emergency-response procedures and coordination requirements for SRD and Sanctuary staff

Provide a geographic information system depicting resources as risk

Outline procedures for emergency research

Prove guidelines for damage assessment

Fagatele Bay

Assess the long-term chronic effects of toxins, such as heavy metals, petroleum hydrocarbons, pesticides and other chlorinated hydrocarbons, and nutrients from sewage and land drainage

Monterey Bay

Outline and describe emergency-response procedures and coordination requirements for SRD and Sanctuary staff

Provide a geographic information system depicting resources as risk

Outline procedures for emergency research

Prove guidelines for damage assessment

Olympic Coast

same as above

4) Prohibit a proposed activity when the environmental impact and risk assessments show that the value of affected biological communities and habitats is high etc.

Cordell Banks

Oil and Gas activities are permitted in the future within the boundaries of the sanctuary by the DOI's OCS leasing program, prohibited if have an adverse affect on the resources

5) Resolve conflicts between ocean resource uses to protect and prioritize renewable resources

Gulf of the Farallones

Collaborate with NMFS and CF&W 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

Encouraging compatible use in the sanctuary: monitor activities, exchange information, consult with other agencies, informing public

Participate in the review of major coastal (and Offshore) development proposals or new activity proposals that could affect sanctuary resources

Continue to support and implement investigations of the effects of human-related disturbances on populations

Public awareness

Make day to day work with other marine resource management agencies among the highest priorities

Looe Key

Design produce, and distribute basic orientation and information material for the sanctuary

Determine the need for and feasibility of a designated boating zone

Cordell Banks

Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect areas of particular management concern

Exchanging information on commercial and recreational activities in the sanctuary

Consulting with other agencies on policies and proposals for the management of activities which may affect protection of sanctuary resources

Developing materials aimed at enhancing public awareness of the sanctuary's resources and their need for protection

Flower Garden Banks

Encourage participation by interested agencies and organizations in the development of procedures to address specific management concerns

Promote public awareness of, and voluntary user compliance with, sanctuary regulations and objectives, through an education/interpretation program stressing resource sensitivity and wise use

Collaborate with public and private organizations in promoting compatible use of the sanctuary by exchanging information concerning its commercial and recreational potential

Monitor and assess the levels of sanctuary use to identify and control potential degradation of resources and minimize potential user conflicts

Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect areas of particular management concern

Exchanging information on commercial and recreational activities in the sanctuary

Consulting with other agencies on policies and proposals for the management of activities which may affect protection of sanctuary resources

Developing materials aimed at enhancing public awareness of the sanctuary's resources and their need for protection

Displaying sanctuary boundaries on nautical charts with a notice summarizing sanctuary regulations governing anchoring and vessel discharges

Channel Islands

Increase public and industry awareness of resource protection objectives, priorities and regulations through interpretations to reduce on-site violations

Monitoring commercial and recreational activities in the sanctuary and encouraging other agencies to do so to detect areas of particular management concern

Exchanging information on commercial and recreational activities in the sanctuary

Consulting with other agencies on policies and proposals for the management of activities which may affect protection of sanctuary resources

Developing materials aimed at enhancing public awareness of the sanctuary's resources and their need for protection

U.S.S. Monitor

Key Largo

Participate with county, state and federal agencies in consultations with contractors and developers to keep them informed of current and newly developed information about sanctuary reef's and the effect of manmade stresses

Interpretation

Gray's Reef

Establish a means to monitor sanctuary use and resource quality over time to minimize potential user conflicts and environmental degradation

Collaborate with other public and private organizations to promote communication and cooperation between sanctuary management and various sanctuary user groups

Stellwagen Bank

Monitor and assess the levels of sanctuary use to identify and control potential degradation of resources and minimize potential user conflicts

Same #4 as above

Fagatele Bay

Monterey Bay

MBNMS Advisory Committee will be created

Participation by other agencies in the development of new procedures to address specific management concerns

Same #4 as above

Olympic Coast

Same #4 as above

6) Use non-regulatory means to promote and achieve ocean resource conservation and

7) Promote public education and interpretation

Gulf of the Farallones

- Develop and disseminate public information on the vulnerability of affected resources
- Implement a well-planned identity program (brochures, posters, etc.) that stresses the sanctuary as the Gulf of the Farallones and the program playing an active role in marine resource management
- Workshops reporting research results or discussing resource protection issues
- Workshops, seminars, field volunteer programs
- Local residents and organizations involved in the education program

Looe Key

- Collaborate with dive boat operators and other sanctuary user groups to initiate on-site interpretation
- Design, produce, and distribute basic orientation and information material for the sanctuary
- Install an outdoor interpretive exhibit at headquarters
- Determine the need to install land-based signage
- Determine the feasibility of developing services and facilities at the permanent headquarters (info, audio-visual, guidance, etc.)
- Visitor health and safety, navigation information, warnings

Cordell Banks

- Developing materials aimed at enhancing public awareness of the sanctuary's resources and their need for protection
- Interpretive programs will try to inform users to reduce recumbent needs (brochures ect.)
- Site visitor programs of fishing, whale watching excursions and other recreational visitors to sanctuary waters (written material describing the sanctuary and regulations, possible coordination of informational trips, rely on cooperation of charter boats)
- Informational center programs for those visiting the facilities and other nearby information centers
- Outreach programs

Flower Garden Banks

- Provide public with information on the sanctuary, its goals and objectives, with an emphasis on the need to use these resources wisely to ensure their long term viability
- Broaden support for the sanctuary and management of offering programs suited to visitors with a range of diverse interests
- Provide for public involvement by encouraging feedback on the effectiveness of the interpretation program
- Collaborate with other organizations to provide interpretation services

Channel Islands

- Increase public and industry awareness of resource protection objectives, priorities, and regulations
- Update as necessary and distribute orientation and other interpretive documentation on the sanctuary

- Initiate additional cooperative agreements for interpretation with appropriate organizations throughout the region
- Expand the current interpretive centers, offsite interpretation, additional marine oriented interpretation to existing centers
- Provide public with complete and easily understood information about regulations, the reasons for them, and the shared government responsibility for their enforcement
- Communication through brochures, signs, and other devices will be directed primarily at the major access points on the mainland (public marina, dive shops, airports, yacht and dive clubs) and in the sanctuary
- Contact with industry, recreational and commercial groups, discussion will help determine the appropriate educational material for promoting compatible use of the sanctuary

U.S.S. Monitor

- Educational materials oriented towards middle or secondary school levels

Key Largo

- Design and distribute a brochure with a map describing location and proper use of mooring buoys
- Provide information to user groups on diver and boat safety problems inherent with concentrated use
- Basic interpretation
- Boat ramp signs with interpretive materials

Gray's Reef

- Establish mechanisms for using information gained through scientific investigation and in management decision making in interpretive and recreational programs
- Promote the sanctuary as a resource for educational, interpretive and recreational use consistent with conservation objectives
- Provide a means for information exchange and public comment on the effectiveness of sanctuary interpretive and recreational programs
- Standard interpretive setup

Stellwagen Bank

- Incorporate research results into the interpretation/education program in a format useful for resource users and the general public
- Provide the public with information on the sanctuary, its goals, and objectives with an emphasis on the need to use its resources wisely to ensure their long-term viability (and regulations)
- Encourage feedback on interpretive programs

Fagatele Bay

- Develop and implement a curriculum program that will expand understanding of the sanctuary and marine environments for use in Samoan Schools

Monterey Bay

MBNMS Advisory committee with representatives from government agencies, research, education, and commercial and environmental interests

Assist in coordination and support of existing interpretive and education programs

Olympic Coast

Standard interpretation materials using existing parks

Coordination of existing programs with added marine interpretation

8) Support mitigation techniques

9) Allow small scale pilot projects to obtain needed information

Gulf of the Farallones

Continue to monitor periodically human-related levels of disturbance on harbor seals and support research to assess potential effects on populations

Support research projects that address confirmed baseline data gaps affecting marine resource management within the sanctuary

Continue to support and implement selected investigations that clarify key ecological relationships within the Gulf of the Farallones, human related disturbances, and population monitoring

Baseline studies

Looe Key

Baseline, bio-monitoring studies, and feasibility studies on management actions

Cordell Banks

Baseline, monitoring, and predictive studies

Flower Garden Banks

Baseline, monitoring and predictive studies

Channel Islands

Pinniped monitoring program

Investigate food resources and specific nearshore areas upon which pinnipeds are most dependent

Baseline research on cetacean populations in the sanctuary

Key Largo

Develop environmental scenarios related to coastal development using the water quality model to predict the effects of coastal development

Gray's Reef

Five major areas of study: Data and information management, geology, oceanography, ecology, and special projects and studies

Stellwagen Bank

Baseline, monitoring, and predictive studies

Monterey Bay

Focus and coordinate data collection efforts on the physical, chemical, geological, and biological oceanography of the sanctuary

Encourage studies that integrate research from the variety of coastal habitats with nearshore and open ocean processes

Olympic Coast

Baseline, monitoring, and predictive studies

Habitat Protection recommendations

1) Expand state agency decision making on ocean resource uses and activities to include consideration of entire ecosystems

The NMSP is oriented towards ecosystem management, and its research is all oriented towards ecosystems

2) Identify critical habitats within the Oregon Ocean Stewardship Area which require special management or protection

The NMSP could give this special management or it can be done through State methods. Zoning in sanctuaries or state waters could give special protection to certain areas

3) Enforce federal and state laws protecting migratory birds, marine mammals, and endangered, threatened, and sensitive species

The NMSP may add some extra protection through cooperative agreements and encouraging public surveillance of waters

4) Restrict uses or access to protect species or their habitats

Zoning, the sanctuary area itself, and enforcement

Fisheries

"Sanctuary management does not encompass direct management of activities (other than those provided through the regulation) since this is a responsibility assigned to other state and federal agencies" (Channel Islands NMSP)

Basically the NMSP does not apply to managing fisheries except at some reef oriented sanctuaries where there is zoning, or no fishing, or restricted gear to prevent damage to the reef as well as the fish. Also, many submerged reef sanctuaries do not allow damage to the seabed which would prohibit bottom trawling.

Fisheries Management

- 1) The Oregon Fish and Wildlife Commission
- 2) The Magnuson Act
- 3) The Regional Fishery Management Council

Issues

- 1) Pollution
- 2) Habitat Disruption and Loss
- 3) Inadequate Information

Conclusions and Recommendations

- 1) **Conserve, protect and where needed, enhance or restore marine habitats that are important to commercial and recreational fish species**
- 2) **Give clear priority to the proper management and protection of renewable resources (fisheries)**
- 3) **Allow only those uses of nonrenewable resources within the Ocean Stewardship area that do not adversely affect commercial or recreational fisheries and that do not adversely affect the long-term viability of fish populations or the quality of marine habitats**

See Conservation and Habitat protection #1

- 4) **Protect special areas for fishing stocks**

This is one area where a NMS may work, or OR could work out a state run sanctuary

- 5) **In other "important fisheries Areas" allow specific uses of nonrenewable resources if the ODF&W determines it OK**

NOAA also proposes for areas of the sanctuary where oil, gas, and mineral activities are allowed (ie, outside no-activity zones see Part 3 section 2A)

- 6) **Support research on marine ecosystems, fish populations, and fish habitat needs to promote sound management decisions**

See last section part #9, ie baseline studies, monitoring, and predictive studies

7) Develop public education and interpretations programs about the commercial and recreational fishing industry etc.

See last section parts #7 & 8

Marine Birds and Mammals

Management Issues

- 1) Population Declines and loss of Habitat
- 2) Fragmented State and Federal Responsibilities
- 3) Limited Scientific Information
- 4) Limited Public Understanding

Conclusions and Recommendations

- 1) **Promote public awareness and appreciation of marine birds, mammals, and their habitats. Develop public education and interpretation programs to increase public understanding**

See section 1 parts 7&8

- 2) **Provide state protection to marine birds, mammals, and habitats where critical**
- 3) **Develop provisions in Oregon's plan for the territorial sea that will improve protection of sensitive species and provide for the development of site-specific management programs**

Gulf of the Farallones

Access historical patterns in oiled birds at the Farallones
 Continue to monitor chronic incidence of oiled birds within the sanctuary
 Continue to monitor the incidence of marine mammal mortalities caused by gill netting
 Continue to monitor human-related disturbances on harbor seals and support research to assess potential effects on populations
 Assess trends in illegal take violations to determine the need for increased patrolling on the water
 Baseline information

Channel Islands

Implement the pinniped monitoring program
 Investigate the food resources and specific nearshore areas upon which pinnipeds are most dependent

4) Strengthen state programs to complement federal bird and mammal protection programs. Actively pursue comanagement opportunities

Gulf of the Farallones

Participate in the review of major coastal and offshore development proposals or new activity proposals that could affect sanctuary resources

Make day-to-day work with other marine resource management agencies among the highest priorities

Channel Islands

Improve the coordination of surveillance and enforcement activities through scheduling and joint development of operational procedures

Monterey Bay

The first task is to establish liaisons with the appropriate agencies to ensure the sanctuary mandate can be carried out through a cooperative management strategy

Creation of the MBNMS Advisory Committee

Participation by other agencies in the development of new procedures to address specific resource protection

Marine Mammal and seabird takings prohibited in regs

Olympic Outer Coast

Marine mammals, reptiles, and birds prohibited. Regulations would overlap the MMPA and ESA, and extend the protection of these species under the intent and authority of the MPRSA

Sanctuary Steering Committee

5) Prohibit activities around nearshore rocks and islands which threaten the continued viability of marine birds and mammal populations and;

6) Support the use of the nearshore rocks and islands for safe passage and anchorage where necessary to protect human lives

Channel Islands

Access for fishing, recreational and research vessels is not restricted within the sanctuary

Other vessels, are prohibited within 1 nautical mile of any island, except to transport persons or supplies

Aircraft are not permitted below 1000 feet within 1 nautical mile of any island within the sanctuary (except transport, supplies, research)

7) Support a range of resource management and protection measures which include both regulatory and non-regulatory approaches

including increased enforcement efforts of existing state and federal agencies

Interpretation and education programs in each sanctuary

Olympic Coast

The coastal resources within the area are managed under a framework of federal, state, and tribal regulations. The regulations and authorities responsible for managing the resources, are described in Part IV, section I. Within the existing management structure of the Olympic Coast, no single government agency has the mandate, or fiscal resources and manpower, to provide for the overall coordination of these regulatory and management responsibilities. Thus the Olympic Coast NMS could play a significant role in coordinating efforts to protect resources within the area.

8) Allow fishing and harvest of renewable resources around all of the nearshore rocks and islands unless the ODF&W determines that it adversely affects populations. With the exception of Oked fisheries activities and safe anchorage and passage, prohibit all other activity within 1/4 mile of the thirty three sensitive areas. Prohibit exploration and development of non-renewable resources within 3 miles of all nearshore rocks and islands. Allow scientific research.

9) Support the contribution of volunteer wildlife rehabilitation centers and provide state support

10) Increase communication among the ODF&W, Oregon State Police, ODP&R and wildlife rehabilitation centers on marine mammals protection

Sanctuary Advisory Committees

11) Develop protocols for involvement of wildlife rehabilitation centers in oil spill response planning and implementation

*Sanctuary Advisory Committees
see Part #3*

Intertidal Plants and Animals

Management Issues

- 1) Limited Public Awareness
- 2) Impoverished Intertidal Areas
- 3) Growing tourism and coastal populations
- 4) Fragmented State Agency Responsibilities

Recommended Policies

- 1) Protect sensitive intertidal habitats and communities from pollution and from overuse and abuse**

Gulf of the Farallones, Channel Islands, and Olympic Coast are the only sanctuaries that have significant intertidal areas and these lie within the jurisdiction of either a National Park or a National Seashore

Education and Interpretation

Regulations

Monitoring and Visitor Use studies (GF, CI, OC)

- 2) Promote public awareness, understanding, and appreciation of intertidal habitats.**

See part 1 #'s 6&7

- 3) Establish Intertidal Marine Gardens, where necessary, to protect particularly vulnerable intertidal areas and to provide opportunities for public enjoyment and learning**

- 4) Develop provisions in Oregon's plan for the territorial sea to protect intertidal plants, animals, and habitats.**

Recreation and Cultural Resources

Management Issues

- 1) State Planning for Recreation
- 2) Highway 101 Improvements
- 3) Public Concerns

Recommended Policies

- 1) Prohibit development activities in the territorial sea which would impair the cultural, scenic, or recreational values of the near shore areas**

Some of the regulations on seabed development

Stellwagen Banks

Development activities for industrial material prohibited, submerged pipelines and cables are prohibited

- 2) **Prepare a comprehensive coastal and marine parks and recreation assessment and plan to accommodate increased recreational demand while protecting coastal and ocean resources**

Basically a National Marine Sanctuary Management Plan

- 3) **Pursue an aggressive program to identify and acquire additional public recreation resources and sites on the Oregon coast and to provide for public recreation opportunities in the marine environment**
- 4) **Plan for improvement to Highway 101 which maintain, restore, or enhance recreational, scenic and interpretive opportunities**
- 5) **Place strong emphasis on education, information and interpretation to protect marine resources, provide for economic development, and enhance visitor appreciation of coastal resources and economies**

See part 1 sections 6&7

- 6) **Designate cultural and historic sites, including shipwrecks, as important resources for the general public and not private exploitation.**

Regulations on damage to historic and cultural resources

Marine Water and Air Quality

Except for basic monitoring research, the NMSP doesn't deal with these problems very much

Management Issues

- 1) Federal Pollution Control Programs
- 2) State Pollution Control Programs
- 3) Increased Waste Disposal
- 4) New Kinds of Waste

Recommended Policies

- 1) **Emphasize pollution prevention rather than cleanup and remedial measures**

- 2) Require that highest and best controls be used to minimize emissions from ocean activities and assure that they do not degrade the existing high quality of Oregon's marine and coastal air
- 3) Require that discharge of pollutants into the airspace of Oregon's Ocean Stewardship Area is consistent with the policies of this plan and such standards as may be developed to carry out this plan
- 4) Increase information and data to analyze the effects of air pollution from ocean resources development on marine and onshore air quality
- 5) Assert Oregon's leadership role in protecting marine water quality through improved state management capability and through a coordinated program of federal, state and local government
- 6) Encourage citizens, local governments, businesses and ocean users to minimize waste disposal in the ocean by reducing waste at its source, conserving water, controlling pollution sources on land and in the water, promoting proper waste disposal, and recycling
- 7) Emphasize prevention of marine water pollution by promoting recycling and debris collection in Oregon's, minimize coastal discharges and toxic discharges
- 8) Establish marine air and water quality monitoring systems and promote research to analyze the effects of pollution on intertidal and oceanic ecosystems
- 9) Support and participate in interstate and international efforts to reduce and eliminate marine debris and pollution
- 10) Promote the use of products that can be recycled or manufactured without adverse effects on marine water quality

Oil and Gas

Oil and Gas development is either prohibited or regulated in the sanctuaries.

Also, contingency plans are developed specifically for each sanctuary to incorporate federal regional programs, state programs and local industry programs.

Management Issues

- 1) State Oil and Gas leasing
- 2) Federal OCS Leasing Program
- 3) Congressional Moratoria on Offshore Leasing
- 4) Presidential Action Canceling OCS Lease Sale #132
- 5) Public Concerns

Recommendations

- 1) In state waters: Prohibit oil and gas exploration and development within the state territorial sea
- 2) In Federal waters: Call upon the Secretary of the Interior to cancel Lease Sale #132
- 3) In Federal waters: Oppose any federal lease sale for the Washington-Oregon OCS Planning Area until at least the following conditions are met to the satisfaction of the OOPAC ect.

Oil Spills

Contingency plans are developed for each sanctuary

Management Issues

- 1) Vulnerability t a Coastal Spill
- 2) Prevention
- 3) Volunteer Management
- 4) Dispersal Guidelines
- 5) Damage Assessment
- 6) Liability for Damages
- 7) Wildlife Rehabilitation
- 8) Debris Disposal
- 9) Vessel Safety

Recommendations

- 1) Emphasize strategies to prevent spills from occurring in Oregon waters
- 2) Commit sufficient resources to maintain ongoing spill planning activities so that plans can be updated, expanded, and exercised on a continual basis
- 3) Promote efforts within industry to assure that oil spill response equipment and trained cleanup personnel will be available to respond immediately to a spill during any activity involving petroleum production or transport in Or waters
- 4) Emphasize the importance of policies and strategies for dealing with wildlife rehabilitation, oiled debris disposal, volunteer management, damage assessment, and dispersal use
- 5) Ensure that any party engaging in petroleum exploration, production, storage, or transport in or near Or waters shall develop and acquire approval from the appropriate authority for oil spill contingency plans
- 6) Insist that federal laws be changed to clearly remove all limitation on the liability of any party responsible for spill oil or hazardous material into the water of the state

- 7) Coordinate with other coastal states to encourage the US Congress to designate the USCG as the sole federal agency with authority to review industry spill prevention and response plans for adequacy
- 8) Oregon's coastal oil spill prevention and response plan shall be a part of the state's territorial sea plan

Marine Minerals

Basically limited due to regulations on seabed disturbance and mineral mining

Management Issues

- 1) State regulation for Minerals
- 2) Federal Marine Mineral Program
- 3) State-Federal Task Forces
- 4) Public Concerns

Recommended Policies

- 1) Prohibit commercial exploration contract under Senate Bill 606 for at least 5 years
- 2) Amend ORS 274.611-640 to clarify that an exploration contract neither confers proprietary rights to any minerals found nor obligates the state to proceed with any steps toward mineral leasing or development
- 3) Clarify and refine state marine mineral policies in the territorial sea plan
- 4) Include in the TSP a research plan for academic and public agency research related to marine minerals, environmental conditions, biologic resources, and socio-economic conditions
- 5) Require an inventory and effects assessment under Statewide Planning Goal 19, Ocean Resources, prior to any commercial exploration contracts and require that the proposed exploration plan will avoid adverse impacts from exploration activities
- 6) Prohibit exploration and development of marine minerals within 3 miles of all nearshore rocks and islands until the TSP is complete. Allow scientific research if OK by ODFW
- 7) Prohibit commercial mineral exploration and development in Important Fishery Areas as identified in the Ocean Plan
- 8) Use the adopted policies of the OORMP to coordinate all state and federal marine mineral activities

Appendix D

Sanctuary regulations

(from the sanctuary management plans)

Gulf of the Farallones:

- 1) 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 islands.
- 2) Discharges are prohibited within the sanctuary with the exception of fish wastes and bait, water and other biodegradable effluent, dredged material at dumpsites, and municipal sewage.
- 3) Alteration of, or construction on the seabed is prohibited within the sanctuary except for laying of pipelines, outfall construction, anchoring, bottom trawling, docks, piers, and navigation markers.
- 4) Commercial vessel operations not restricted except around sensitive areas.
- 5) Aircraft not permitted below 1000 feet around areas of biological significance except for enforcement.
- 6) Removing or damaging historical or cultural resources is prohibited.

Looe Key:

- 1) Damaging or taking of natural features, including coral, invertebrates (except for lobsters outside the Fore Reef) and tropical fish is prohibited.
- 2) Anchoring on the coral within the Fore Reef or damaging natural features with a vessel is prohibited.
- 3) Use of wire fishtraps and spearguns within the sanctuary and lobster traps in the Fore Reef is prohibited.
- 4) Removing or damaging any historical or cultural resource, signs or markers is prohibited.
- 5) Discharging with the exception of fish or parts and chumming materials, cooling water from vessels, and effluent from marine sanitation devices is prohibited.

Cordell Banks:

- 1) Discharges or deposits in the sanctuary are prohibited, also exterior discharges or deposits that affect the sanctuary.
- 2) Removing, taking or injuring benthic resources on Cordell Bank or within the 50 fathom isobath surrounding it is prohibited except by permit.
- 3) Oil and Gas activities are permitted in the future within the boundaries of the sanctuary by the Dept. of Interior's Outer Continental Shelf leasing program, but are prohibited if they have an adverse affect on the resources.
- 4) Cultural and historical resources if discovered will be protected in the

sanctuary.

- 5) Anchoring regulations will be considered if anchoring activities increase and threaten the Bank's resources.

Flower Garden Banks (proposed):

- 1) Anchoring or otherwise mooring within the sanctuary may be prohibited.
- 2) Discharging or depositing, from within the boundaries of the sanctuary, any material or other matter may be prohibited.
- 3) Discharging or depositing, from beyond the boundaries of the sanctuary, any material or other matter that affects the sanctuary may be prohibited.
- 4) Drilling into, dredging or otherwise altering the seabed of the sanctuary; or constructing, placing or abandoning any structure, material or other matter on the seabed of the sanctuary may be prohibited.
- 5) Exploring for, developing, or producing oil, gas or minerals within the sanctuary may be prohibited.
- 6) Taking, removing, catching, collecting, harvesting, feeding or injuring, or attempting to take, remove, catch, collect, harvest, feed or injure a sanctuary resource may be prohibited.
- 7) Possessing within the sanctuary a sanctuary resource or any other resource, regardless of where taken, removed, caught, collected or harvested, that if it had been found within the sanctuary, would be a sanctuary resource may be prohibited.
- 8) Possessing or using within the sanctuary any fishing gear, device, equipment or means may be prohibited.
- 9) Possessing or using explosives or releasing electrical charges within the sanctuary.

Channel Islands:

- 1) Oil and gas exploration and development on leases executed on or after the effective date of the sanctuary regulations are prohibited. Those from before the effective date of regulations are permitted subject to authority and contingency requirements.
- 2) Discharges are prohibited within the sanctuary with the exception of vessel cooling waters, fish wastes and bait, marine sanitation device effluent, and effluent incidental to permitted hydrocarbon activities.
- 3) Except for permitted pipeline construction from existing leases, no alteration or construction on the seabed is permitted within 2 nautical miles of any island.
- 4) Access for fishing, recreational and research vessels is not restricted within the sanctuary. Other vessels are prohibited within 1 nautical mile of any island, except to transport persons or supplies.
- 5) Aircraft are not permitted below 1000 feet within 1 nautical mile of any island within the sanctuary except for enforcement, kelp bed surveys, and transportation of persons or supplies.
- 6) Removing or damaging historical or cultural resources is prohibited.

U.S.S. Monitor:

- 1) Anchoring within the sanctuary prohibited.
- 2) Salvage and recovery within the sanctuary prohibited.
- 3) Diving within the sanctuary prohibited.
- 4) Drilling or coring within the sanctuary prohibited.
- 5) Cable laying within the sanctuary prohibited.
- 6) Trawling within the sanctuary prohibited.
- 7) Discharging waste materials within the sanctuary prohibited

Key Largo:

- 1) Handling or standing on coral formations, or destruction of natural features and marine life, or the removal of natural features or marine life with the exception of lobster, crawfish and stone crab is prohibited.
- 2) Tampering with archaeological or historical resources is prohibited.
- 3) Tropical fish collecting is prohibited.
- 4) Use of spearguns, guns, harpoons, poison, electric charges or similar methods for taking fish is prohibited.
- 5) Operating vessels in a manner which may cause damage to natural features or other boats or divers is prohibited.
- 6) Vessels must use mooring buoys when available, and anchors must not be cast or dragged in a way that would damage coral.
- 7) Dredging, filling, excavating and building activities and discharge of refuse and polluting substances is prohibited.

Gray's Reef:

- 1) Alteration of or construction on the seabed is prohibited.
- 2) Use of bottom trawls, specimen dredges or similar vessel-towed bottom sampling and fishing devices is prohibited.
- 3) Use of wire fish traps, poisons, electric charges, explosives or similar methods to take any marine animal or plant is prohibited.
- 4) Taking or damaging any bottom formation, marine invertebrate, marine plant, or tropical fish is prohibited.
- 5) Depositing or discharging any polluting material, except fish or fish parts, bait, chumming material, vessel cooling water, and effluent from approved sanitation devices is prohibited.
- 6) Removing or damaging historic or cultural resources is prohibited.

Stellwagen Bank (proposed):

- 1) Discharges may be prohibited.
- 2) Development activities for industrial materials may be prohibited.
- 3) Submerged pipelines and cables may be prohibited.
- 4) Historical and cultural resource damage may be prohibited.
- 5) Taking of marine mammals, marine reptiles and seabirds may be prohibited.

Fagatele Bay:

- 1) Taking of corals or bottom formations except by permit for educational or scientific purposes is prohibited.
- 2) Harvest of the Crown of Thorns starfish is prohibited except with permit.
- 3) Commercial fish prohibited in selected areas.
- 4) Use of fishing poles, handlines seines, trawls, trammel nets, or and fixed net, and the use of poisons, dynamite, and spearguns for sport and subsistence fishing are prohibited.
- 5) Discharge of any pollutant or material including flushing of ship tanks and disposal of items overboard, except with permits is prohibited.
- 6) Disturbance of the benthic community by dredging, filling, dynamiting, and trawling is prohibited.
- 7) Taking by harassment of marine mammals, and endangered species as defined by the MMPA and ESA is prohibited.

Monterey Bay:

- 1) Exploring for, developing, or producing oil, gas, or minerals in the sanctuary is prohibited.
- 2) Depositing or discharging from any location within the boundaries of the sanctuary materials or other substances except fish, fish parts, chumming materials or bait used in or resulting from normal fishing operations in the sanctuary; biodegradable effluent incidental to vessel use generated by marine sanitation devices approved by the USCG; water generated by routine vessel operations excluding bilge pumping; or engine exhaust is prohibited.
- 3) Depositing or discharging from beyond the boundaries of the sanctuary the items above that subsequently enter the sanctuary and injure a sanctuary resource or quality is prohibited.
- 4) Moving, possessing, or injuring or attempting to move, possess, or injure a sanctuary historical resource is prohibited.
- 5) Drilling through, dredging or otherwise altering the seabed of the sanctuary; or constructing, placing or abandoning any structure or material on the seabed of the sanctuary, except as a result of: anchoring vessels, normal fishing operations, routing harbor maintenance, installation of navigation aids, maintenance of mariculture, and the construction of docks and piers is prohibited.
- 6) Taking of marine mammals in the sanctuary or seabirds in or above the sanctuary is prohibited.
- 7) Flying motorized aircraft at less than 1000 feet above the sanctuary within 3 nautical miles of State of California designated reserves, parks, beaches, or refuges is prohibited.

Olympic Coast:

- 1) OCS oil and gas exploration, production and development activities are prohibited throughout the sanctuary.

- 2) Discharges or deposits within the sanctuary are prohibited.
Exceptions include vessel cooling water, fish, fish parts, chumming materials or bait, and marine sanitation device effluent.
- 3) Removing, possessing, injuring, or attempting to remove, possess, or injure historical or cultural resources is prohibited.
- 4) Alteration of, or construction on the seabed; placement or abandonment of any structure or material on the seabed; attempting to alter the seabed for any purposes other than anchoring, trawling, harbor maintenance,
- 5) Taking of marine mammals, reptiles, and birds is prohibited.
- 6) Low flying aircraft below 1000 feet above the sanctuary within 1 nautical mile of Olympic National Park and National Wildlife Refuges is prohibited.