Flower Garden Banks National Marine Sanctuary

Final Environmental Impact Statement/ Management Plan

U.S Department of Commerce

National Oceanic and Atmospheric Administration

Sanctuaries & Reserves Division

UNITED STATES DEPARTMENT OF COMMERCE

FINAL ENVIRONMENTAL IMPACT STATEMENT AND MANAGEMENT PLAN FOR THE PROPOSED FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY

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Designation: Final Environmental Impact Statement/Management Plan

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Abstract: The National Oceanic and Atmospheric Administration proposes to designate as a National Marine Sanctuary the Flower Garden Banks, located due south of the Texas-Louisiana border at the edge of the continental shelf. The East Flower Garden Bank is approximately 120 nautical miles south southwest of Cameron, Louisiana, and the West Bank is 110 nautical miles southeast of Galveston, Texas.

The proposed Sanctuary encompasses 41.70 square nautical miles of ocean waters and submerged lands: 19.20 square nautical miles at the East Bank and 22.50 square nautical miles at the West Flower Garden Bank. The Flower Garden Banks are two of over thirty major outer continental shelf geological features located in the northwest Gulf of Mexico. They are isolated from other reef systems by over 300 nautical miles and exist under hydrographic conditions generally considered marginal for tropical reef formations.

The designation of the Flower Garden Banks as a National Marine Sanctuary would provide an integrated program of resource protection, research, and interpretation to assist in the long-term management and protection of its resources.

Fourteen Sanctuary regulations are proposed. They govern: anchoring or otherwise mooring within the Sanctuary; discharging or depositing, from within the boundaries of the Sanctuary, any material or other matter; discharging or depositing, from beyond the boundaries of the Sanctuary, any material or other matter that then enters the Sanctuary and injures Sanctuary resources or qualities; 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; exploring for, developing or producing oil, gas or minerals in the no-activity zones of the Sanctuary; taking, removing, catching, collecting, harvesting, feeding or injuring, or attempting to take, remove, catch, collect, harvest, feed or injure, a Sanctuary resource;

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; possessing or using within the Sanctuary, except possessing while passing without interruption through it, any fishing gear, device, equipment or means except conventional hook and line gear; possessing or using explosives or releasing electrical charges within the Sanctuary.

Three major regulatory/boundary options were identified: the Preferred Alternative (41.70 square nautical miles), Boundary Alternative 2, which would establish a smaller sanctuary, and Boundary Alternative 3, which would consist of a larger boundary defined by a core and buffer area. The status quo alternative would continue management of the area through existing activities and controls. It should be noted, however, that Congress has mandated that this sanctuary be designated.

The preferred alternative promotes resource protection by bolstering the existing regulatory and enforcement regime, establishing an integrated research program focused on management-related issues facing the sanctuary, and promoting an interpretive program to strengthen public understanding of the importance of the coral-reef habitats and the need for long-term comprehensive framework to protect them.

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FOR THE PROPOSED
FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY

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Note to Reader:

A. National Environmental Policy Act (NEPA):

This document is a final management plan as well as a final environmental impact statement (EIS) for the proposed Flower Garden Banks National Marine Sanctuary. Some of the section headings, and their order, are different from those frequently found in other environmental impact statements. To assist NEPA reviewers, the following table has been developed. Under the heading "NEPA Requirement" are listed those topics normally discussed in an EIS. The corresponding sections of this document and the page numbers are provided in the other two columns.

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B. Endangered Species Act (ESA):

Pursuant to § 7 of the ESA, the US Fish and Wildlife Service and the National Marine Fisheries Service were consulted in the performance of a biological assessment of possible impacts on threatened or endangered species that might result from the designation of a national marine sanctuary at the Flower Garden Banks. The consultation confirmed that only one such species, the loggerhead turtle, a threatened species (cited Part II, Section II), had been identified at the Flower Garden Banks.

C. Resource Assessment:

The Marine Protection, Research, and Sanctuaries Act requires a resource assessment report documenting present and potential uses of the proposed sanctuary area, including uses subject to the primary jurisdiction of the Department of the Interior. This requirement has been met in consultation with the Department of the Interior. The assessment report is contained in Part II, Section II.

EXECUTIVE SUMMARY

The East and West Flower Garden Banks are located due south of the Texas-Louisiana border at the edge of the continental shelf. In accordance with Title III of the Marine Protection, Research and Sanctuaries Act, as amended, 16 U.S.C. §§ 1431 et seq., this final Environmental Impact Statement and Management Plan proposes the establishment of a national marine sanctuary to facilitate the long-term management and protection of the resources of the Flower Garden Banks.

Part I of this report reviews the authority for sanctuary designation, the goals of the National Marine Sanctuary Program, the development of this proposal, and the purpose of designating a national marine sanctuary at the Flower Garden Banks.

Part II, Section I, outlines sanctuary management goals and objectives in resource protection, research, interpretation and visitor use. Part II, Section II describes the environment and living resources of the proposed sanctuary and the human activities occurring in the vicinity. Most of the information in Part II about the environment and resources, research activities and the effects of anchoring on the coral reefs was prepared by Dr. Thomas Bright, Texas A&M University.

Two areas, centered on East and West Flower Garden Bank, are recommended for inclusion in the sanctuary. These areas, totaling 41.7 square nautical miles (143.02 square kilometers), provide habitats for a distinctive assortment of living marine resources. The Flower Garden Banks are capped by the northernmost living coral reefs on the U. S. continental shelf, and the East Bank is the location of the only known oceanic brine-seep community in continental shelf waters of the Gulf of Mexico. The principal human activities in the vicinity of the Flower Garden Banks are oil and gas exploration and development, commercial fishing, recreational pursuits, ship transiting, and research. Generally, these activities have small impact on Flower Garden resources, but anchoring by large vessels at the Banks has resulted in extensive damage to the coral at a number of points.

The plan for managing the proposed sanctuary is provided in Part II, Section III. This plan contains guidelines to ensure that all management actions undertaken in the first five years after designation are directed toward resolving important issues as a means of meeting sanctuary objectives. Management actions are considered in three program categories: resource protection, research, and interpretation. Resource protection will involve cooperation with other agencies in formulating management policies and procedures, including the enforcement of regulations. Research will include monitoring and predictive

studies to provide information needed in resolving management issues. Interpretation programs will be directed to improving public awareness of the sanctuary's resources and the need to protect them.

The following activities may be regulated by NOAA under the terms of designation:

a. Anchoring or otherwise mooring within the Sanctuary;

b. Discharging or depositing, from within the boundaries of the Sanctuary, any material or other matter;

c. Discharging or depositing, from beyond the boundaries of the Sanctuary, any material or other matter;

d. 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;

e. Exploring for, developing or producing oil, gas or minerals within the Sanctuary;

f. Taking, removing, catching, collecting, harvesting, feeding or injuring, or attempting to take, remove, catch, collect, harvest, or feed or injure, a Sanctuary resource;

g. 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.

h. Possessing or using within the Sanctuary, any fishing gear, device, equipment or means.

i. Possessing or using explosives or releasing electrical charges within the Sanctuary.

The proposed sanctuary regulations are contained in Appendix 1.

The administrative framework for managing the proposed sanctuary (Part II, Section IV) recognizes the need for cooperation and coordination among all participants in sanctuary management and delineates the roles of the National Oceanic and Atmospheric Administration's Sanctuaries and Reserves Division, the U.S. Coast Guard, Minerals Management Service of the Department of the Interior, and the Department of State in resource protection, research, interpretation, and general administration.

NOAA considered a number of alternatives in developing the proposal to designate a national marine sanctuary at the Flower Garden Banks. These alternatives, described in Part III, were considered in terms of achieving optimum protection for the ecosystem, improving scientific knowledge of the area, and promoting public understanding of the value of Flower Garden Bank resources. The alternative of sanctuary designation was selected as preferable to no action (further, sanctuary designation is mandated by Congress), and preferred boundary, management, and regulatory alternatives were selected. The environmental consequences of the alternatives are described in Part IV.

The emergence of new issues or other unforeseeable factors may affect specific aspects of sanctuary management as described in this plan. The plan may therefore be adjusted to changing circumstances in light of the experience gained in actual management. However, the overall goals, management objectives and general guidelines governing the plan's development will continue to be relevant.

PART I: INTRODUCTION

PART I: INTRODUCTION

A. Authority for Designation

Title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA), 16 U.S.C. 1431 et seq., as amended, authorizes the Secretary of Commerce to designate as national marine sanctuaries discrete areas of the marine environment of special national significance due to their conservation, recreational, ecological, historical, research, educational, or esthetic value in order to promote comprehensive conservation and management of the areas. National marine sanctuaries may be designated in those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands over which the United States exercises jurisdiction, consistent with international law. National marine sanctuaries are built around the existence of distinctive natural and cultural/historical resources whose protection and beneficial use requires comprehensive planning and management. The National Oceanic and Atmospheric Administration (NOAA) manages the Program through the Sanctuaries and Reserves Division (SRD) in the Office of Ocean and Coastal Resource Management.

B. Goals of the National Marine Sanctuary Program

Consistent with the mission of developing a system of national marine sanctuaries for the purpose of serving the long-term benefit and enjoyment of the public, the following goals were established for the Program:

1. Enhance resource protection through comprehensive and coordinated conservation and management tailored to the specific resources that complements existing regulatory authorities;

2. Support, promote and coordinate scientific research on, and monitoring of, the site-specific marine resources to improve management decisionmaking in national marine sanctuaries;

3. Enhance public awareness, understanding, and wise use of the marine environment through public interpretive and recreational programs; and

4. Facilitate, to the extent compatible with the primary goal of resource protection, multiple use of these marine areas not prohibited pursuant to other authorities.

C. Terms of Designation

Section 304(a)(4), 16 U.S.C. 1434(a)(4), of the MPRSA provides that as a condition of establishing a national marine sanctuary, the Secretary of Commerce must set forth the terms of the Designation. The terms must include: (a) the geographic area included within the Sanctuary; (b) the characteristics of the area that give it conservation, recreational, ecological, historical, research, educational or esthetic value; and (c) the types of activities that will be subject to regulation in order to protect those characteristics. The terms of the designation may be modified only by the same procedures through which the original designation was made.

D. Status of the National Marine Sanctuary Program

Eight national marine sanctuaries have been established since the Program's inception in 1972 (Figure 1):

- The Monitor National Marine Sanctuary serves to protect the wreck of the Civil War ironclad, U.S.S. MONITOR. It was designated in January 1975 and is an area one mile in diameter, 16 miles southeast of Cape Hatteras, North Carolina.

- The Key Largo National Marine Sanctuary, designated in December 1975, provides protection and management of a 100 square-nautical-mile, coral-reef area south of Miami, Florida.

- The Channel Islands National Marine Sanctuary, designated in September 1980, consists of an area of approximately 1,252 square nautical miles off the coast of California adjacent to the northern Channel Islands and Santa Barbara Island. The Sanctuary ensures that valuable habitats for marine mammals, including extensive pinniped assemblages and seabirds, are protected.

- The Looe Key National Marine Sanctuary, designated in January 1981, consists of a submerged section of the Florida reef southwest of Big Pine Key. The site, five square nautical miles in size, includes a beautiful "spur and groove" coral formation supporting a diverse marine community and a wide variety of human uses.

- The Gray's Reef National Marine Sanctuary, designated in January 1981, is a submerged live bottom area located on the South Atlantic continental shelf due east of Sapelo Island, Georgia. The Sanctuary, which encompasses about 17 square nautical miles,

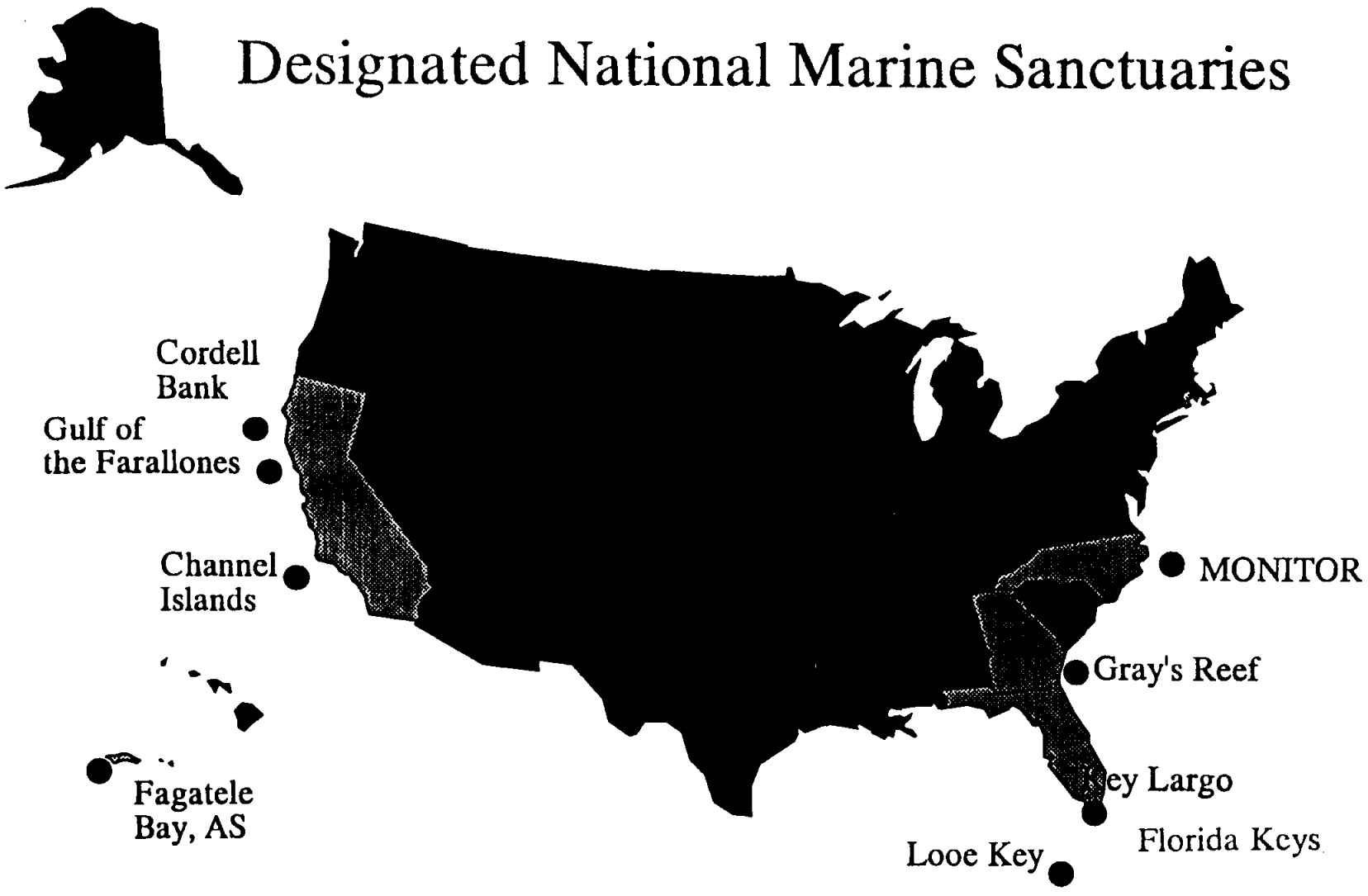
Designated National Marine Sanctuaries
Cordell Bank
Gulf of the Farallones
Channel Islands
Fagatele Bay, AS
MONITOR
Gray's Reef
ey Largo
Florida Keys
Looe Key
National Oceanic and Atmospheric Administration

Figure 1

protects a highly productive and unusual habitat for a wide variety of species including corals, tropical fish, and sea turtles.

O The Point Reyes-Farallon Island National Marine Sanctuary, designated in January 1981, is a 948 square nautical mile area off the California coast north of San Francisco. It provides a habitat for a diverse array of marine mammals and birds as well as pelagic fish, plants, and benthic biota.

O The Fagatele Bay National Marine Sanctuary in American Samoa was designated in July 1986. The 163-acre bay contains deepwater coral terrace formations that are unique to the high islands of the tropical Pacific. It serves as habitat for a diverse array of marine flora and fauna including the endangered hawksbill turtle and the threatened green sea turtle.

O The Cordell Bank National Marine Sanctuary, designated in May 1989, protects 397 square nautical miles of "submerged mountaintop" supporting a large array of marine species. The Sanctuary is located northwest of San Francisco, California.

The ninth national marine sanctuary designated by the Congress in November 1990 is the Florida Keys National Marine Sanctuary (FKNMS) through the Florida Keys National Marine Sanctuary and Protection Act. The Act designates 2,600 square nautical miles of coastal waters off the Florida Keys as the FKNMS. The FKNMS will provide for protection of seagrass meadows, mangrove islands, and extensive living coral reefs upon development of the comprehensive management plan and regulations.

E. History of the Proposal

On April 13, 1979, NOAA published proposed regulations (44 FR 22081) and a draft environmental impact statement (DEIS) on the proposed designation of the East and West Flower Garden Banks as a national marine sanctuary. To bring the sanctuary proposal into line with newly revised National Marine Sanctuary Program regulations, NOAA placed the Flower Garden Banks on the List of Recommended Areas (LRA) on October 31, 1979 (44 FR 62552).

As a result of public comments on the DEIS and consultation with cooperating agencies (the Department of the Interior, the Environmental Protection Agency, and the Department of Energy), NOAA revised the original proposed regulations and reproposed them on June 30, 1980 (45 FR 33530) in accordance with Council on Environmental Quality regulations (40 CFR 1501.6). Previous restrictions on hydrocarbon operations were revised to conform

with the lease stipulations imposed by the Minerals Management Service in the Department of the Interior. Following public comments on the reproposed regulations, further action on the project was suspended in late 1980. A final environmental impact statement (FEIS) was not prepared.

On April 26, 1982 (47 FR 17845), NOAA announced its decision to remove the site from the LRA and to withdraw the DEIS. One of the major reasons for this action was that a Coral Fishery Management Plan (FMP) for the Gulf of Mexico was about to be implemented. It was expected that the FMP would regulate vessel anchoring on the Banks, the one remaining unresolved issue identified in the DEIS and by public comment. However, the final regulations implementing the FMP (49 FR 29607 (1984, as amended)) do not include any "no anchoring" provisions for vessels on the Banks. Within the Habitat Areas of Particular Concern (HAPC's) at the East and West Flower Garden Banks (the area of each Bank shallower than the 50 fathom (300 foot) isobath), the regulations provide only the following restrictions: (1) fishing for coral is prohibited except as authorized by scientific and educational permit; (2) fishing with bottom longlines, traps, pots, and bottom trawls is prohibited; and (3) the use of toxic chemicals to take fish or other marine organisms is prohibited except as authorized by scientific or educational permit (See 50 CFR Part 638). The continued lack of a ban on anchoring led to renewed interest in ensuring the site's protection by designating it as a national marine sanctuary.

Meanwhile, NOAA had again revised the regulations for the National Marine Sanctuary Program (15 CFR Part 922), replacing the LRA with the Site Evaluation List (SEL) and requiring the identification of sites for placement on the SEL by regional resource evaluation teams. The Flower Garden Banks was recommended for placement on the SEL on August 4, 1983 (48 FR 35568) following an evaluation by the Gulf of Mexico Regional Resource Evaluation Team. The membership of this team consisted of Dr. Thomas Bright, Department of Oceanography, Texas A&M University, College Station, Texas; Dr. William McIntire, Center for Wetland Resources, Louisiana State University, Baton Rouge, Louisiana; Dr. David Gettleson, Continental Shelf Associates, Tequesta, Florida; and Dr. James Ray, Shell Oil, Houston, Texas.

Before listing a site on the SEL as an active candidate for national marine sanctuary status, NOAA seeks preliminary consultation in the Federal Register and local media in the region of the site. NOAA published a notice initiating preliminary consultation in the Federal Register on May 4, 1984 (49 FR 19094). A press release was sent to the relevant media at the same time. Based on the comments received and the evaluation of the site in accordance with the criteria specified in § 922.30 of the regulations for the National Marine Sanctuary Program, NOAA named the East and West Flower Garden Banks as an Active

Candidate for further consideration as a national marine sanctuary on August 2, 1984 (49 FR 30988 (1984)).

On June 24, 1986, NOAA sponsored a public scoping meeting at the Texas A&M Mitchell Campus, Galveston, Texas to solicit public comment on the scope and significance of issues involved in designating a Flower Garden Banks national marine sanctuary. Those attending the meeting were 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 national marine sanctuary. Again the response was generally favorable to proceeding with the evaluation. On February 24, 1989, the Draft Environmental Impact Statement/Management Plan (DEIS/MP) was published. Public hearings to receive comments on the DEIS/MP were held in Houston, Texas on March 30, 1989.

F. Purpose and Need for Designation

The Flower Garden Banks sustain the northernmost living, coral reefs on the U. S. continental shelf. The complex and biologically productive reef communities that cap the Banks offer a combination of aesthetic appeal and recreational and research opportunity matched in few other ocean areas. These reef communities are in delicate ecological balance because of the fragile nature of coral and the fact that the Banks lie on the extreme northern edge of the zone in which extensive reef development can occur. In addition to their coral reefs, the Banks harbor the only known oceanic brine seep in continental shelf waters of the Gulf of Mexico. Because of these features, the Flower Gardens are particularly valuable as resources for scientific research.

While the Flower Garden Banks have thus far been able to withstand man-induced pressures, such success can not realistically be expected in the future without deliberate protection. The primary threat to the Flower Gardens results from vessel operations in the area. Shipping fairways passing near the Banks are used by oil tankers and other commercial vessels. A number of these vessels anchor at the Flower Gardens causing significant damage to reef communities. Discharges from the vessels could also pose a threat to Flower Garden resources. Oil and gas resources are now being developed within a few miles of the Flower Gardens, and a significant increase in such development operations is expected in the near future. These activities are regulated, however. Other activities in the area of the Banks, such as commercial fishing, recreational pursuits, and scientific research, pose relatively little threat to the resources of the Flower Garden Banks.

The existing regulatory regime does not adequately protect Flower Garden resources from the increasing pressure of human activities. The Minerals Management Service (MMS), for example, currently provides considerable protection to the Flower Garden Banks communities from damage due to oil and gas development and prohibits anchoring on the coral reefs by vessels involved in development operations, but the MMS does not have the authority to prohibit anchoring on the coral reefs by other vessels. Further, MMS's stipulations apply merely on a lease by lease basis.

Under the Fishery Management Plan for Coral and Coral Reefs, published in 1982, the Flower Garden Banks was established as a habitat area of particular concern. The plan called for a prohibition on anchoring at the Flower Gardens by large ships but, as noted above (see section E), the implementing regulations did not include this prohibition.

In addition to a lack of control over anchoring under the present regime, there is no comprehensive program for the long-term assessment and management of the Flower Garden Banks resources. The designation of the Flower Gardens Banks as a national marine sanctuary would provide the means for filling such deficiencies to provide additional protection where needed.

The management program planned for the proposed Sanctuary would: 1) include regulations to prevent damage to Sanctuary resources, e.g., damage to coral reefs caused by vessel anchoring, 2) provide the long-term planning and management needed to protect Flower Garden Banks habitats and ecosystems, and 3) establish a resource assessment program to monitor the health of Flower Garden Banks communities and provide information needed for management decisions and interpretation programs.

G. The Plan for Managing the Sanctuary

The remainder of this report consists of a final management plan and final environmental impact statement for the proposed Flower Garden Banks National Marine Sanctuary. The plan provides information on the resources and uses of the proposed Sanctuary, as well as Sanctuary goals and objectives. It describes programs (Resource Protection, Research, and Interpretation) for implementing the goals and objectives, proposes actions for resolving immediate management concerns, and formulates guidelines for continued long-term management.

PART II: SANCTUARY MANAGEMENT PLAN

PART II: SANCTUARY MANAGEMENT PLAN

Section I: A Management Plan for the Proposed Flower Garden Banks National Marine Sanctuary

A. Introduction

National marine sanctuaries are established in areas of the marine environment selected for their conservation, recreational, ecological, historical, research, educational, or esthetic resources and qualities. Regulations implementing the National Marine Sanctuary Program (15 CFR 922) require that a management plan be prepared for all proposed sanctuaries. In general, management plans focus on Sanctuary goals and objectives, management responsibilities, research and interpretation programs, and policies to guide plan implementation after Sanctuary designation.

The administrative framework established by a management plan takes into account the cooperation and coordination needed to ensure effective management. However, the Sanctuaries and Reserves Division (SRD), National Oceanic and Atmospheric Administration (NOAA), has overall responsibility for management of the site.

Variable funding for staff and program development over the next five years may affect specific aspects of Sanctuary management as described in this plan. Modifications to the scope and scale of the programs may therefore have to be made because of unforeseeable changes in the level of funding. The goals and objectives of this plan will, however, remain unchanged.

B. Sanctuary Goals and Objectives

Sanctuary goals and objectives provide the framework for developing the management strategies. The goals and objectives direct Sanctuary activities towards the dual purposes of public use and resource conservation and are consistent with the intent of the National Marine Sanctuary Program.

The management strategies planned for the proposed Flower Garden Banks National Marine Sanctuary are directed to the goals and objectives outlined below. It should be noted that, although the Sanctuary goals are listed discretely, they are actually overlapping. For instance, research and interpretation efforts contribute to resource protection and to enhancing public use of the Sanctuary.

1. Resource Protection

The highest priority management goal is to protect the marine environment, resources and qualities of the Flower Garden Banks National Marine Sanctuary. The specific objectives of the resource protection program are to:

- O Coordinate policies and procedures among the agencies sharing responsibility for protection and management of resources;

- O Encourage participation by interested agencies and organizations in the development of procedures to address specific management concerns (e.g., monitoring and emergency-response programs);

- O Develop an effective and coordinated program for the enforcement of Sanctuary regulations;

- O Enforce Sanctuary regulations in addition to other regulations already in place;

- O Promote public awareness of, and voluntary user compliance with, Sanctuary regulations and objectives, through an education/interpretive program stressing resource sensitivity and wise use;

- O Reduce threats to Sanctuary resources raised by major emergencies through contingency and emergency-response planning;

- O Establish memoranda of agreement and other mechanism for coordination among all the agencies participating in Sanctuary management; and

- O Reduce threats to Sanctuary resources

2. Research

Substantial, site-specific research has been conducted at the Flower Garden Banks, particularly over the past 15 years. This work is discussed in section II.C. Sanctuary research will build upon this foundation to improve understanding of the Flower Garden Banks' environment and resources and to resolve specific management problems. Research results will be used in interpretation programs for visitors and others interested in the Sanctuary, as well as for resource protection. The specific objectives of the research program are to:

- 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;

- Gather necessary baseline data on the physical, chemical and biological oceanography of the Sanctuary;

- Monitor and assess environmental changes as they occur;

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

- Incorporate research results into the interpretation program in a format useful for the general public; and

- Encourage information exchange among all the organizations and agencies undertaking management-related research in the Sanctuary to promote more informed management.

3. Interpretation

The interpretation program is directed to improving public awareness and understanding of the significance of the Sanctuary and the need to protect its resources. The specific objectives of the interpretation program are to:

- 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;

- Broaden support for the Sanctuary and Sanctuary management by 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; and

- Collaborate with other organizations to provide interpretation services, including extension and outreach programs and other volunteer projects, that explain the purposes of the Sanctuary and the National Program.

4. Visitor Use

The Sanctuary goal for visitor management is to encourage commercial and recreational use of the Sanctuary compatible with resource protection. Specific objectives of this management effort are to:

- Encourage the public to respect sensitive Sanctuary resources and qualities;

- Provide relevant information about Sanctuary regulations and use policies;

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

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

Section II: The Sanctuary Setting

The most important factors to be considered in developing a management plan for the proposed Flower Garden Banks National Marine Sanctuary are its location; its physical characteristics, environmental conditions, and biological resources; its uses; and the roles of the agencies with management responsibilities in the area. These factors will be summarized below to provide the background needed for understanding the plan.

A. The Regional Context

The East and West Flower Garden Banks are two of more than thirty major outer-continental shelf structures in the northwestern Gulf of Mexico. The depth of the continental shelf increases gradually from shore outward to the Flower Garden Banks. Water depths surrounding the Banks are 330 to 395 ft (100 to 120 m). The East and West Bank are separated by 8 nautical miles (15 km) of open water 330 to 360 ft (100 to 110 m) deep. Seaward of the Banks, the slope descends more steeply, and depths in excess of 2,300 ft (700 m) occur less than 22 nautical miles (40 km) to the south (Figure 2).

1. Sanctuary Location and Proposed Boundaries

The Flower Garden Banks are located due south of the Texas-Louisiana border at the edge of the continental shelf. The East Flower Garden Bank is approximately 120 nautical miles (220 km) south southwest of Cameron, Louisiana, and the West Bank is 110 nautical miles (203 km) southeast of Galveston, Texas (Figure 3). The midpoints of the East and West Banks, respectively, are 27°55'07.44" north latitude, 93°36'08.49" west longitude and 27°52'14.21" north latitude, 93°48'54.79" west longitude.

The boundaries of the proposed Sanctuary encompass an area of 41.70 square nautical miles (143.02 square km): 19.20 square nautical miles (65.85 square km) at the East Bank and 22.50 square nautical miles (77.17 square km) at the West Bank.

2. Regional Access

Because of their distance from shore, the Flower Garden Banks are generally accessible only to vessels having adequate range and overnight facilities. Sport divers and sport fishermen visit the Banks occasionally, operating out of ports in Louisiana and Texas. Commercial fishermen from as far away as Florida also visit the Banks to catch snappers and groupers. The presence of increasing numbers of oil and gas platforms in the vicinity has

Regional Context

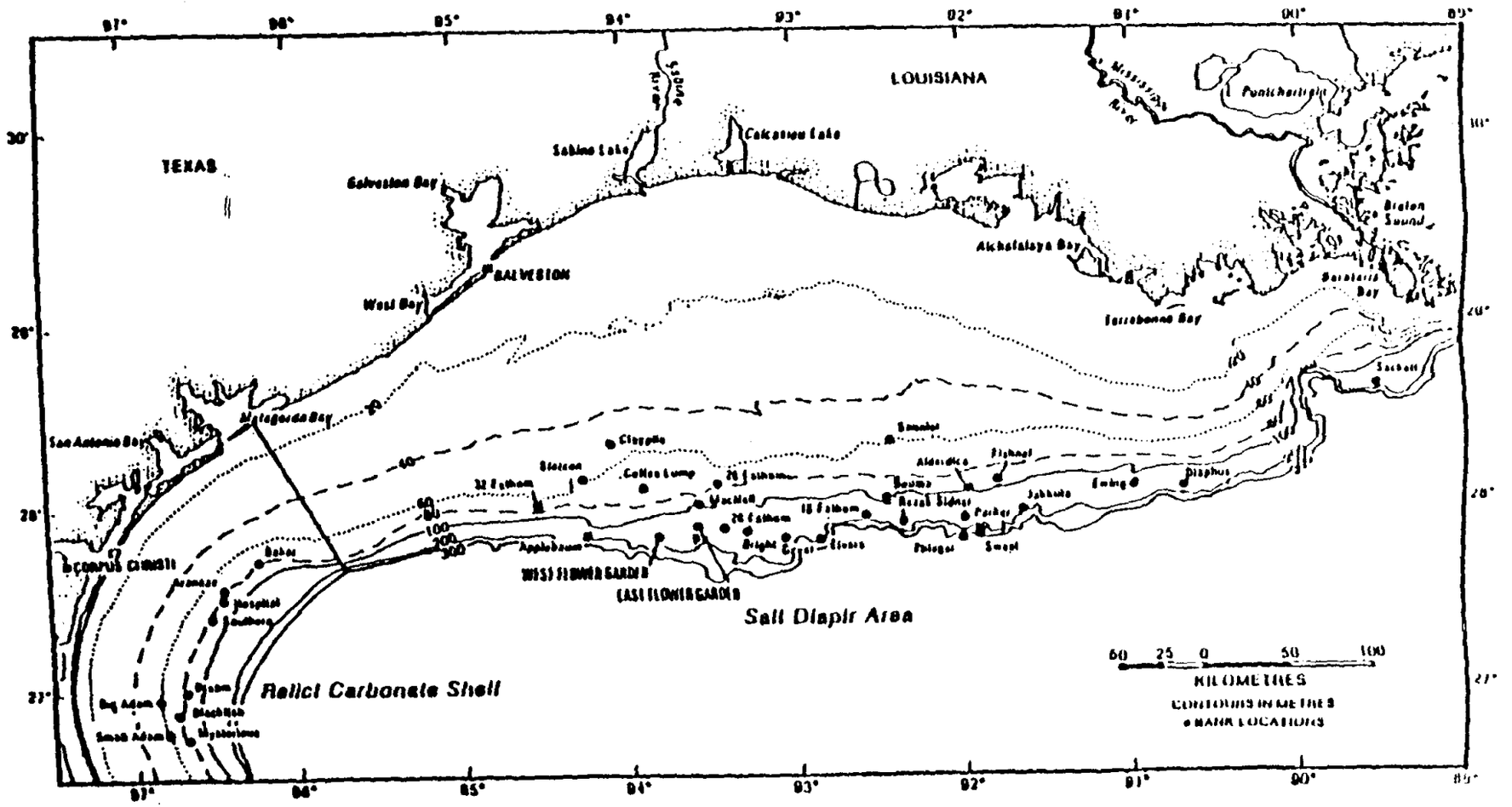

Figure 2

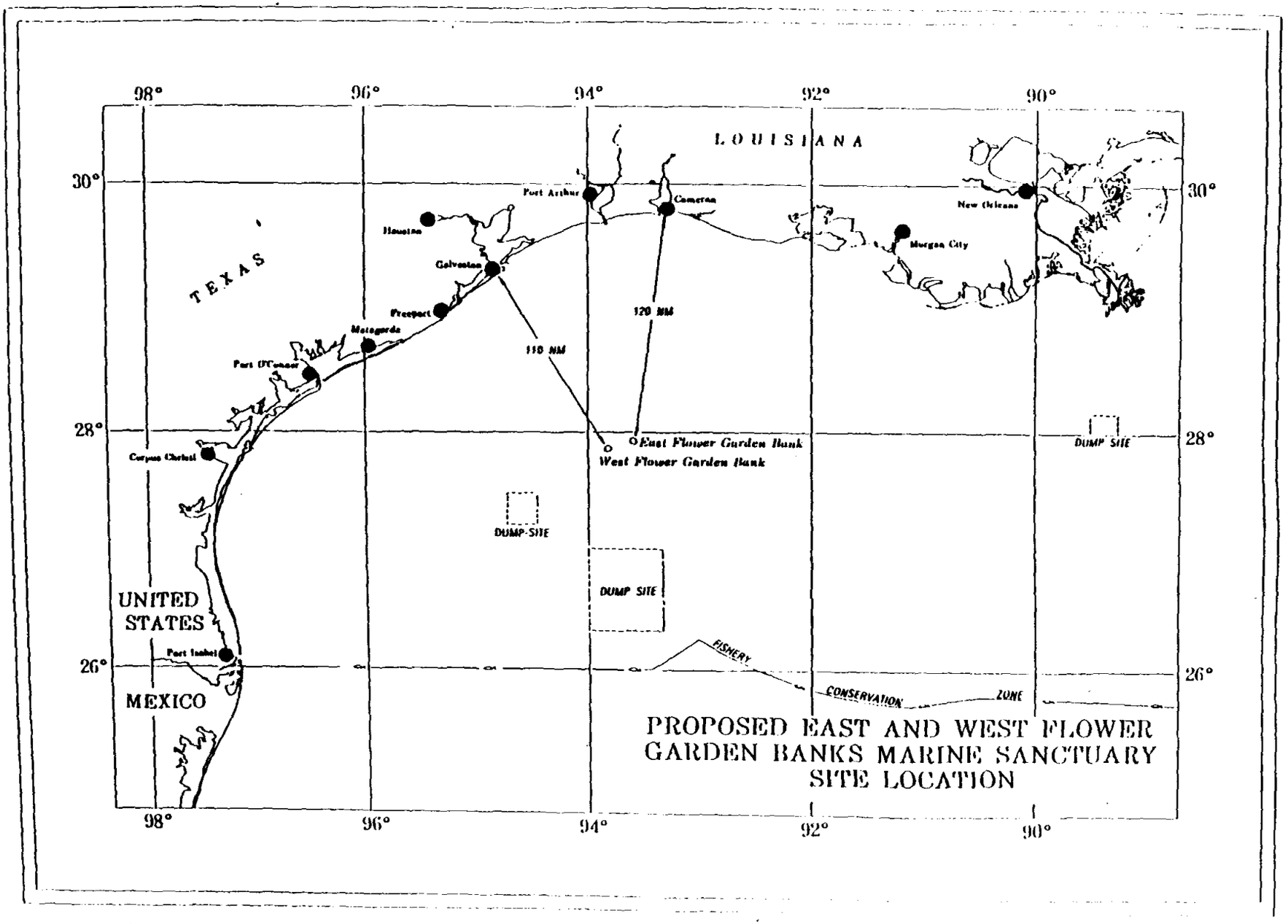
98°
96°
94°
92°
90°
30°
28°
26°
LOUISIANA
TEXAS
MEXICO
UNITED STATES
Port Arthur
Cameron
Houston
Galveston
Freeport
Matagorda
Port O'Connor
Corpus Christi
Port Isabel
New Orleans
Morgan City
120 NM
110 NM
East Flower Garden Bank
West Flower Garden Bank
DUMP SITE
DUMP SITE
DUMP SITE
FISHERY
CONSERVATION
ZONE
PROPOSED EAST AND WEST FLOWER
GARDEN BANKS MARINE SANCTUARY
SITE LOCATION

Figure 3

made the Banks convenient to offshore service vessels, which often anchor for recreational fishing. These vessels are usually between 90 and 180 ft (27 and 55 m) in length.

The Louisiana ports closest to the Flower Gardens are Morgan City and Cameron. The closest in Texas are Sabine, Galveston, Freeport and Port Aransas. Most of the traffic frequenting the Flower Gardens originates from these cities (Bright, 1985a).

B. Sanctuary Resources*

The Flower Garden Banks are unique among the banks of the northwestern Gulf of Mexico in that they bear the northernmost tropical Atlantic coral reefs on the continental shelf and support the most highly developed offshore hard-bank communities in the region. In addition to these resources, East Flower Garden Bank harbors a localized assemblage of organisms associated with a hypersaline, anoxic brine seep having a chemosynthetic energy base analogous to that found at deep-sea vents. Such communities are otherwise unknown on the world's continental shelves.

East Flower Garden Bank is a single platform rising to a crest of about 50 ft (15 m) below the water surface. Within the 100 m (328 ft) depth contour, the bank is 5.4 nautical miles (10 km) long and 3.5 nautical miles (6.5 km) wide. West Flower Garden Bank consists of three platforms cresting at 65, 197, and 230 ft (20, 60 and 70 m) depths and separated by intervening depths of 280 to 330 ft (85 to 100 m). Within the 100 m (328 ft) contour West Flower Garden Bank is 5.4 nautical miles (10 km) long and 3 nautical miles (5.5 km) wide (Figure 4).

1. Geology

The East and West Flower Garden Banks are seafloor expressions of domes (diapirs) formed by the intrusion of salt from Jurassic evaporite deposits approximately 6.2 statute miles (10 km) below the sea floor. Diapirism and faulting are currently active at both Banks. The faulting of Bank crusts resulting from a combination of tensional forces due to domal uplift and the removal of salt by dissolution is more advanced at the West Bank. Consequently, it possess a larger and more conspicuous central graben (down-faulted depression) than does the East Bank.

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*The information in this subsection on Flower Garden Bank geology, environmental conditions, and natural resources was prepared by Dr. Thomas Bright, Texas A&M University (Bright, 1985a).

Flower Garden Banks Bathymetry

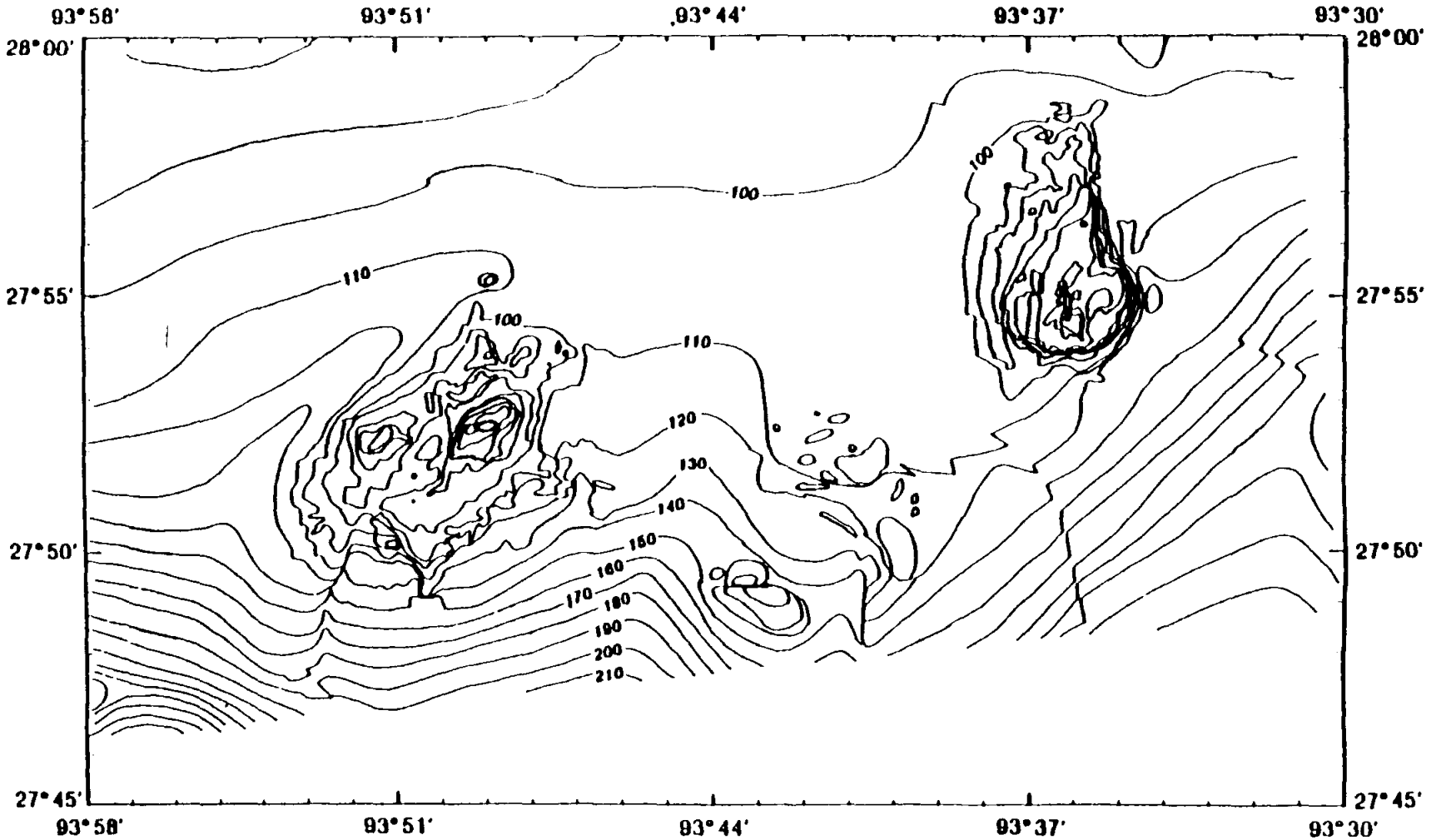


Figure 4

The salt plugs beneath both Banks are quite near the sea floor. High salinity brine seepage has been detected on the East Flower Garden at 45 m depth, indicating that the top of the salt may lie directly beneath the central reef. A larger brine seep on the southeastern edge of the Bank at a depth of 233 ft (71 m) flows at a rate of 400-700 cubic meters (14,125- 24,720 cubic ft) per day. This discharge of 200 parts per thousand (ppt) brine is thought to represent the removal of 10,000 to 22,000 cubic meters (353,300 to 776,900 cubic ft) of solid salt per year from beneath the East Flower Garden. Stratigraphic traps formed on the flanks of the salt plugs are known to contain natural gas deposits, and scattered seeps of natural gas of biogenic and petrogenic origin occur on both Banks from their crests to their bases.

Surficial hard substratum at the Flower Gardens is exclusively carbonate rock, constructed primarily by contemporary populations of coralline algae and corals. Exposed sedimentary facies on the Banks and their environs are strongly correlated with depth, and parallel closely the distribution of biotic communities, which, above approximately 280 ft (85 m) depths, are dominated by reef-building organisms (Figure 5).

Living coral reefs, made up of massive heads produced by 18 species of tropical Atlantic corals are the primary features between 50 and 150 ft (15 and 46 m) depths. The coral debris facies at depths of 80 to 165 ft (25 to 50 m) consists of coarse carbonate sand and gravel in basins and valleys between coral heads and in narrow aprons surrounding the reefs. An Algal Nodule Zone (Gypsina-Lithothamnium Facies), consisting predominantly of gravel of algal nodules formed in-situ with occasional algal reefs and pavements, extends downward and outward from the coral debris facies to depths of 200-250 ft (60-75 m).

Below the Algal Nodule Zone are carbonate sands consisting mainly of the skeletal remains of the foraminifer, Amphistegina, derived from living populations on higher bank surfaces. The Amphistegina Sand Facies extends to depths of 295 to 330 ft (90-100 m), where it is replaced by a Quartz-Planktonic Foraminifers Facies consisting of planktonic foraminifers, pteropods, mollusc and echinoderm fragments, and reefal detritus in various mixtures with silt and fine, sand-sized quartz grains and clay. This facies represents a transition between the carbonate bank sediments and the terrigenous sediments normally found on this part of the continental shelf.

2. Environmental Conditions

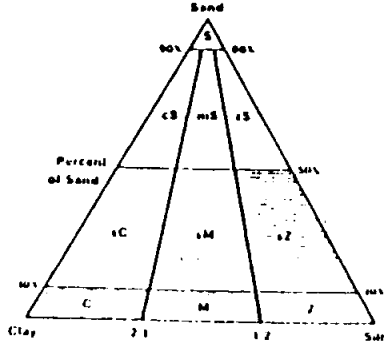
(a) Climate

The Flower Gardens are geographically situated in a warm temperate zone. Bay waters of the nearby coasts of Louisiana and

Sediment Facies
Flower Garden Banks

SEDIMENTARY FACIES

Carbonates	Terrigenous	
Living Reef	Mud	M
Coral Debris	Gravelly Mud	gM
Gypsum, Lithothamnium	Slightly Gravelly Mud	(g)M
Amphistegina Sand	Slightly Gravelly Sandy Mud	(g)sM
Mollusc-rich Hash	Clay	C
Quartz Plankton	Sandy Silt	sZ
Foraminifera	Gravelly Muddy Sand	gmS
	Slightly Gravelly Muddy Sand	(g)mS
	Muddy Gravel	mG



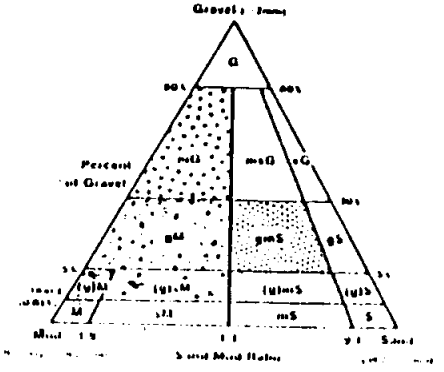


Figure 5

North Texas may experience temperatures in excess of 90° F (32° C) in late summer and may occasionally freeze in winter.

Rainfall is substantial on the mainland northeast of the Banks, averaging 50 to 60 inches per year. Precipitation diminishes southward along the coast, approaching semi-arid conditions between Baffin Bay, Texas, and the Rio Grande River (25 inches per year). Runoff from rivers in Louisiana and north Texas greatly impacts coastal hydrography in the northwestern Gulf. At peak discharge, the Mississippi River alone can transport more than 100,000 cubic meters (3.5 million cubic ft) of fresh water per second to the Gulf.

Winds vary seasonally. In January, regional winds affecting the offshore waters in the northwestern Gulf are generally from the northeast. By March, they have shifted and blow primarily from the east. In summer, prevailing winds are out of the southeast. These average conditions are perturbed in winter by intrusions of polar air masses into the Gulf in the form of frontal passages (northers) which may result in severe storms at the Flower Gardens, with waves approaching 16 ft (5 m) in height. Furthermore, the northwestern Gulf is in the path of hurricanes which pass through the region during summer and fall.

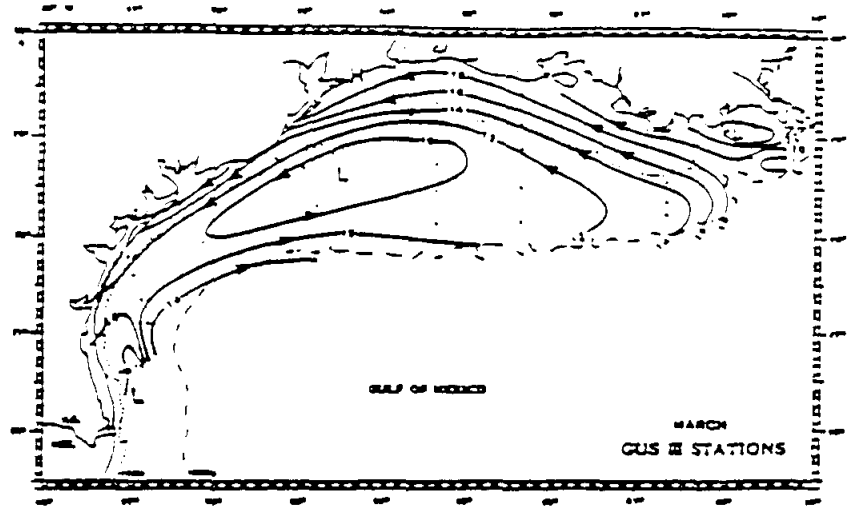
(b) Hydrography

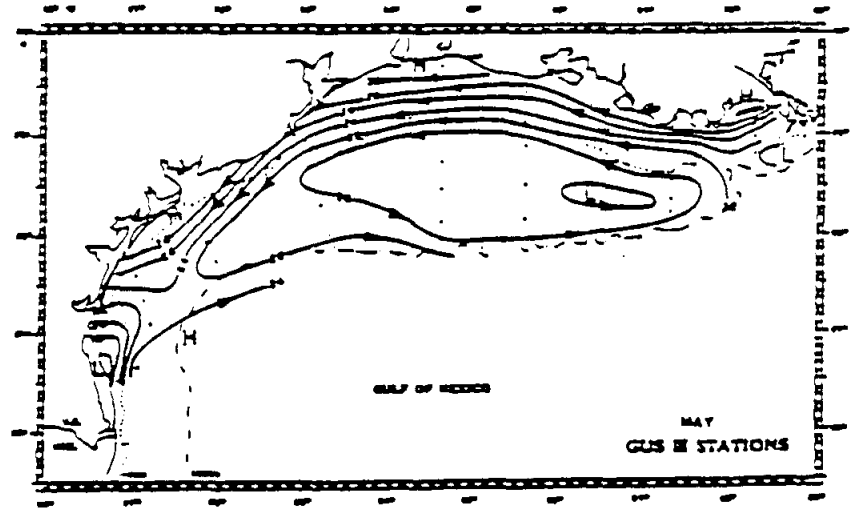
Due largely to conditions of climate and runoff, the coastal marine environment in the northwestern Gulf, though exceedingly productive in terms of biomass and fisheries, is too harsh to support the development of tropical reef systems such as those existing at the Flower Gardens. Waters over most of the continental shelf are too cold in winter and too turbid year round due to sedimentation and sediment resuspension. During periods of peak spring runoff, nearshore surface salinities may drop substantially below 30 ppt and may be as low as 20 ppt near the Mississippi and Atchafalaya deltas.

There is a strong tendency for these coastal water masses to be held onshore and shunted west most of the year (particularly during February to May) by the general shelf circulation pattern and the prevailing winds, thereby allowing the tropical oceanic water masses of the open Gulf to predominate on the outermost shelf where the Flower Gardens are located. Typically, currents on the inner shelf between the Mississippi and central Texas are directed downcoast (westward and southwestward). Currents on the outer shelf usually flow toward the northeast and east. In summer, this pattern may be disrupted, resulting in current reversals and considerable cross-shelf exchange west of the Mississippi (Figure 6).

The net result of this tenuous balance between neritic and oceanic water movements is a shelf-edge zone wherein the near

Typical Current Patterns
Northwestern Gulf of Mexico





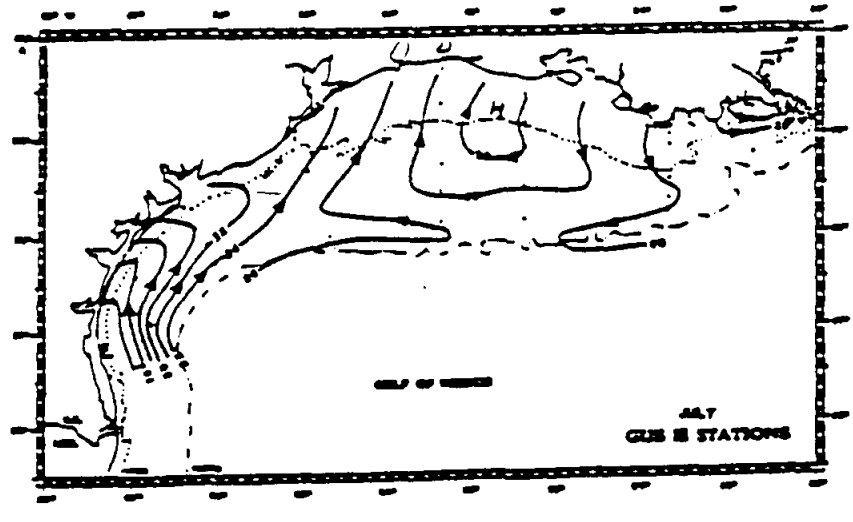


Figure 6

surface water comes primarily from the south, is perpetually clear and well lit, varies little in salinity beyond 34-36 ppt and ranges in temperature from 68° F (18° C) (barely above the minimal requirement for tropical reef development) to 86° F (30° C) (Figure 7). The introduction of uplifted substratum into these waters by salt diapirism has provided a suitable habitat for the development of tropical Atlantic reef communities on at least 17 shelf-edge banks off Texas and Louisiana. Only two, however, the East and West Flower Gardens Banks, possess crest depths shallow enough to support coral reefs comparable to those in the Caribbean and southern Gulf from which the Flower Garden biota are derived.

3. Benthic Communities

The Flower Garden Banks harbor approximately 500 acres of submerged tropical coral reefs with 18 species of hermatypic corals. Cresting at approximately 50 ft (15 m) below the water surface, the reefs extend downward to 150 ft (46 m) depths, where the hermatypic corals are replaced by reefal communities dominated by coralline algae. This deeper "algal terrace" covers most surfaces down to a depth of 290 ft.

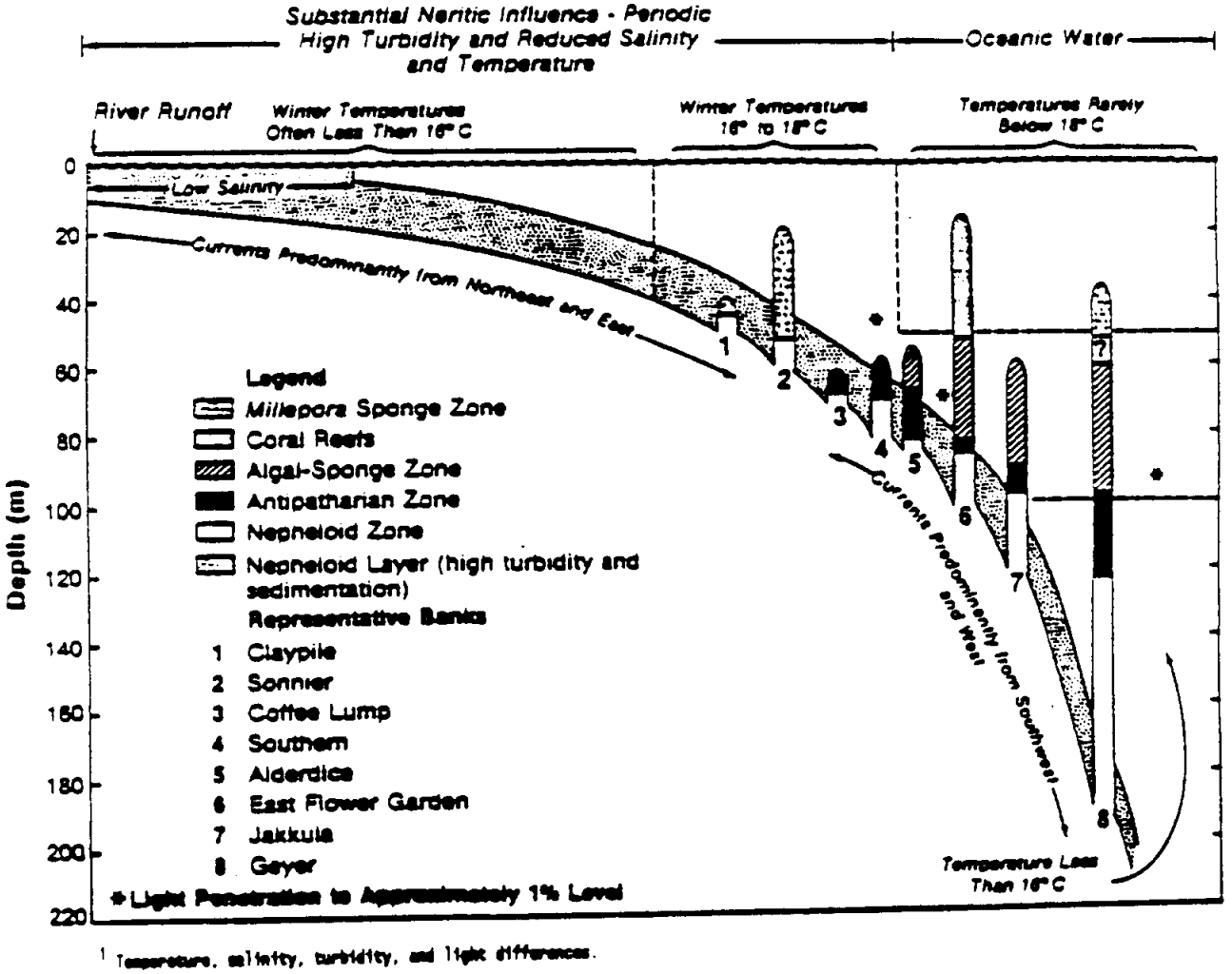
The two coral reef zones (Diploria-Montastrea-Porites and Madracis) on the shallowest crests of the Flower Gardens have no counterparts on the 15 or so similar banks stretching eastward toward the Mississippi. The lower-lying benthic communities at the Flower Gardens, however, are representative of reef assemblages occurring on other outer continental shelf banks in the northwestern Gulf of Mexico. All of the biotic zones so far recognized on the other shelf-edge carbonate banks (except the Millepora-Sponge zone, which occurs only on claystone-siltstone outcrops) are represented at the Flower Gardens (Figures 8, 9, 10).

(a) Diploria-Montastrea-Porites Zone

The shallowest of the Flower Garden biotic zones is the Diploria- Montastrea-Porites zone. The coral reefs in this zone, at depths of 50 to 120 ft (15 to 36 m), are of considerable interest to scientists because they are isolated from other reef systems by over 300 nautical miles (550 km) and exist under hydrographic conditions generally considered marginal for tropical reef formation. Largely because of their aesthetic appeal, the reefs in this zone have been the primary focus of concern about the ecological fate of the Flower Gardens in light of the increasing impact of human activity.

Possibly because of their isolation and the marginal hydrographic conditions in which they exist, the Flower Garden coral reefs are considerably less diverse than their more southerly counterparts. The Flower Garden reefs, made up of 7

Comparison of Biotic Zone Environmental Conditions[1] at Selected Banks



[1] Temperature, salinity, turbidity, and light differences.

Figure 7

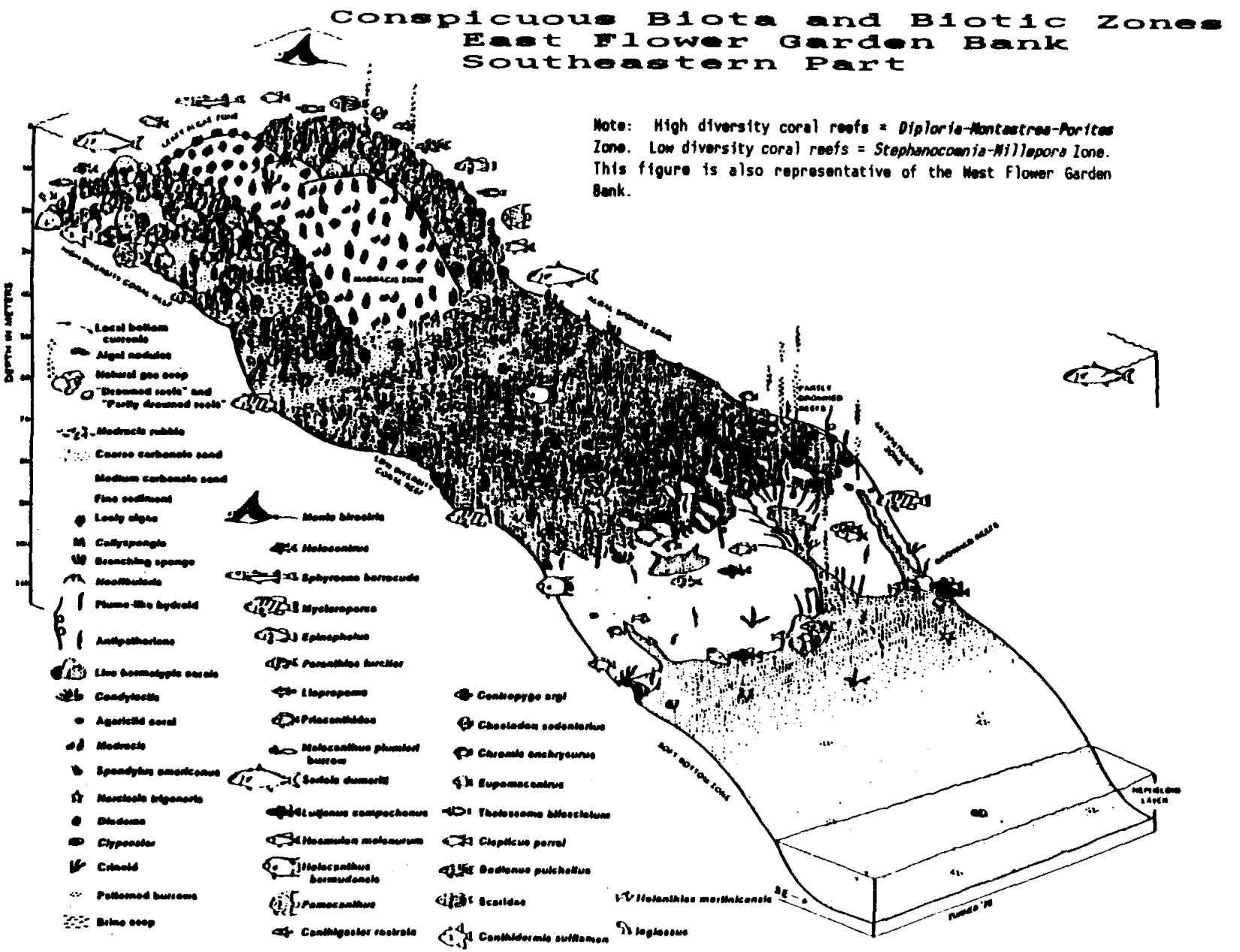

Conspicuous Biota and Biotic Zones
East Flower Garden Bank
Southeastern Part
Note: High diversity coral reefs = Diploria-Montastrea-Porites Zone. Low diversity coral reefs = Stephanocoenia-Millepora Zone. This figure is also representative of the West Flower Garden Bank.
DEPTH IN METERS
Local bottom currents
Algal nodules
Natural gas seep
"Drowned reefs" and "Partly drowned reefs"
Hardrock rubble
Coarse carbonate sand
Medium carbonate sand
Fine sediment
Leafy algae
Gorgonian
Branching sponge
Massive sponge
Plume-like hydroid
Antipatharians
Live hermatypic corals
Condylactis
Agaricia coral
Madracis
Spondylus americanus
Nucleola trigonaria
Diadema
Clypeaster
Crinoid
Feltomed burrows
Brine seep
Montastrea annularis
Holocentrus
Sphyraena barracuda
Myctoperca
Epinephelus
Paranthias furcifer
Liopropoma
Priacanthidae
Holocanthus plumieri burrow
Sostala dumerili
Lutjanus campechanus
Haemulon melanurum
Holacanthus bermudensis
Pomacanthus
Canthigaster rostrata
Centropyge argi
Chaetodon ocellatus
Chromis enchrysurus
Eupomacentrus
Thalassoma bifasciatum
Cloplicus parrai
Bodianus pulchellus
Scaridae
Canthidermis sufflamen
Holanthias martinicensis
Inglesous
SOFT BOTTOM ZONE
MESOPELAGIC LAYER

Figure 8

Biotic Zonation
East Flower Garden Bank

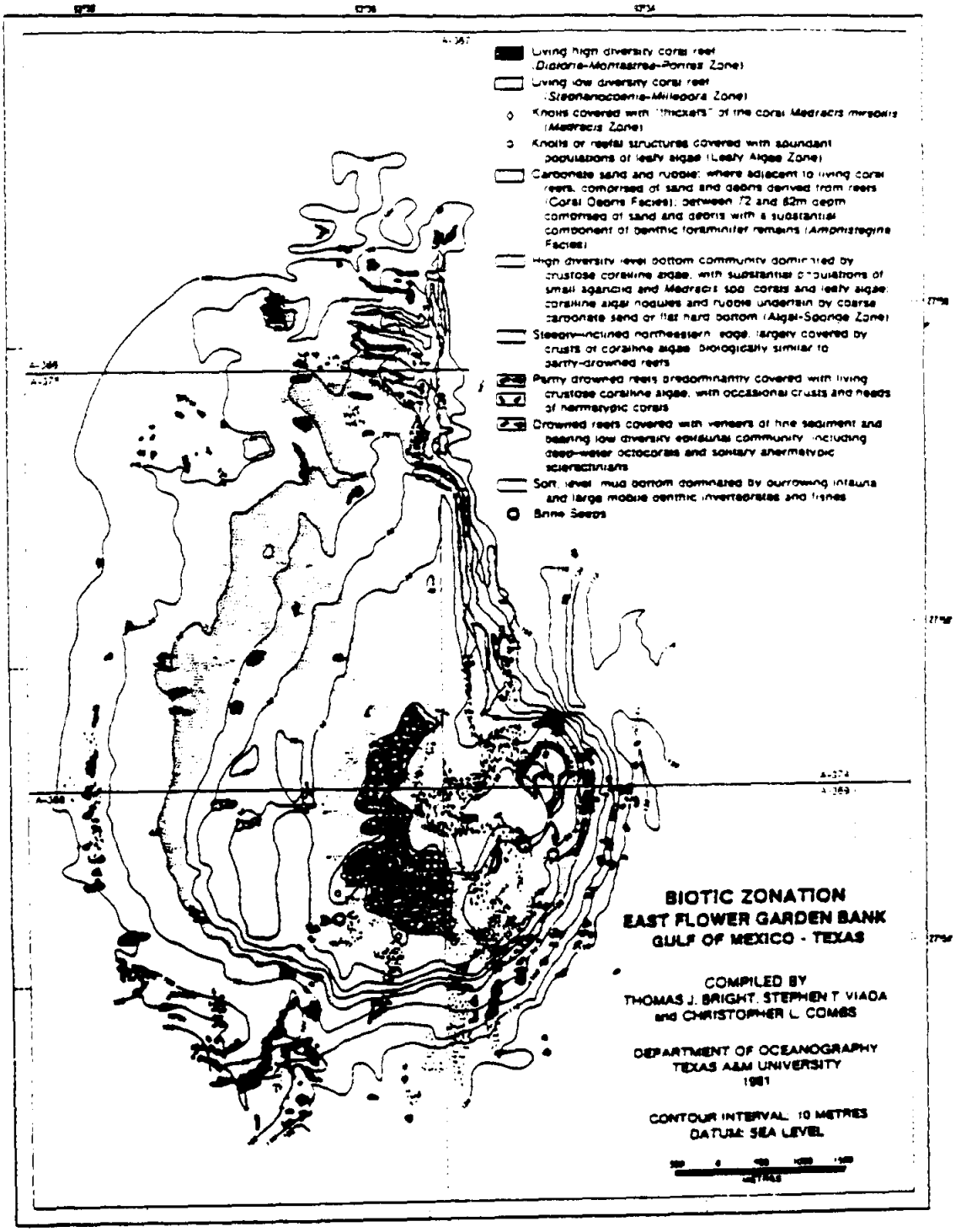
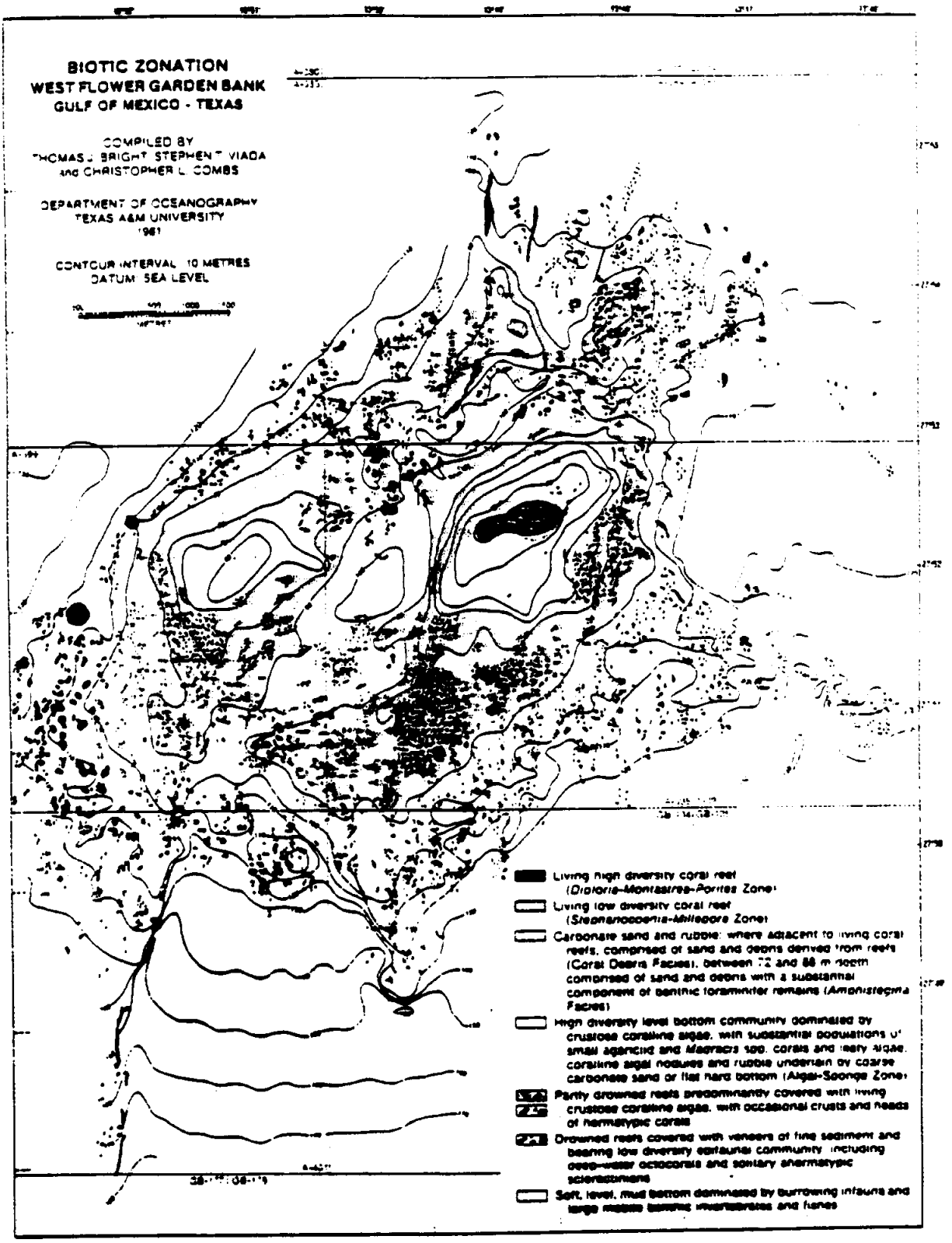


Figure 9

Biotic Zonation[1]
West Flower Garden Bank



[1] The three 'dots' within the 88 m contour on the easternmost knoll represent low-diversity coral reefs.

Figure 10

large, closely-packed heads and dominated by the star coral, Montastrea annularis, conspicuously lack populations of shallow-water octocorals (sea fans, sea whips) and branching corals of the genus Acropora (staghorn and elkhorn corals) which are abundant on reefs to the south. There are only 18 species of reef building corals in the Diploria-Montastrea-Porites Zone (Table 1), compared to 34 in the southern Gulf and 55 in the Caribbean.

(b) Madracis Zone

The other reef zone occurring at the Flower Gardens, but not at other banks in the region, is the Madracis zone. It is dominated almost entirely by thickets of the small branching coral, Madracis mirabilis. Knolls composed of the skeletal remains of this species are found at the margins of the Diploria-Montastrea-Porites zone in water depths of 90 to 150 ft (28 to 46 m). Some of the knolls are covered with Madracis thickets while others have been overgrown by the main reef, possibly indicating a successional relationship between the two zones. Several knolls are covered seasonally with dense populations of macro-algae and are known as a Leafy Algae zone.

(c) Lower Diversity Reef Zone

Lower diversity coral reefs occur in places at the Flower Gardens and on two other neighboring banks at depths between 120 and 180 ft (36 and 55 m). These reefs harbor only 12 varieties of reef building corals, the dominant varieties being Stephanocoenia michelini, and the fire coral Millepora sp. Stephanocoenia-Millepora zone.

(d) Algal-Sponge Zone

The Algal-Sponge zone is the most important source of carbonate substratum produced on the Flower Gardens and the other shelf-edge banks. This zone, at depths from 150 to 290 ft (46 to 88 m), is overwhelmingly dominated by crustose coralline algae, primarily Lithothamnium, Lithoporella and Tenarea. Forming vast areas of algal nodules as well as algal reef patches and pavements, these organisms are responsible for most of the reef-building activity in the northwestern Gulf of Mexico. Leafy algae are common within the zone and the assemblage of epibenthic invertebrates is probably as diverse here as on the coral reefs that have grown upward from the algal platforms.

(e) Nepheloid Layer

Below the Algal-Sponge zone there is generally insufficient light to support reef-building activity by either corals or coralline algae. However, evidence of previous reef-building is

TABLE .

Flower Garden Corals and Calcareous Algae

Note: The source of this table is Bright, 1985. DMP = *Diploria-Montastrea-Porites* zone; MAD = *Madracis* zone; SM = *Stephanocoenia-Millepora* zone; AS = Algal-Sponge zone. Relative abundance is indicated as follows: ▬▬ = very abundant, ▬ = abundant, ▪ = common; • = present; ? = probably present, no notation = unknown.

	Depths of Collections and/or Observation	Abundance			
		DMP	Mad	SM	AS
Red calcareous algae					
Corallinaceae					
Porolithon	23–32	▬	•		
Hydrolithon	23–65	▬▬	▬	?	•
Archaeolithothamnium	23–72	•	•	?	•
Lithophyllum	23–80	▬	▬	?	▬
Lithoporella	23–85	•	•	?	▬
Tenarea	23–90–	▬	▬	?	▬
Lithothamnium	23–90–	•	•	?	▬▬
Mesophyllum	23–85	•	•	?	▬
Fosliella?	23	•		?	•
Squamariaceae					
Peyssonnelia	23–90–	▬	▬	?	▬
Green calcareous algae					
Codiaceae					
Halimeda spp.	21–91	•	?		▬
Halimeda tuna	48–61				•
Udotea spp.	40–64	?			•
Udotea cyathiformis	58				•
Foraminiferans					
Gypsina plana	21–68	▬	▬▬	?	▬
Corals					
Astrocoeniidae					
Stephanocoenia michelini	21–52	•		▬	
Pocilloporidae					
Madracis spp.	15–92	▬			▬
Madracis asperula	48–84				▬
Madracis decactis	15–41	▬			
Madracis cf. *formosa**	62				•
Madracis mirabilis	23–40		▬▬		
*Madracis myriaster**	113				•
Agariciidae					
Agariciidae (saucer-shaped)†	18–82	•		•	▬
Agaricia spp.	15–76	▬		▬	▬
Agaricia agaricites	20–24	•		?	▬
Agaricia fragilis ?‡	20–53	•		?	•
Helioseris cucullata	20–84	•		?	▬
Siderastreidae					
Siderastrea siderea	21–50	▬		•	
Portidae					
Porites astreoides	21–40	▬		•	
Porites furcata	21	•			
Faviidae					
Colpophyllia spp.	21–47	▬		▬	
Colpophyllia amaranthus	21–26	•		?	
Colpophyllia natans	21–26	▬		?	
Diploria strigosa	15–55	▬		▬	
Montastrea annularis	21–43	▬▬		•	
Montastrea cavernosa	19–60	▬		▬	•
Mussidae					
Mussa angulosa	21–54	▬		•	
Scolymia sp. (spp.?)§	18–46	•		•	
Scolymia cubensis	21–27	•		?	
Milleporidae					
Millepora alcicornis	15–55	▬		▬	•
Caryophylliidae					
Oxysmilia sp.?‖	82–101				
Paracyathus sp.?¶	19–?	•		?	?

* *Madracis* cf. *formosa*, *M. myriaster*, *Oxysmilia* sp. and *Paracyathus* sp. are not considered by us to be "hermatypic."

† "Saucer-shaped" Agariciidae (colonies averaging 10 cm diameter) are not recognizable to species in situ. Collected specimens are *Helioseris cucullata*, *Agaricia agaricites* and, if the identification is correct (see ‡), *Agaricia fragilis*.

‡ Two collected specimens, identification as *Agaricia fragilis* uncertain.

§ Possibly only one species, *S. cubensis*.

‖ In situ sightings only of *Oxysmilia* sp.? *Oxysmilia rotundifolia* is generally abundant on, and has been collected from, deeper parts of shelf-edge carbonate banks in the northwestern Gulf of Mexico. The authors speculate that Flower Garden sightings are this species.

¶ One specimen identified by Dr. S. Cairns as "*Paracyathus* sp. or *Polycyathus* sp." *Paracyathus pulchellus* is common on other banks in northwestern Gulf of Mexico. The closest collected specimen of *P. pulchellus* was from 28 Fathom Bank (8 nautical miles due east of the East Flower Garden Bank) at 76 m depth.

present in the form of drowned reefs, which occur abundantly around the bases of the Banks below 300 ft (90 m) depth levels. These remnants imply that the water was shallower at some time in the past as a result of a sea-level rise or local subsidence, or both. The drowned reefs are typically laden with silt that continually settles out of the turbid bottom waters (nepheloid layers) surrounding the Banks. The biota associated with these drowned reefs are low in diversity and abundance and quite different in species content from those occupying the living reef zones above 290 ft (88 m).

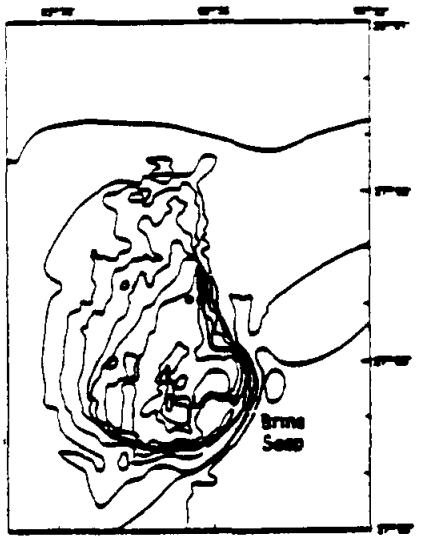
(f) Brine Seeps

A unique feature of the Flower Garden Bank ecosystem is the existence of two brine seeps at the East Bank. The more recently discovered of the two is at a depth of 157 ft (48 m) on the southwest flank of the bank. The other, more well known, issues from hard substratum at a depth of 233 ft (71 m) on the eastern margin of the East Bank (Figure 11). This seep, named Gollum's Lake and Gollum's Canyon by researchers, this 200 ppt brine spring and its associated biota are worthy in their own right of Sanctuary protection. The brine lake occupies most of the sand floor of a 13 ft (4 m) deep, amphitheater-shaped basin 165 (50 m) long by 100 ft (30 m) wide. The lake is approximately 10 inches (25 cm) deep and overflows into Gollum's Canyon. The canyon is 33 to 50 ft (10-15 m) wide, and it winds 315 ft (96 m) from the basin to the edge of the Bank.

The brine in the lake results from the dissolution of salt by interstitial sea water at the crest of the salt plug beneath the Bank. Heavier than sea water, it percolates downward through porous reef rock and exits through the sand on the basin floor. In addition to containing large amounts of salt, the solution becomes highly charged with sulfides and loses all dissolved oxygen. This heavy, high salinity, high sulfide, anoxic brine is toxic to most marine organisms, but its toxicity diminishes as it overflows from the lake into a stream at the bottom of the canyon and progressively mixes with overlying sea water on its passage to the edge of the Bank.

Whereas typical Algal-Sponge zone biota surround the seep system, the community of organisms within the system is structured in response to balances between the sulfide and oxygen content of the water and the resultant toxicity gradients. Thus, the lake is occupied by a community of sulfur bacteria capable of chemosynthetic and photosynthetic primary production using sulfide or sulfate either in the absence of oxygen or at the oxic-anoxic boundary. Some of these bacteria extend into the mixing stream where sulfide and oxygen temporarily co-exist.

Brine Seep
East Flower Garden Bank
Eastern Edge



Note: (A) Brine lake (Gollum's lake), (B) overflow from lake at 71 m (233 ft) depth, (C) stream of mixing brine and seawater. Arrow to right of (C) indicates small brine pool (Corner Pool) below overflow. Canyon mouth is 79 m (249 ft) deep. Area indicated as *Chaetomorpha* may be mixtures of *Chaetomorpha* and *Cladophora*.

Figure 11

Mats of bacteria from the mixing stream, plus bacterial biomass overflowing from the lake, provide a source of food for certain interstitial animals (largely gnathostomulids) which are capable of resisting high levels of usually toxic sulfide in the upper part of the mixing stream. Farther downstream, the gnathostomulid community is replaced gradually by tanaidaceans, amphipods and similar organisms less tolerant of sulfide but capable of using the bacterial input as food.

The brine-seep system is an interesting shallow-water analogy to sulfide-dependent, deep-sea, hydrothermal vent communities and has great potential as a natural laboratory for the study of processes of considerable current interest to the marine science community.

4. Other Species Associated With Benthos

The Flower Garden Banks harbor at least 80 species of algae, 196 known macro-invertebrate species and more than 175 fish species. The reef-building corals and coralline algae construct and maintain the substratum and, through a multitude of intraspecific and interspecific relationships, largely control the structure of benthic communities occupying the Banks. Thus they are by far the most important organisms in the Flower Garden ecosystem.

Reef surfaces shallower than 100 ft (30 m) provide a habitat for various types of mollusks. Mollusks present in these areas include: the Atlantic thorny oyster (Spondylus americanus), several varieties of scallops (F. Malleidae), the turtle cone (Conustestudinarius), the Mindanao cone (C. mindanus), cowries (Genus Cypraea), the Hawk-wing conch (Strombus raninus), the brown-lined latirus (Latirus Infundibulum), and the Atlantic Hairy Triton (Cymatium pileare) (Lipka, 1974). Other invertebrates found at the Flower Gardens include: the brittle stars (O. Ophiurida), sea urchins (Class Echinoidea), the feather duster worm (Hypsicomus elegans), spiny lobsters (Panulirus argus and Panulirus guttatus), and the Spanish lobster (Scyllarides aequinoctialis).

Pelagic fish at the Flower Gardens include a number of small, brightly colored reef fishes such as the blue tang (Acanthurus coruleus), the gobies (F. Gobiidae), the bluehead (Thalassoma bifasciatum), the damsel fishes (F. Pomacentridae), the butterfly fishes (F. Chaetodontidae), some of the parrotfishes (F. Scaridae), and some of the triggerfishes (F. Balistidae) (Bright and Cashman, 1974). The most important of the larger, harvestable fish are groupers of various kinds and red, vermilion, and other types of snapper.

Benthic and demersal fish, such as snappers and groupers, play a major role in the coral-reef ecosystem. Some larger

carangids and some species of trigger fish occasionally move or uproot coral during their feeding and nest-building activities (Glyn, Steward and McClosker, 1972). Parrotfish and other species feed on corals directly (see Randall, 1974, for a review of fish predation on coral). Although such activities are destructive to coral, they reflect normal ecological relationships among biota in the reef system.

Snappers and other demersal fish, grazing on algae in the live-coral and hard-bank zones, may also generate much of the detritus (Hiatt and Strasburg, 1960; Stephenson and Searles, 1960; Randall, 1976) that could form the base of the coral-reef food chain. Hobson and Chess (1978) monitored the activities of planktivorous and detritivorous fishes that feed on assorted biota in nearby waters and then return to the reef where they defecate particles essential to the diet of coral polyps. A similar nutrient cycle from algae to corals has been suggested by Lewis (1977) for herbivorous fishes. All feeding and excreting activities contribute to the suspended detritus load that forms the bulk of coral-polyp diets. The complex energetics of these interrelationships are discussed by Baka (1966, 1969).

Sea turtles are occasionally seen at the Flower Gardens, both at the surface and on the reef, but only the loggerhead, Caretta caretta, has been reliably identified. The loggerhead, it should be noted, is a threatened species. The only marine mammal frequently reported near the Flower Gardens is the spotted dolphin, Stenellaplagiodon. Other species of turtles and marine mammals are probably casual visitors. Although the Flower Gardens are too far offshore for the typical occurrence of coastal sea birds other than an occasional tern or booby, nearby oil platforms attract migrating land birds, especially cattle egrets, and sometimes warblers, vireos and other small species. The land birds are usually exhausted from long overwater flights.

5. Historical/Cultural Resources

The Flower Garden Banks lie well seaward of any area identified as having a high probability of containing either historical or prehistorical cultural resources (Interagency Archeological Services, 1977). It is considered unlikely that historical/cultural resources of any significance exist in the vicinity of the Banks.

C. Human Activities

The principal human activities in the area of the Flower Garden Banks are oil and gas exploration and development, commercial fishing, recreational pursuits, ship transiting, and research. Generally, these activities have a small impact on Flower Garden resources, but anchoring by large vessels at the

Banks poses a special problem. The existing and proposed regulatory regimes governing these activities are discussed in Part III, Alternatives Including the Preferred Alternative. The environmental impacts of the activities are discussed in Part IV, Environmental Consequences.

1. Oil and Gas Activities

All current oil and gas operations at the Flower Garden Banks are subject to special stipulations, imposed by the Minerals Management Service (MMS) to protect sensitive biological resources. The stipulations include the establishment of a no-activity zone at each Bank.

Hydrocarbon reserves at the Flower Gardens are generally expected to be natural gas, but the presence of oil at the Banks cannot be discounted; at least small quantities of oil are normally recovered from gas wells. The closest crude oil production is located approximately 6.5 nm (12 km) northwest of the West Bank. Oil company activity involving the leasing of tracts (Table 2), exploratory drilling, and production operations seems to indicate a favorable outlook for the development of hydrocarbon deposits in the vicinity of the Banks. A Mobil Oil production platform was constructed in 1981 one nautical mile southeast of the East Bank in block A-389 (Figure 12), and 42 blocks had been leased in the vicinity by October, 1987 (MMS, 1987).

2. Commercial Fishing

Several species of fish occurring at the Flower Gardens and other regional banks are of proven or potential value to fisheries. Red and vermilion snappers and groupers have been harvested in the vicinity of the Flower Gardens by commercial hook-and-line fishermen since the 1880's. Currently, the commercial-fish harvest consists predominately of snappers. The Flower Gardens and other banks rimming the Gulf are frequented by a fleet of 14 to 20 snapper boats, based largely in Pensacola, Florida. Most of the effort at the Flower Gardens is directed toward the fringe of the coral reef cap in 100 to 165 ft (30 to 50 m) water depths where snappers seem most abundant. Fishing vessels apparently do not anchor at the Flower Gardens during fishing operations.

Some types of commercial fishing gear used in the Gulf of Mexico could result in appreciable physical damage to Flower Garden bottom formations. Fish trawls being dragged along the bottom, for example, could cause scarring of the living reefs similar to the damage caused by anchoring. The use of fish trawls at the Flower Gardens, however, is impractical because

Table 2

TRACTS IN THE VICINITY OF THE EAST AND WEST FLOWER GARDEN BANKS SUBJECT TO THE MMS BIOLOGICAL STIPULATION (ALSO REFER TO FIGURES 12 and 13)

TRACT	LOCATION	LEASE STATUS (L=LEASED)
A-351	EAST FLOWER GARDEN	(L)
A-352	"	
A-353	"	(L)
A-354	"	
A-355	"	(L)
A-361	WEST FLOWER GARDEN	(L)
A-362	"	(L)
A-363	"	
A-364	EAST & WEST FLOWER GARDEN	
A-365	EAST FLOWER GARDEN	(L)
A-366	"	(L)
A-367	"	(L)
A-368	"	(L)
A-373	"	(L)
A-374	"	(L)
A-375	"	
A-376	"	(L)
A-377	EAST & WEST FLOWER GARDEN	
A-378	WEST	
A-379	WEST	
A-380	WEST FLOWER GARDEN	(L)
A-381	WEST	
A-382	WEST FLOWER GARDEN	(L)
A-383	"	(L)
A-384	"	(L)
A-385	"	(L)
A-386	EAST & WEST FLOWER GARDEN	
A-387	EAST	
A-388	"	(L)
A-389	"	L
A-390	EAST FLOWER GARDEN	L
A-394	"	
A-395	"	L
A-396	EAST & WEST FLOWER GARDEN	
A-397	WEST	L
A-377	WEST	
A-398	WEST	L
A-399	WEST	L
A-400	WEST	L
A-401	WEST	L

A-402	"	L
A-403	"	L
A-173	"	L
A-217	"	L
A- 95	EAST FLOWER GARDEN	
A- 96	EAST	
A- 97	"	L
A-133	West	L
A-134		
A-135	WEST	L
A-136	WEST	
A-138	EAST	
A-139	EAST	L
A-140	EAST	L
A-177	WEST	L
A-178	"	
A-180	"	L

TABLE 2

FLOWER GARDEN BANK TRACTS SUBJECT TO MMS BIOLOGICAL STIPULATION

LEASING STATUS* - OCTOBER, 1987

EAST FLOWER GARDEN		WEST FLOWER GARDEN		EAST & WEST FLOWER GARDEN
TRACT	STATUS	TRACT	STATUS	TRACT STATUS*
A- 95	L	A-133		A-364
A- 96	L	A-134	L	A-377
A- 97	L	A-135		A-386
A-138	L	A-136		A-396
A-139	L	A-173		
A-140	L	A-177		
A-351	L	A-178		
A-352	L	A-179		
A-353	L	A-180	L	
A-354	L	A-217	L	
A-355	L	A-361	L	
A-365	L	A-362	L	
A-366	L	A-363	L	
A-367	L	A-378	L	
A-368	L	A-379	L	
A-373	L	A-380	L	
A-374		A-381	L	
A-375		A-382	L	
A-376	L	A-383		
A-387	L	A-384	L	
A-388		A-385		
A-389	L	A-397	L	
A-390	L	A-398		
A-394		A-399	L	
A-395	L	A-400	L	
A-403	L	A-401	L	
		A-402		
		A-573	L	
		A-596	L	

Source: MMS 1987.
*"L" indicates that the tract is leased; no notation indicates that it is not leased.

MMS Leasing Blocks
East Flower Garden Bank

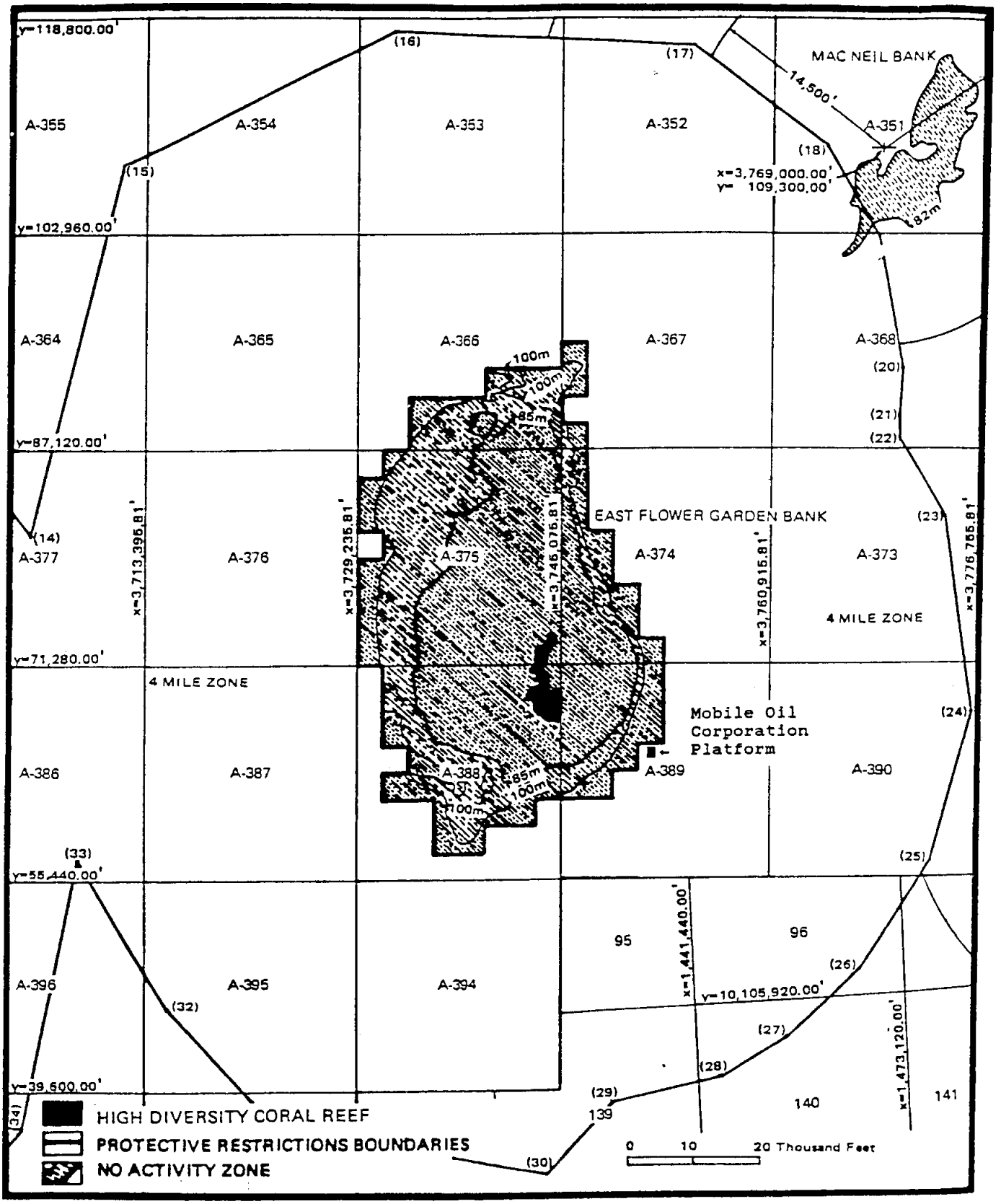


Figure 12

MMS Leasing Blocks
West Flower Garden Bank

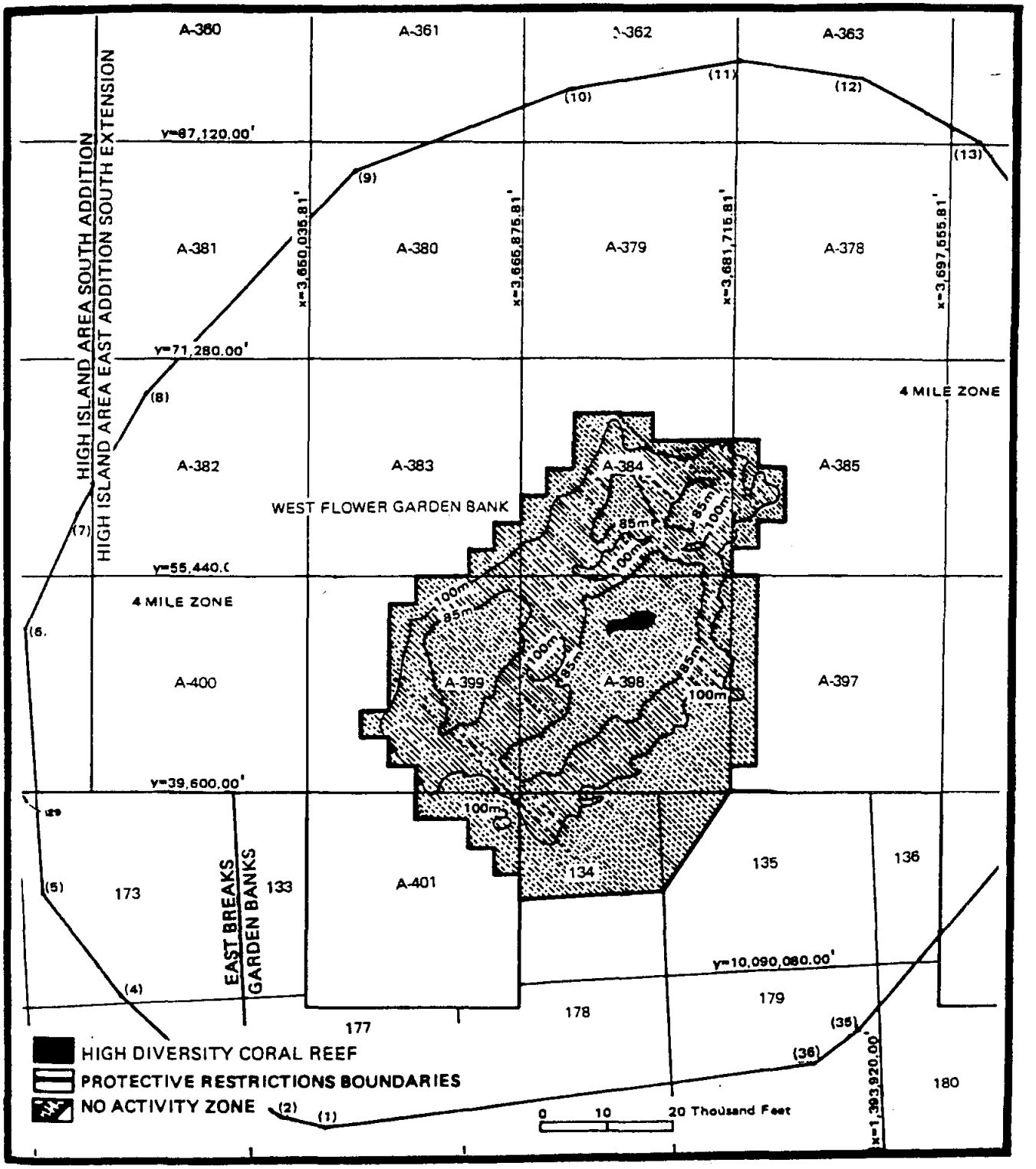


Figure 13

1) the bottom is such rough terrain that trawl nets would be subject to snagging, and 2) fish trawls and traps, long lines, and gill or hoop nets have very limited potential in catching snappers. Reef fish, including snappers, are best caught with handlines (NMFS, 1981), the only commercial fishing method documented at the Banks. In any case, the use of bottom trawls, bottom longlines, traps and pots is now prohibited at the Flower Gardens on the portions of the Banks shallower than the 50 fathom (300 foot) isobath by regulations implementing the Fishery Management Plan for Coral and Coral Reefs.

3. Recreation

The principal recreational attractions at the Flower Garden Banks are their regionally unique coral communities and the abundance and diversity of fish found in their ecosystems. Some recreational boats travel to the Flower Gardens solely for sport fishing purposes, but the majority in the past have probably carried SCUBA divers (Bright, 1986, personal communication). The primary base-ports for recreationists are Freeport, Houston-Galveston, and Port Arthur, Texas, and Cameron, Louisiana. Peak recreational use occurs in July, August, and September when weather conditions are generally most favorable and leisure time is greatest.

Only the most experienced private recreational boat operators are willing to attempt the trip. Because of the often rigorous offshore conditions, private recreational boats visiting the reefs are seldom smaller than 30 ft (9 m) in length. Trips to the Flower Garden Banks and back require an average of 16 hours, and therefore many boats remain overnight, weather permitting.

In the late 1970's, between 50 and 150 boats were estimated to visit the reefs over the course of a year (Blood, 1978, personal communication). Since the emplacement of an oil production platform near East Flower Garden in 1981, navigation to the site has become easier and boat traffic at the Banks has probably increased (Bright, 1986, personal communication). With improved public awareness of the site after designation, recreational visits to Flower Garden waters could increase further. Moreover, as oil and gas development continues in the region, the attractiveness of the area for recreational fishing could be enhanced by the emplacement of additional oil production platforms. Platforms provide new habitats for fish, and platform crews can furnish emergency assistance to boats in distress. Nonetheless, the Banks' distance from shore will continue to limit recreational usage.

Sport fishermen visit the Flower Gardens in small parties on private boats or in larger groups on charter vessels. Fishermen

on both classes of vessels spend one to several days in the area using handlines to fish for snappers and groupers (Blood, 1978). These vessels tend to anchor along the reef margins in water 100 to 150 ft (30 to 36 m) deep where snappers and groupers are most likely to be found (Pulley, 1978, personal communication).

In addition to fishing by hook and line, some spearfishing occurs in Flower Garden waters. Snappers are seldom found at depths shallow enough to attract divers, and thus they are not normally caught by spear fishermen. The target species for spearfishing are generally the larger, predatory species such as hinds, groupers, jacks, and possibly sharks. If these fish became sufficiently depleted, predator/prey relationships could be adversely affected (Bright, 1986, personal communication).

Recreational boats visiting the Flower Garden Banks for diving purposes anchor on the shallowest portions of the reefs. Although the more experienced divers may explore the deeper water at the edges of the reefs, charter boat divers, and probably most divers visiting in private craft, tend to limit their dives to 80 ft (25 m) (Blood, 1978, personal communication; Schaefer, 1978, personal communication). Because the waters at the East Bank are shallower, it receives considerably heavier recreational use than the West Bank (Blood, 1978, personal communication). Anchoring by recreational boats on the upper portions of the Banks is of potential concern in protecting reef resources, but it does not present nearly as severe a threat as anchoring by large vessels (see Part IV, Section I: Environmental Consequences of Alternatives).

Other activities of recreational visitors, in addition to spearfishing and anchoring, that may adversely affect Flower Garden resources are overboard trash disposal and the collection of specimens or souvenirs by divers. Many recreational visitors to the Flower Gardens discard beer cans, soda bottles and other items over the side rather than stowing them until they return to port. Such non-biodegradable litter may remain in place for many years, impinging upon the site's aesthetic quality and thereby reducing its recreational value. Plastic items included in this litter present a hazard to turtles and other creatures that may ingest or become entangled in them.

The collection of souvenirs and specimens is associated with virtually all recreational diving, but it is particularly prevalent in coral reef environments because of the abundance of attractive and removable items. These items, collected typically for display in private homes, are generally small enough to be carried underwater easily and are usually aesthetically pleasing in form or color. They include various types of shells, corals, starfish, sea urchins, anemones, small shrimp, feather duster worms, and brightly colored reef fish.

The most common method of collecting souvenirs and specimens is simply to grasp them with the hand. However, a range of other techniques may be employed, depending on the ambitiousness of the diver and the size or characteristics of the object he wishes to collect. For example, collectors may use crowbars to pry corals or shells loose; a block and tackle to raise heavy objects; and slurp guns, hand nets, or fish-stunning chemicals to capture small reef fish.

Tropical fish collecting for display in private marine aquaria is a popular hobby and a growing commercial enterprise throughout the Gulf of Mexico. A strong market exists in the Gulf states and throughout the country for small, colorful, coral-reef fishes. Some collection of tropical fish at the Flower Garden Banks was reported in the late 1970's (Blood, 1978, personal communication). Now, growing public awareness of the regionally unique nature of the Flower Garden Banks could make them increasingly attractive as a source of aquarium fish. However, because recreational divers seldom dive deeper than 80 feet, souvenir collection may be generally limited to the shallower portions of the Flower Garden coral-reef caps.

4. Commercial Shipping

The area surrounding the Banks is transited by commercial cargo-carrying vessels en route to and from Texas coastal ports. A major east-west shipping fairway, the "Gulf Safety Fairway," passes 6 nautical miles (11 km) south of West Flower Garden Bank. This fairway leads to Corpus Christi, Texas, and connects with other fairways serving major Texas and Louisiana ports. One of these connecting fairways is located some 35 nautical miles (65 km) west of the West Bank and another is located about 45 nautical miles (83 km) east of the East Bank. Although use of fairways by vessel traffic is not mandatory, traffic pattern data collected in 1978 indicates that most vessels passing close to the Banks follow the Gulf Safety Fairway (Naval Ocean Surveillance Information Center (NOSIC), 1978). The traffic patterns plotted by NOSIC in 1978 indicated that most of the vessels using the fairway were traveling between Corpus Christi and other U.S. ports. The remainder of the commercial vessel traffic in the vicinity of the Flower Garden Banks was engaged in domestic trade involving Lavaca, Point Comfort, and Freeport (NOSIC, 1978).

5. Anchoring by Large Vessels

The MMS stipulations prohibiting oil and gas development operations within the no-activity zones apply to anchoring by vessels engaged in development activities, including platform service vessels, but anchoring by other vessels remains unregulated and continues to be a threat to Flower Garden resources. Further, the MMS stipulations apply merely on a lease

by lease basis. Both the coral reefs above 150 ft (46 m) depths and the algal terraces below have been subjected to damage by ground tackle (anchors, chains, cables) from vessels for many years. Anchor damage probably began in the late 1800's with the onset of the commercial snapper-grouper fishery, and it has become more serious in recent times.

Research groups have reported large tankers anchored on the reefs as early as 1972 (CSA, 1984). Other more recent sightings are listed in Table 3. The NICK CANDIES anchoring is the best documented incident to date (See 6. Research and Education and Part IV, Section I, B. Environmental Consequences, The Status Quo Alternative).

Obviously, most anchoring instances have gone, and continue to go, unobserved. However, lost anchors, chains and cables are not uncommon on the Banks and have been encountered repeatedly. In their numerous traverses of the Flower Gardens by researchers in a submersible, Bright and Rezak (1976; 1978; Rezak and Bright, 1981) often observed apparent anchor damage in the form of scars or drags on the bottom. The largest anchor scar found extended for approximately one mile on the algal terrace at West Bank and was apparently continuous with a "roadcut-like" gouge into the coral reef (Bright, 1983). Bright notes that anchoring appears to be increasing in frequency at the Flower Gardens, though there are no hard data to support this opinion. Vessel traffic is certainly increasing, due in part to the development of offshore oil and gas in the area (Bright, 1985b).

6. Research and Education*

Scientific interest in the Flower Garden Banks was expressed initially in a 1930 paper by A. C. Trowbridge on the Mississippi Delta. The Banks first appeared on U.S. charts following a 1936 hydrographic survey made by the Coast and Geodetic Survey (now the National Ocean Survey) along the continental shelf break in the northwestern Gulf. One year later, Francis Shepard suggested correctly that the banks mapped during the survey were formed as a result of salt diapirism. Contour maps of the East and West Flower Gardens were published by Carsey in 1950.

H. C. Stetson stated in 1953 that the Banks were either reefs which had kept pace with rising sea level, or salt domes (diapirs) with thin caps of calcareous organisms. Parker and Curray dredged coral fragments from the Flower Gardens and in 1956 published another generalized map of the Banks. In the following year, Nettleton confirmed the salt dome origin for the West Flower Garden through bottom gravity surveys. Subsequent studies that included the taking of drill cores have firmly

*Based on Bright, 1985b.

TABLE 3

Recent Incidents of Anchoring at the Flower Garden Banks Witnessed by Researchers

DATE	VESSEL	TYPE	ANCHORING SITE	REMARKS
1978	-	Liberian tanker	1/2 mi. from reef crest	-
1978	TEXACO FLORIDA	Tanker	3/8 mi. from reef crest in 27-30 m (89-98 ft) water depths	-
1979	RACHEL SANCHEZ	Liberian tanker	On nodule terrace	Left within 45 min. of radio/telephone contact
1979	OGDEN CHAMPION	U.S. tanker	East Flower Garden Reef	Destroyed monitoring site marker buoy
1980	WILLIAM LAMAR MELLON	Tanker	Did not anchor - intended to anchor within 100 m (328 ft) of research vessel	Left after contact by radio/telephone
1983	NICK CANDIES	Tug and tow barge	East Flower Garden Reef crest in 24-30 m (79-98 ft) water depths	Reef damage assessment by Continental Shelf Assoc. Inc.
1985	-	Oil field service vessel	East Flower Garden Reef crest	Fishing at anchor

established that both of the Flower Garden Banks, as well as the other shelf-edge banks in the region, are salt diapirs.

The true nature of living benthic communities at the Flower Gardens was uncertain until Dr. Thomas E. Pulley, Director of the Houston Museum of Natural Science, staged trips to the Flower Gardens, using SCUBA divers to make observations and photographs and to collect specimens. In 1961, Dr. Pulley published the first description of tropical coral reefs occupying the crests of the Banks. At present, Pulley's extensive collection of Flower Garden corals and mollusks resides in the Houston museum, where there is also an excellent display depicting the reef.

In 1969, Levert and Ferguson published a brief review of previous Flower Garden studies and an account of living reef facies. At this time, interest in the Flower Gardens as objects of scientific study was increasing due to Dr. Pulley's activities in the preceding decade. A doctoral dissertation was produced in 1971 by G. S. Edwards of Texas A&M describing in detail the geology and sedimentology of the West Flower Garden. The Flower Garden Ocean Research Center, under the direction of Robert Alderdice, was created at the University of Texas Medical Branch in Galveston. The results of studies carried out for the center, including descriptions of reefal communities to depths exceeding 150 meters, were published in a 1974 book, Biota of the West Flower Garden Bank, edited by T. Bright and L. Pequegnat.

During the same period it was realized that, because of their structure, the outer continental shelf banks could well be associated with commercial deposits of oil and gas. Hearings and meetings were held by the Department of the Interior in 1973 and 1974, in part for the purpose of identifying the potential environmental impacts of leasing the sea bed in the vicinity of the Flower Gardens for petroleum exploration and development. Drawing upon existing scientific information about the Banks and advice from researchers then working at the Flower Gardens, lease stipulations were devised for the reefs. These lease stipulations have since been further developed and refined.

Another result of the combination of industrial interest in the offshore banks with concern for their ecological integrity was a substantial acceleration of environmental research at the Flower Gardens and neighboring structures. In 1974, the U.S. Bureau of Land Management (BLM) undertook a modern electronic positioning project, finally obtaining an accurate position for the Flower Gardens. BLM established a contract with Texas A&M in 1975 to study the biology, geology and hydrography of the Flower Gardens and, eventually, 38 other banks in the northwestern Gulf. This multidisciplinary study, known as the BLM Topographic Features Study, lasted through 1983 and resulted in the 1985 publication of Reefs and Banks of the Northwestern Gulf of Mexico by three of the principal investigators, R. Rezak, T. Bright and

D. McGrail. This book contains the most thorough account to date of the geological, biological and physical dynamics of the Flower Gardens and other northwestern Gulf banks. It also contains a comprehensive bibliography of published literature, reports, theses and dissertations pertaining to these banks. Bright and E. Powell, with partial support from SRD, recently studied and described a unique sulfide-dependent, brine seep ecosystem at the East Flower Garden Bank. These studies resulted in the discovery of at least three new species of nematodes, previously unknown to science.

During a survey conducted immediately after the damage caused by the NICK CANDIES anchoring in 1983 (see 5. Anchoring by Large Vessels), precise positions were determined, 16 mm motion picture film of the damage was shot, and numerous still photographs were taken. In addition, repetitive photographic transects and quadrants were established, marked and sampled within and adjacent to the damaged area. These observations served as a basis for the initial damage assessment (CSA, 1984) (see Part IV, Section I, B. Environmental Consequences, The Status Quo Alternative). In 1985-1986, Gittings and Bright, supported by SRD, again surveyed the site to assess the recovery of the coral. The data from this survey were analyzed in comparison with damage assessment data collected two years earlier. The study found that all corals for which growth rates were measured appeared to be regrowing and that encrusting growth rates along damaged coral borders may be more rapid than growth rates along non-damaged borders.

As an educational resource, the Flower Gardens has served as the study area for the thesis or dissertation research of at least 15 graduate students from regional universities, including the University of Texas, Texas A&M, University of Houston, and the University of Southwestern Louisiana. Video tapes, movies and photographs made at the Flower Gardens have provided material for lectures at educational institutions and presentations to a variety of interest groups and for educational T.V. shows and video news features as well.

The Flower Gardens' unique position as the northernmost tropical coral reefs on the Atlantic continental shelf, combined with their isolation from other comparable reef systems by some 300 nautical miles of open ocean will insure continued interest in them by researchers. Studies of the Flower Garden reef communities may improve our knowledge of the effects of isolation and near-stressful environmental conditions on such factors as coral recruitment, growth and mortality, reef community structure and diversity, and the extent to which reef systems can tolerate the effects of man's increasing activity on the outer continental shelf. If for no other reason, their protection is justified because of their value as a scientific resource.

7. Ocean Incineration

Ocean incineration is regulated by the U.S. Environmental Protection Agency (EPA) pursuant to Title I of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended (33 USC 1401 et seq). The EPA has designated one deepwater disposal area in the Gulf of Mexico as a site for the incineration of toxic wastes. The disposal site, located about 50 nautical miles (100 km) south of the Banks (see Figure 3, p. 15), was designated in 1976 for the incineration of hazardous wastes for a five year period (41 FR 39319 (1976)). It was subsequently redesignated by EPA in 1982 for continuing use (47 FR 17817). Burning operations require an EPA permit, but currently no permit applications will be reviewed until promulgation of the final ocean incineration regulations. The site is described in 40 C.F.R. 228.12(b)(1) (MMS, 1987).

8. Military Activity

The boundary of Military Warning Area W-602 is located just southwest of the proposed Flower Garden Banks National Marine Sanctuary. Military operations within warning areas in the Gulf include carrier maneuvers, missile testing, rocket firing, pilot training, air-to-air gunnery, air-to-surface gunnery, minesweeping operations, submarine operations, air combat maneuvers, aerobatic training, missile testing and development, and instrument training (MMS, 1987).

Section III: ACTION PLAN

A. Overall Management and Development

The long-term protection of resources is the highest management priority for this plan. Ensuring the protection of Sanctuary resources depends on several factors affecting the feasibility of proposed programs and actions. Factors affecting management of the proposed Sanctuary include: its depth and location; its proximity to hydrocarbon development operations and shipping lanes; and the need to coordinate the responsibility for comprehensive management of the site with other authorities. These factors are discussed briefly below.

Visitor use of the Flower Garden Banks is severely limited by their distance from shore and conditions at sea. These conditions also present special problems for enforcement efforts and research and educational activities. Because of these constraints, and the nature of actions planned for the proposed Sanctuary, there is no need for a permanent, on-site Sanctuary management structure. Management of the proposed Flower Garden Banks National Marine Sanctuary will be the function of a sanctuary manager assisted by a small staff.

Understanding the population dynamics of Flower Garden Banks biota on a continuing basis and their interrelation with man's activities in the area is of prime importance in protecting these resources. The management plan calls for a research effort to assess the impact of various human activities on Flower Garden Banks ecological communities and the ability of these communities to recover from the effects of anchor damage and other injuries. Management oriented research studies will provide Sanctuary management with a basis for assessing the need for additional measures to protect and manage the Flower Garden Banks resources.

Interested organizations and the public in general will play an important role in attaining resource protection goals in the Sanctuary. Interpretation programs fostering public understanding and support for Sanctuary regulations and objectives are inherent in the plan's concept. The interpretation program will depend largely on publications and exhibits that convey the significance of the Sanctuary's resources and the importance of following its regulations.

The management plan proposes actions tailored to the specific issues affecting the Sanctuary. The plan recognizes the need for a balanced approach reflecting the multiple use character of the area as well as resource protection priorities. Implementation of this plan will entail cooperation and coordination among several agencies including NOAA, the U.S.C.G., the DOS, and the DOI. Because of the proximity of drilling and production operations to the Banks, and the site's relative

isolation, the cooperation of oil and gas industry operators will be solicited to assist in cost-effective, on-site management activities.

The plan is designed to guide management of the proposed Flower Garden Banks National Marine Sanctuary for the first five years after implementation. During this period, management initiatives will generally fall into three basic program areas: Resource Protection, Research, and Interpretation. The remainder of this section describes guidelines and initiatives for each program area.

B. Resource Protection

1. General Context for Management

The proposed designation of the Flower Garden Banks as a national marine sanctuary focuses attention on the value of the area's resources. To ensure that these resources are protected, the Sanctuary resource protection program includes: (1) coordination of policies and procedures among the agencies sharing responsibility for resource protection; (2) participation by other agencies and organizations in the development of procedures to address specific management concerns (i.e., monitoring and emergency-response programs); and (3) the enforcement of Sanctuary regulations in addition to those regulations already in place.

2. Designation Document and Sanctuary Regulations

A summary of the existing regulatory regime in the area of the proposed Flower Garden Banks National Marine Sanctuary is included in Part III--The Status Quo Alternative. The proposed Designation Document (Appendix I) describes the relationship between Sanctuary designation and other regulatory programs. The proposed Designation Document also includes:

- a list of activities subject to regulation now or in the future;
- provisions for additional regulations, as necessary.

To ensure protection of Sanctuary resources and qualities and conserve the Flower Garden Banks habitat, NOAA proposes regulations governing: exploration for, development, or production of oil, gas or minerals; anchoring or otherwise mooring; discharging or depositing materials or other matter; alteration of the seabed; possessing various marine resources; injuring or taking or attempting to injure or take Sanctuary resources; possessing or using explosives or releasing electrical charges; feeding fish; and possessing (except while passing

without interruption through the Sanctuary) or using fishing gear except conventional hook and line gear. (This is a summary. See the regulations themselves for specifics.) NOAA also proposes, for areas of the Sanctuary where oil, gas, and mineral activities are allowed (i.e., outside the no-activity zones), a requirement to shunt all drilling cuttings and fluids to the seabed through a downpipe that terminates an appropriate distance, but no more than ten meters, from the seabed. A more detailed summary of these regulations iS found in Part III, Section II A.

3. Contingency Plans for Major Emergencies

The resources of the proposed Flower Garden Banks National Marine Sanctuary are susceptible to natural and human-related changes. Many of these changes are gradual and can be detected only through long-term monitoring of various environmental and biological indicators. However, certain changes in conditions (due to an accidental oil spill, for example) could seriously impact resources and present severe health and safety hazards.

Under the National Contingency Plan for the removal of oil and hazardous substances, remedial action to control or remove such material is the responsibility of Regional Response Teams acting through an On-Scene Coordinator and a Regional Response Center. The Galveston Marine Safety Office, 8th USCG District provides on-scene coordination and Regional Response Center facilities for response to oil or hazardous substance spills in the area of the Flower Garden Banks.

To provide further protection to Flower Garden Banks resources, the SRD will assess and monitor the state of preparedness as it relates to the Sanctuary. This action will entail exchanging information with government and industry response teams and seeking their support in assessing detection and clean-up capabilities that can be used to protect Sanctuary resources.

A SRD-level contingency and emergency-response plan is now under preparation. After its completion, a Sanctuary-specific contingency and emergency-response plan will be prepared. This plan will:

- describe emergency response procedures and coordination requirements;
- outline procedures for emergency research; and
- provide damage assessment guidelines.

In conjunction with this plan, agreements may be formulated to improve spill detection programs and augment containment

capabilities (i.e., with additional equipment, personnel, and deployment plans).

4. Encouraging Compatible Use of the Sanctuary

Encouraging the public to use the Sanctuary in ways that are compatible with the protection of significant resources is an important aspect of the resource program. SRD will encourage compatible visitor use by undertaking the following:

- O Monitoring commercial and recreational activities in the Sanctuary and encouraging other agencies to do so to detect incidents of particular management concern;

- O Exchanging information on commercial and recreational activities in the Sanctuary;

- O Consulting with other agencies on policies and proposals for the management of activities which may affect protection of Sanctuary resources; and

- O Displaying Sanctuary boundaries on nautical charts with a notice summarizing Sanctuary regulations governing anchoring and vessel discharges.

- O Developing brochures and other information materials for the purpose of enhancing public awareness of the Sanctuary's resources and their need for protection.

Monitoring and information exchange programs are dealt with further under research (Subsection C). The development of informational materials is discussed further under interpretation (Subsection D).

5. Surveillance and Enforcement

The greatest problem in the enforcement of Sanctuary regulations to protect Flower Garden Banks resources will be surveillance. Neither NOAA nor the USCG has the resources to conduct systematic surveillance and enforcement operations to ensure compliance with Sanctuary regulations. However, both the USCG and the MMS conduct operations in the area. The USCG may be able to provide limited surveillance in conjunction with multi-mission, surface or aerial operations. MMS inspectors, traversing the area to monitor oil exploration and production operations, may occasionally be able to provide information useful in identifying and prosecuting violators of Sanctuary regulations. Additional surveillance information could be provided by personnel working on offshore platforms and by boat operators in the area. NOAA plans to initially rely on observers from other agencies and cooperating organizations, including excursion and service boat operators, to provide surveillance

information. Suspected violations will be reported to the Sanctuary Manager, who will investigate the reports and take appropriate action. Emphasis will be placed on responding to reports of violations and pursuing enforcement actions. The reporting of violations by vessels at the site will be facilitated by putting violation reporting instructions in the notice on nautical charts.

The enforcement program is expected to be sufficiently strong to deter widespread violation of Sanctuary regulations. However, because of the remoteness of the site, compliance with regulations is dependent more than usual on effective information transfer, coupled with the cooperation of users. Information development and dissemination will therefore be a high priority to engender voluntary compliance with Sanctuary regulations.

(a) Public Education and Information

Because the most effective enforcement is prevention, the Sanctuary interpretation program will make every effort to inform visitors of the need to use the Sanctuary environment wisely. Much of this effort will involve the preparation of easily understood brochures and other materials on Sanctuary regulations, and the reasons for them. These materials will be made available to all Sanctuary users, principally through information centers and outreach programs.

(b) Planning and Coordination

Information obtained through the research program and surveillance and enforcement efforts on Sanctuary use patterns, frequently occurring violations, and potentially sensitive resources will be evaluated periodically by the Sanctuary Manager to assess the adequacy of surveillance efforts.

C. Research

1. General Context for Management

Effective management of the Flower Garden Banks National Marine Sanctuary requires the inauguration of a Sanctuary research program that addresses management issues. Research funded by the SRD will be directed toward improving knowledge of the Sanctuary's environment and resources and how they may be affected by various types of human activity. SRD-sponsored research at the Flower Garden Banks will be planned and monitored through the headquarters office. To avoid duplication of effort and achieve maximum benefits from the research, SRD will coordinate its research efforts with those of MMS and other agencies. The general direction of the research program and the

process for preparing an annual Sanctuary Research Plan is discussed below.

2. Framework for Research

The research program consists of three generic project categories:

- O 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;

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

- O Analysis and prediction studies to determine the causes and effects of environmental and ecological changes.

Each of these categories is described in more detail below:

(a) Baseline Studies

A considerable body of scientific baseline information on the Flower Garden Banks has been produced by the research studies of the past 30 years (see Part II, Section II. C. 6. and Part VII). However, improved, management-oriented, baseline information is needed on such factors as the characteristics and environmental effects of user activities. For example, more needs to be known about vessel traffic patterns in the area and the type and intensity of recreational use. A particularly worthwhile study would be an assessment of the effects of recreational-vessel anchoring on coral at various projected use levels to provide data needed in evaluating alternative mooring systems.

With respect to scientific research, studies of active salt diapirism, associated faulting, and consequent uplift or sinking of the reefs could be important as basic research, and therefore of interest to other funding agencies. Such studies could also generate data on geological processes that may affect coral growth, recruitment and survival as well as biotic zonation, community structure and similar ecological relationships of interest in managing the resources. Other research opportunities include studies of the sulfide-dependent, brine seep ecosystem at East Flower Garden Bank, which could result in a better understanding of similar systems existing elsewhere.

Although the potential for research at the Flower Garden Banks remains substantial, research at the sites has been, and will continue to be, relatively expensive because of the need for comparatively large research vessels and because research divers

must operate at depths in excess of 65 ft (20 m). The use of submersibles, one of the most effective research tools for sites such as the Flower Garden Banks, is especially costly.

(b) Monitoring

Effective sanctuary management requires a continuing program of data collection on natural processes and human activities that may modify the environment or the ecology within a sanctuary. These data must provide an understanding of what is happening to the resources and an indication of their relative health. Properly implemented, monitoring results in data indicative of the health of resources and provides the means for detecting environmental and ecological trends.

The Sanctuary research program should include monitoring studies of discharges from offshore oil and gas operations in the area and studies to monitor the dynamics of species recruitment, growth, mortality, abundance, distribution and competition for space on the coral and algal reefs capping the Banks. Changes in these processes, especially as they relate to the dominant corals and calcareous algae, could indicate the existence of natural or man-caused threats to Bank resources.

(c) Analysis and Prediction

In addition to baseline research and monitoring, the Sanctuary research program will include studies, as needed, to analyze the causes and consequences of changes in the ecosystem and to predict the effects on it of new or more intense human activity in the area. Such studies will be concerned with the investigation of specific problems or issues affecting the status of resources. A study of this type was recently supported by the SRD to assess the recovery of coral on East Flower Garden two years after the infliction of anchor damage to the reef by the anchoring of the NICK CANDIES (see Part II, Section II, C. 5, 6, and 7).

Analysis and prediction studies could be useful in resolving a number of management problems that might arise after Sanctuary designation. For example, if the monitoring program indicates that a substantial increase in recreational boat anchoring on the reefs is causing unforeseen damage to the coral, a study could be initiated to determine the need for further restrictions on anchoring and to evaluate the risks and advantages of implanting additional mooring buoys.

3. Selection and Administration of Research Projects

To ensure that projects considered for funding by the SRD are directed to the resolution of management issues and concerns, the Sanctuary Project Manager will follow procedures developed by SRD to ensure that each Sanctuary's research program is consistent with National Marine Sanctuary Program policies. These procedures include: preparing an annual Sanctuary Research Plan (SRP) and monitoring the progress of research in the Sanctuary.

(a) Preparing an Annual Plan

Each year a SRP will be prepared for the Flower Garden Banks National Marine Sanctuary. The SRP will then be incorporated into a national plan that includes annual plans for each sanctuary. Steps involved in the annual planning process include:

O Management issues for the Sanctuary with supporting evidence or rationales are identified and listed.

O Research priorities based on the list of management issues are established. The most important factors to be considered in establishing annual research priorities will be the following:

(1) Immediate or evolving management issues that may be resolved through directed research projects;

(2) The prospects of research already in progress; and

(3) The availability of funds, instruments and equipment for research support.

O Research workshops are held on an occasional basis to facilitate the identification of research problems. After the management issues and research priorities are developed, a draft SRP is prepared.

O The draft SRP is circulated by the SRD for peer review.

O A final SRP is prepared. This SRP includes documentation of how each project meets the national selection criteria. The final SRP is then incorporated by SRD into a National Sanctuary Research Plan. The highest ranking research projects are selected from the national plan for funding.

O A research announcement and request for proposals (RFP) is prepared. The announcement discusses management concerns and summarizes past and on-going research. Its purpose is to solicit proposals from the scientific community for specific research to carry out the SRP.

If research proposals include activities that are prohibited by Sanctuary regulations, a permit to conduct these activities may be issued by NOAA, or it may be determined that all or part of the activities should be conducted outside the Sanctuary. As noted earlier, coral collection is allowed only for research or educational purposes and requires the issuance of a permit. The permit must specify the type and amount of coral to be taken, as well as the location and time of intended collection. A report of the collecting procedure and results is required after the project has been completed. Research also may require additional research permits from other agencies.

(b) Research Supervision

The Sanctuary Project Manager will monitor the performance of research projects and keep records of research underway, equipment being used on site, frequency of researchers' visits, and progress to date. Performance reports and draft and final technical reports will be required as well as conformance to schedules outlined under the terms of the contract. Draft technical reports may be reviewed by recognized scientists and resource managers before approval by the SRD. Outstanding project reports will be published by the SRD in its Technical Report Series.

4. Information Exchange

Direct SRD funding for research is limited. To complement directly funded research, the SRD will encourage research funded from other sources particularly where it supports Sanctuary management objectives. In this regard, the SRD will make available to other agencies and private institutions current Sanctuary resource data obtained from past and ongoing research projects.

D. Education

1. General Context for Management

Increased public understanding and appreciation of the natural value of Flower Garden Bank resources is essential for their protection. The interpretation program for the Flower Garden Banks National Marine Sanctuary will be focused on improving public awareness of the Sanctuary and its resources and of the Sanctuary regulations designed to protect them.

2. Interpretation Opportunities and Programs

The type of information to be conveyed to the public about the Flower Garden Banks is similar to that offered in relation to other habitat-oriented marine sanctuaries. The primary difference relates to the distance from shore of the Flower Garden Banks and the concomitant need to provide information to user groups whose activities could have an adverse impact on Flower Garden resources or who may otherwise play a role in resource protection.

Educational programs for the Flower Garden National Marine Sanctuary will fall into three broad categories: interpretation for visitors to the site, interpretation for visitors to information centers, and outreach programs by Sanctuary personnel.

(a) Site Visitor Programs

Interpretation for visitors to the Flower Garden Banks will consist of written material describing the Sanctuary and explaining its regulations. Information materials will be available at information centers (see (b), below) and will also be sent to excursion boat operators known to have an interest in taking groups to the Flower Garden Banks.

(b) Information Center Programs

Information on the Flower Garden Banks, consisting of displays, video sequences, or brochures and other literature will be made available at selected information centers in coastal Texas and Louisiana. SRD is evaluating such information outlets for Texas, including Padre Island National Seashore; Aransas National Wildlife Refuge; Texas A&M Sea Grant Marine Information Service; the Houston Museum of Natural Science; the Texas Aquarium; and Texas State Coastal Parks such as Sea Rim, Galveston Island, and Mustang Island. Similar outlets will be considered for establishment at such Louisiana sites as McNeese University in Lake Charles; Louisiana Universities Marine Consortium in Cocodrie; Louisiana Nature and Science Center and the New Orleans Aquarium in New Orleans; Louisiana Department of Wildlife and Fisheries' Natural Heritage Program; Department of Natural Resources' Coastal Management Division; and LSU's Sea Grant Program in Baton Rouge.

(c) Outreach Programs

The outreach program will stress efforts to provide information to special-interest groups and industry associations that present a potential threat to Flower Garden Banks resources or that may otherwise play a role in resource protection. The major targets of outreach efforts will be merchant vessels bound

to and from Corpus Christi, Houston and New Orleans and other nearby ports; the crews of offshore platforms and platform service vessels based largely in Morgan City, Louisiana; and commercial fishermen operating primarily out of Pensacola, Florida.

Other projects will include the preparation of brochures, films, slides, and other materials for use in educational presentations in the school systems, by private organizations and the media. For example, numerous high quality video tapes and photographs from all depths at the Flower Garden Banks are available through the Texas A&M Department of Oceanography. These could be used effectively to construct presentations on such themes as biotic community structure and distribution; the snapper-grouper fishery; the brine seep ecosystem; salt daipirism and the geologic origin of the Banks; oil and gas operations; sport diving; and research, including the use of research submersibles.

Section IV. Administration

A. Administrative Framework

This section of the management plan describes the roles of the agencies that will be involved in Sanctuary management, proposes strategies to coordinate their activities, and provides for periodic evaluation of the effectiveness of the management plan. Sanctuary management consists of three functions: resource protection, research, and interpretation. Administration oversees these functions and establishes who is responsible for implementing specific programs. The administrative framework also ensures that all management activities are coordinated.

The SRD is responsible for the overall management of the proposed Flower Garden Banks National Marine Sanctuary. The SRD coordinates its on-site activities with the U.S. Coast Guard (USCG), the Minerals Management Service (MMS), and the Department of State. The general administrative role of each agency is as follows.

1. Sanctuaries and Reserves Division

The National Marine Sanctuary Program is administered by the SRD. A site-specific management plan is prepared for each sanctuary to ensure that on-site activities in resource protection, research, and interpretation are coordinated and consistent with sanctuary goals and objectives.

The SRD establishes policies and procedures in response to specific issues in the Flower Garden Banks National Marine Sanctuary and develops a sanctuary budget setting out expenditures for program development, operating costs, and staffing. Funding will be reviewed and adjusted annually to reflect the priorities and requirements of the National Marine Sanctuary Program and evolving conditions at the Flower Garden Banks. Detailed SRD responsibilities are listed below.

The Sanctuary Manager for the Flower Garden Banks reports directly to the SRD. The Sanctuary Manager has responsibility for all day-to-day activities affecting the Sanctuary and is its primary spokesperson.

2. U.S. Coast Guard

The USCG is responsible for enforcing all Federal laws in navigable waters under U.S. jurisdiction. The USCG also manages operations for the control and removal of oil and hazardous substances resulting from offshore spills and is responsible for regulating vessel traffic and maintaining boater safety, including the coordination of rescue operations.

3. Minerals Management Service

The MMS is charged with the management of OCS hydrocarbon and mineral exploration, development and production. This responsibility includes the formulation and enforcement of special lease stipulations designed to protect specific geological and biological features.

4. Department of State

The Department of State provides policy guidance on activities involving foreign policy issues and international law.

B. Resource Protection: Roles and Responsibilities

1. Sanctuaries and Reserves Division

(a) Develops funding priorities for resource protection;

(b) Develops and monitors the effectiveness of interagency agreements for surveillance and enforcement and negotiates changes where required;

(c) Develops contingency and emergency-response plans and, based on these plans, negotiates applicable interagency agreements;

(d) Monitors the effectiveness of existing Sanctuary regulations and promulgates changes where necessary;

(e) Coordinates efforts to manage and protect Sanctuary resources with other Federal and international agencies and with public and private organizations; and

(f) Evaluates overall progress toward the resource protection objectives of the National Marine Sanctuary Program.

2. U.S. Coast Guard

(a) Enforces all Federal laws in the Sanctuary as the availability of enforcement personnel and resources permits; and

(b) Provides on-scene coordination and Regional Response Center facilities under the National Contingency Plan for the removal of oil and hazardous substances in the event of a spill that threatens the Sanctuary.

3. Minerals Management Service

(a) Enforces lease stipulations in the Flower Garden Banks area, including the prohibition of anchoring on the reefs by oil and gas production service vessels.

4. Department of State

(a) Provides counsel to ensure that regulatory proscriptions are applied against foreign persons and foreign-flag vessels in accordance with international law and applicable international conventions.

C. Research: Roles and Responsibilities

1. Sanctuaries and Reserves Division

(a) Prepares an annual Flower Garden Banks Sanctuary Research Plan (SRP) based on management requirements and research continuity;

(b) Prepares an annual National Research Plan (NRP) and budget based on the SRP's of individual sanctuaries and in accordance with priorities determined at the national level;

(c) Sets dates for procurement based on the NRP;

(d) Administers interagency agreements and contracts for research;

(e) Monitors research activities in the Sanctuary and coordinates Sanctuary research program with research activities sponsored by MMS and other agencies;

(f) Reviews all interim and final research reports; and

(g) Issues permits, through OCRM, for research activities to ensure consistency with Sanctuary regulations and provides for additional technical review where necessary.

2. Minerals Management Service

(a) Sponsors research in support of the OCS leasing program.

D. Interpretation: Roles and Responsibilities

1. Sanctuaries and Reserves Division

(a) Prepares an annual list of priorities for interpretation and an annual budget;

(b) Administers interagency agreements and contracts for interpretation;

(c) Encourages local and regional organizations to participate in Sanctuary interpretation;

(d) Disseminates information about the National Marine Sanctuary Program and the Flower Garden Banks National Marine Sanctuary;

(e) Evaluates progress towards accomplishing objectives for interpretation, adjusting long-term priorities accordingly; and

(f) Issues permits, through OCRM, for education activities to ensure compliance with Sanctuary regulations and provides additional technical review where necessary.

E. General Administration: Roles and Responsibilities

1. Sanctuaries and Reserves Division

(a) Ensures that the Sanctuary is operated in a manner consistent with established National Program policies and with applicable national and international laws;

(b) Formulates long-term management plans for the Sanctuary and revises them as necessary;

(c) Directs the implementation of the management plan;

(d) Identifies, analyzes, and resolves Sanctuary management problems and issues;

(e) Coordinates Sanctuary management with Federal agencies, organizations and private citizens;

(f) Evaluates the effectiveness of Sanctuary management and regulatory measures;

(g) Prepares a program budget for the Sanctuary; and

(h) Provides funding for overall Sanctuary management and administration.

F. Staffing Levels

The management of the Flower Garden Banks National Marine Sanctuary will rely during the first year on a Sanctuary Manager assisted by a secretary. An Assistant Sanctuary Manager will be employed during the second year of operation. The details of further staffing will be determined during the first two years of operation. However, it is anticipated that additional support and technical staff will eventually be needed on a part-time or seasonal basis. Such personnel may include enforcement rangers and part-time or seasonal interpretation or education specialists to staff excursion-boat cruises and information centers and to provide outreach services.

G. Visitor Center Facilities

Sanctuary information distribution points will be established at suitable locations in the Texas and Louisiana coastal regions (See Section III, D).

PART III: ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE

PART III: ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE

In evaluating the proposal to designate the Flower Garden Banks National Marine Sanctuary, NOAA has analyzed institutional, boundary, regulatory, and management alternatives in terms of achieving optimum protection of the ecosystem, improving scientific knowledge of the area and promoting public understanding of the value of Bank resources. This section describes the alternatives considered in the evaluation process. Part IV describes the environmental consequences of the alternatives described below.

The fundamental choice of alternatives is between the two institutional alternatives: (1) no action or continuing the status quo and (2) the preferred alternative, Sanctuary designation, as a complementary measure to existing programs. Boundary, management and regulatory alternatives are considered in the context of the preferred institutional alternative.

Section I: The Status Quo Alternative

The proposed Flower Garden Banks National Marine Sanctuary is located well beyond the limits of state authority and is therefore wholly under the jurisdiction of Federal statutes. The Federal agencies with primary existing responsibilities in the area of the Flower Garden Banks are the Minerals Management Service (MMS) of the Department of the Interior; the National Marine Fisheries Service (NMFS) of NOAA, Department of Commerce; the U.S. Coast Guard (USCG) of the Department of Transportation; and the Environmental Protection Agency (EPA). This section will review the responsibilities of these agencies in the Flower Garden Banks area. Additional information on existing authorities is provided in Appendix II.

The MMS is responsible for regulating activities associated with offshore oil and gas exploration and development in accordance with the provisions of the Outer Continental Shelf Lands Act. The MMS has established biological lease stipulations, applied on a lease-by-lease basis, to mitigate the potential impact of oil and gas exploration and development activities on high relief banks of the Gulf of Mexico OCS. The stipulations include the establishment of no-activity zones to protect the biological resources of the Flower Garden Banks. The no-activity zones are somewhat larger than the areas over the Banks encompassed by the 100 meter isobaths.

Current lease stipulations provide that no oil development activities, including anchoring or the emplacement of structures, drilling rigs, or platforms, are allowed within the no-activity

zones. Thus the anchoring prohibition applies only to activities associated with MMS-regulated OCS oil and gas development. Lease stipulations for development operations within the four-nautical mile zones extending beyond the no-activity zones require shunting all drill cuttings and drilling fluids from development operations to the bottom through a downpipe that terminates an appropriate distance, but no more than 10 meters, from the bottom.

The NMFS is charged, under the Magnuson Fishery Conservation and Management Act, with approving and enforcing fishery management plans (FMPs) prepared by regional fishery management councils. The NMFS relies heavily on the USCG for enforcement operations. Flower Garden Banks resources regulated by FMPs include coral and coral reefs and reef fish. The FMP for coral and coral reefs is particularly important in the present regulatory regime. The regulations implementing the FMP for coral and coral reefs establishes a Habitat Area of Particular Concern (HAPC) at the Flower Garden Banks. The boundaries of this HAPC is the 50 fathom (300 foot) isobath around each Bank. Within the HAPC, fishing for coral and the use of toxic chemicals to collect fish or other marine organisms is prohibited except as authorized by a scientific or educational permit under the FMP regulations. Fishing with bottom longlines, traps, pots or bottom trawls is also prohibited. 50 CFR Part 638.

The regulations implementing the FMP for reef fish resources of the Gulf of Mexico, 50 CFR Part 641, set bag and size limits, place restrictions on the use of certain types of fishing gear, and establish reporting and permit systems. They also prohibit the use of poisons and explosives to take reef fish; however, they allow powerheads to be used outside of stressed areas (the Flower Garden Banks are not a stressed area for reef fish.) They also prohibit vessels in the reef fish fishery from possessing on board any dynamite or similar explosive substance.

The USCG, in addition to its enforcement of fishing and other regulations, is responsible for enforcing regulations under the Clean Water Act, the Act to Prevent Pollution From Ships and the Oil Pollution Act of 1990, which regulate discharges of oil, hazardous substances and other pollutants. The USCG is also responsible for coordinating spill response activities under the National Contingency Plan and for regulating vessel traffic, maintaining boater safety, and conducting search and rescue operations.

EPA administers the National Pollutant Discharge Elimination System (NPDES) under the authority of the Clean Water Act. The NPDES permit for discharges near the Flower Garden Banks and other topographic features requires no operational restrictions on discharges as long as the MMS biological stipulations, establishing no-activity zones and requiring shunting in buffer

zones beyond, are in effect. If these stipulations cease to be applied, EPA may require a variety of restrictions, including limitations on discharge rates or a full prohibition on discharges.

EPA also has regulatory responsibilities with regard to ocean dumping. Title I of the Marine Protection, Research, and Sanctuaries Act prohibits the transportation of materials from the United States for the purpose of dumping them into ocean waters without a permit from EPA (the Corps of Engineers in the case of dredged materials).

Under the status quo alternative, existing activities and controls would continue as presently administered. These regulatory activities are not performed in the context of a comprehensive management plan, and there are no restrictions on anchoring by vessels other than those associated with OCS oil and gas development operations (see Part IV, Section I, B. Environmental Consequences, Status Quo Alternative).

Section II: Designation as a National Marine Sanctuary

This alternative, NOAA's Preferred Alternative, proposes to designate the East and West Flower Garden Banks as a national marine sanctuary, in accordance with the provisions of Title III of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended (16 U.S.C. 1431 et seq.). The alternative is detailed in Part II of this document, the Sanctuary Management Plan. Through the management plan and the implementing regulations (Appendix I), this alternative protects the Banks' resources and vital habitat, offers research opportunities, and provides for an interpretation program to enhance public awareness of the Flower Garden Banks. This program is not possible under any of the existing institutional structures alone.

The preferred boundaries, Alternative 1, were selected because they roughly encompass the depth of reef-building organisms. These boundaries are somewhat larger than the MMS no-activity zones, and larger than the HAPC established by the Coral Fishery Management Plan. They encompass the present boundaries of the MMS no-activity zones, rounded out to allow easy identification of the boundaries of the Sanctuary for enforcement purposes. The management and regulatory alternatives included in Alternative 1 were selected because they are more cost-effective than other alternatives and conform closely to the goals of the National Marine Sanctuary Program.

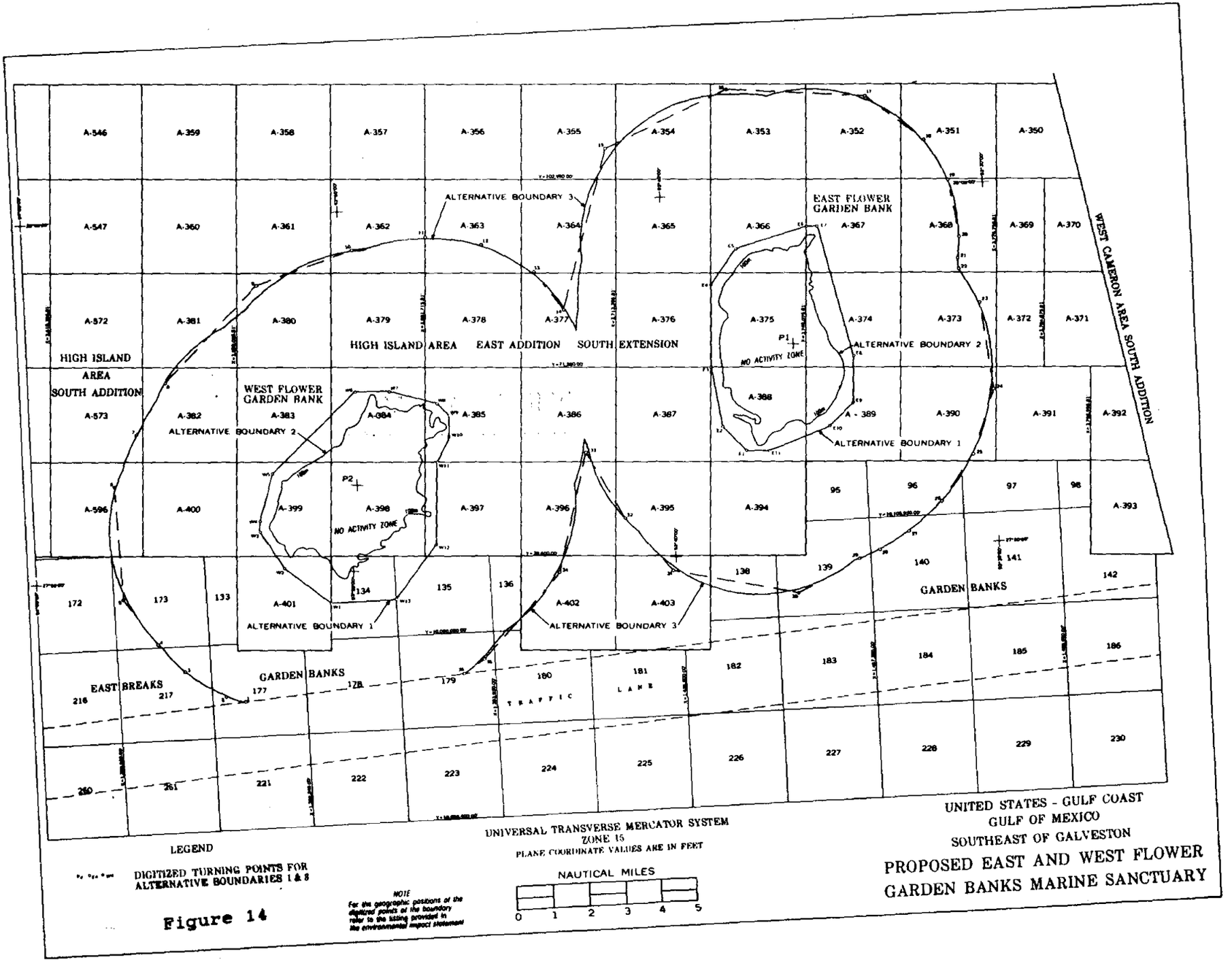
The preferred alternative will cost some $200,000 per year or $650,000 over five years. Approximately one-half of these funds will be allocated to research and one-half to resource protection and interpretation.

A. Regulatory/Boundary Alternatives

A number of regulatory/boundary options were identified in the evaluation process. These options were narrowed to three regimes, which were then considered in terms of (1) the distribution of living resources requiring protection; (2) regulatory issues; and (3) management concerns.

1. Regulatory/Boundary Alternative 1

This alternative, the preferred alternative, establishes a sanctuary of 41.70 square nautical miles (143.02 square kilometers), 19.20 square nautical miles (65.85 square km) at the East Bank and 22.50 square nautical miles (77.17 square km) at the West Bank (Figure 14). As stated above, the alternative encompasses the no-activity zones established by MMS at each of the Flower Garden Banks (see Section I, Status Quo Alternative). The Sanctuary boundaries, however, have been rounded out to allow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ALTERNATIVE BOUNDARY 3
EAST FLOWER GARDEN BANK
WEST CAMERON AREA SOUTH ADDITION
HIGH ISLAND AREA EAST ADDITION SOUTH EXTENSION
HIGH ISLAND AREA SOUTH ADDITION
WEST FLOWER GARDEN BANK
ALTERNATIVE BOUNDARY 2
P1
NO ACTIVITY ZONE
ALTERNATIVE BOUNDARY 2
ALTERNATIVE BOUNDARY 1
P2
NO ACTIVITY ZONE
ALTERNATIVE BOUNDARY 1
ALTERNATIVE BOUNDARY 3
GARDEN BANKS
EAST BREAKS
GARDEN BANKS
TRAFFIC LANE
LEGEND
DIGITIZED TURNING POINTS FOR ALTERNATIVE BOUNDARIES 1 & 3
NOTE
For the geographic positions of the digitized points of the boundary refer to the listing provided in the environmental impact statement
UNIVERSAL TRANSVERSE MERCATOR SYSTEM
ZONE 15
PLANE COORDINATE VALUES ARE IN FEET
NAUTICAL MILES
0 1 2 3 4 5
UNITED STATES - GULF COAST
GULF OF MEXICO
SOUTHEAST OF GALVESTON
PROPOSED EAST AND WEST FLOWER GARDEN BANKS MARINE SANCTUARY

Figure 14

easy identification of areas managed under the Sanctuary for enforcement purposes.

Under this alternative, fourteen prohibitions and one affirmative requirement would apply to activities that NOAA has determined might adversely impact sanctuary resources and qualities. The fourteen prohibitions are:

(1) Exploring for, developing or producing oil, gas or minerals within a no-activity zone.

(2) Anchoring or otherwise mooring within the Sanctuary a vessel greater than 100 feet (30.48 meters) in registered length.

(3) Anchoring a vessel of less than or equal to 100 feet (30.48 meters) in registered length within an area of the Sanctuary where a mooring buoy is available.

(4) Anchoring a vessel within the Sanctuary using more than fifteen feet (4.57 meters) of chain or wire rope attached to the anchor.

(5) Anchoring a vessel within the Sanctuary using anchor lines (exclusive of the anchor chain or wire rope permitted by (4) above) other than those of a soft fiber or nylon, polypropylene, or similar material.

(6) Discharging or depositing, from within the boundaries of the Sanctuary, any material or other matter except:

(i) fish, fish parts, chumming materials or bait used in or resulting from fishing with conventional hook and line gear in the Sanctuary;

(ii) biodegradable effluents incidental to vessel use and generated by marine sanitation devices approved in accordance with Section 312 of the Federal Water Pollution Control Act, as amended, 33 U.S.C.§ 1322;

(iii) water generated by routine vessel operations (e.g., cooling water and deck wash down, and graywater as defined by Section 312 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1322) excluding bilge pumping; or

(iv) engine exhaust.

The prohibitions in this paragraph (6) would not apply to the discharge, in areas of the Sanctuary outside the no-activity zones, of drilling cuttings and drilling fluids

necessarily discharged incidental to the exploration for, development of, or production of oil or gas in those areas unless such discharge injures a Sanctuary resource or quality. (See below for the shunting requirement applicable to such discharges.)

(7) Discharging or depositing, from beyond the boundaries of the Sanctuary, any material or other matter, except those listed in paragraph (6)(i)-(iv) above, that subsequently enters the Sanctuary and injures a Sanctuary resource or quality.

(8) Drilling into, dredging or otherwise altering the seabed of the Sanctuary (except by anchoring); or constructing, placing or abandoning any structure, material or other matter on the seabed of the Sanctuary.

(9) Injuring or removing, or attempting to injure or remove, any coral or other bottom formation, coralline algae or other plant, marine invertebrate, brine-seep biota or carbonate rock within the Sanctuary.

(10) Taking any marine mammal or turtle within the Sanctuary, except as permitted by regulations, as amended, promulgated under the Marine Mammal Protection Act, as amended, 16 U.S.C. §§ 1361 et seq., and the Endangered Species Act, as amended, 16 U.S.C. §§ 1531 et seq.

(11) Injuring, catching, harvesting, collecting or feeding, or attempting to injure, catch, harvest, collect or feed, any fish within the Sanctuary by use of bottom longlines, traps, nets, bottom trawls or any other gear, device, equipment or means except by use of conventional hook and line gear.

(12) Possessing within the Sanctuary (regardless of where taken, collected, caught, harvested or removed), except for valid law enforcement purposes, any carbonate rock, coral or other bottom formation, coralline algae or other plant, marine invertebrate, brine-seep biota, fish (except for fish caught by use of conventional hook and line gear), turtle or marine mammal.

(13) Possessing or using within the Sanctuary, except possessing while passing without interruption through it or for valid law enforcement purposes, any fishing gear, device, equipment, or means except conventional hook and line gear.

(14) Possessing, except for valid law enforcement purposes, or using explosives or releasing electrical charges within the Sanctuary.

Note: (a) The regulatory prohibitions would not apply to (see the regulations themselves for the exact provisions):

i) Activities necessary to respond to emergencies threatening life, property or the environment.

ii) With regard to Department of Defense activities: activities being carried out as of the effective date of Sanctuary designation; activities that have no potential for any significant adverse impacts on Sanctuary resources or qualities; and activities having the potential for significant adverse impacts that are exempted by NOAA after consultation between NOAA and the Department of Defense. (There would be requirements that the Department of Defense carry out its activities in a manner that minimizes any adverse impact on Sanctuary resources and qualities and that it, in the event of threatened or actual destruction of, loss of, or injuring to a Sanctuary resource or quality resulting from an untoward incident including resulting but not limited to spills and groundings, caused by it, promptly coordinate with NOAA for the purpose of taking appropriate actions to respond to and mitigate the harm, and, if possible, restore or replace the Sanctuary resource or quality.

iii) Activities authorized by a National Marine Sanctuary permit. (Such permits may be granted if NOAA finds that the proposed activity will: further research related to Sanctuary resources; further the educational, natural or historic resource value of the Sanctuary; further salvage recovery operations in or near the Sanctuary in connection with a recent air or marine casualty; or assist in managing the Sanctuary.)

iv) Activities authorized by a valid lease, permit, other authorization or right in existence on the effective date of Sanctuary designation, provided that the holder complies with any terms and conditions on the exercise of such authorization or right imposed by NOAA as a condition of certification as deemed necessary to achieve the purposes for which the Sanctuary is designated.

v) Activities authorized by a valid lease, permit or other authorization issued after the effective date of Sanctuary designation, provided that NOAA notifies the applicant and authorizing agency that it does not object to issuance of the authorization and the applicant complies with any terms and conditions NOAA deems necessary to protect Sanctuary resources and qualities.

(b) Regulatory prohibitions 2, 4, 5, 8, and 14 would not apply to necessary activities conducted in areas of the Sanctuary outside the no-activity zones and incidental to exploration for, development of, or production of oil or gas in those areas.

(c) In no event would NOAA be allowed to issue a permit authorizing, or otherwise approve, the exploration for, development of, or production of oil, gas, or minerals in a no-activity zone.

The affirmative requirement imposed by Alternative 1 is, in areas of the Sanctuary where oil, gas and mineral activities would be allowed (i.e., outside the no-activity zones) to shunt all drilling cutting and fluids to the seabed through a downpipe that terminates an appropriate distance, but no more than ten meters, from the seabed.

Prohibitions, restrictions and conditions validly imposed by any other Federal authority would remain in effect, provided, however, that if any valid regulation issued by any other Federal authority, regardless of when issued, conflicts with a Sanctuary regulation, the regulation deemed by NOAA as more protective of Sanctuary resources and qualities shall govern.

Regulatory/Boundary Alternative 1 is compatible with the existing MMS regime for OCS oil exploration and development and the Coral Fishery Management Plan for the Flower Garden Banks HAPC. The no-activity zone boundaries follow the 100 m (328 ft) isobaths around each Bank, and include some areas outside of the 100 m isobath. The horizontal distance between the 50 m isobaths, which contain the coral reef zones, and the 100 m isobaths is 400 to 4,430 m (1,300 to 14,500 ft) at the East Bank (Bright, 1977) and 300 to 1,000 m (1,000 to 3,300 ft) at the West Bank (Bright and Pequegnat, 1974).

The preferred alternative would thus provide adequate buffer zones around the Flower Garden Banks coral reefs to protect them from damage resulting from large-vessel anchoring. NOAA has the authority under existing international law, and NOAA intends. to apply its anchoring regulations, including prohibition, to foreign flag vessels. This view is shared by the Department of State and Congress. NOAA consulted with the Department of State as the regulations were being drafted.

2. Regulatory/Boundary Alternative 2

This alternative establishes a sanctuary area of 25.94 square nautical miles (88.97 square km), 12.93 square nautical miles (44.35 square km) at the East Bank and 13.01 square nautical miles (44.62 square km) at the West Bank. The

alternative encompasses all waters within the 100 meter isobaths surrounding each of the two Banks (Figure 14). The regulatory regime under this alternative would be identical to the one embodied in Alternative 1, except:

A. (1) would be changed to read:

Exploring for, developing or producing oil, gas or minerals within the Sanctuary.

B. Because of the change in (1), (6) would be shortened to delete the exception for drilling cuttings and fluids; (b), regarding regulatory prohibitions 2, 4, 5, 8, and 14, would be deleted; and the shunting requirement would be deleted.

This alternative, like the preferred alternative, would provide management "tailored to specific resources" in accordance with the goals of the National Marine Sanctuary Program, and it is compatible with existing MMS stipulations and the Coral Fishery Management Plan. However, the 100 m isobaths around the Banks are so irregular that the boundaries cannot be plotted by geographic coordinates for enforcement purposes.

3. Regulatory/Boundary Alternative 3

This alternative would establish a sanctuary of 259.22 square nautical miles (889.09 square km) and would encompass an area of approximately four nautical miles (7.4 km) around the Banks (Figure 14). As with Alternative 1, the sanctuary would be divided into two different regulatory zones: (1) the core, no-activity zones (see Status Quo Alternative) and (2) the remaining buffer area extending from the no-activity zones to the sanctuary boundaries.

In addition to the sanctuary regulations described under the preferred alternative, the following restrictions would apply:

(a) In areas of the sanctuary outside the no-activity zones:

(1) Bulk discharges of drilling fluids or drilling muds must be found by NOAA to be consistent with the purpose of the sanctuary and to result in no significant adverse impact to sanctuary resources.

(2) The effects of this discharge of drilling fluids, drilling muds, cuttings or produced water, must be certified by NOAA to be adequately monitored. Such certification shall include the condition that it shall be revoked or suspended if the monitoring

discloses significant adverse impacts on sanctuary resources.

(b) Permits issued prior to the effective date of these regulations are not subject to the monitoring certification requirements of this section for a period of one year from such effective date.

In substance, this was the preferred alternative in the proposed rules for the Flower Garden Banks National Marine Sanctuary published on June 26, 1980 (45 Federal Register 43205) (1980). As noted in Part I, Section E, History of the Proposal, after these regulations were proposed NOAA dropped the site from consideration as a national marine sanctuary.

This alternative would protect Flower Garden Banks resources and incorporate the entire 4-mile zones established by MMS around the Banks. NOAA recognizes that activities occurring in the 4-mile zones may potentially generate pollutants that could threaten the significant resources of the Flower Garden reefs. NOAA therefore agrees that the reefs must be protected from the possible adverse impacts of buffer zone activities. Alternative 1 requires drilling operations to comply with a sanctuary regulation prohibiting discharges and deposits that enter the sanctuary and injure a sanctuary resource or quality. NOAA believes that this regulation, applying to other discharges and deposits as well as drilling wastes, provides broad protection to sanctuary resources. NOAA has also modified Alternative 1 by including a shunting requirement for oil and gas activities in the sanctuary (which are allowed only in the areas outside the no-activity zones).

The goal of the National Marine Sanctuary Program is to designate discrete areas of special national significance to promote effective conservation of their resources, in this case the coral and associated resources within the 100 meter isobaths surrounding each of the Flower Garden Banks. These coral reef areas are particularly susceptible to anchor damage, but they would be adequately protected under the preferred altermnative. NOAA is of the opinion that the Alternative 1 boundaries, which encompass the present boundaries of the no-activity zones, rounded out to allow more easy identification of the boundaries of the sanctuary for enforcement purposes, are more in keeping than the Alternative 3 boundaries with section 922.1(c)(2) of the National Marine Sanctuary program regulations (15 CFR Part 922), which states that sanctuary size will be no larger than necessary to ensure effective management.

With respect to activities within the no-activity zones, NOAA agrees that the alternative 3 provision explicitly prohibiting hydrocarbon exploration, development or production within these zone provides stronger protection than the

prohibition on altering the seabed, the primary means of regulating hydrocarbon activities within these zones under Alternative 1. NOAA has therefore modified Alternative 1 by incorporating into it an explicit prohibition of hydrocarbon exploration, development and production activities within the no0activity zones. Thus modified, Alternative 1 remains the preferred alternative.

B. Management Alternatives

Two management alternatives were identified and considered in terms of (1) resource protection, research, and interpretation and (2) cost-effectiveness.

1. Management Alternative 1

Under this alternative, a Project Manager on the staff of the SRD in Washington, D.C. would oversee the management and administration of the sanctuary, at least for the next three to five years. Surveillance of sanctuary activities for resource protection would rely on cooperating organizations and individuals to report suspected violations, which would then be investigated by an enforcement officer provided by NOAA or contracted for on an as needed basis.

This alternative would reduce the administrative costs of the resource protection, research and interpretation programs, but the lack of an on-site manager would make it difficult for management to be aware of sanctuary problems and to respond to them effectively.

2. Management Alternative 2

Under this alternative, the preferred alternative, NOAA would establish a site-specific management and administrative system for the Flower Garden Banks sanctuary in an appropriate location in the Texas/Louisiana coastal region. Using this approach, minimum staffing needs entail the employment of a Sanctuary Manager and secretary the first year at a cost of about $50,000 and an assistant sanctuary manager the second year at an additional cost of about $25,000. Office space would be leased at an estimated cost of $10,000 per year. The total cost of this alternative for personnel and administration is estimated at about $70,000 the first year and $90,000 the second year.

The Sanctuary Manager would represent SRD in the day-to-day administration and management of the sanctuary. His/her responsibilities would include local management of the enforcement, interpretation and research programs.

PART IV: ENVIRONMENTAL CONSEQUENCES

PART IV: ENVIRONMENTAL CONSEQUENCES

In selecting institutional, boundary, regulatory, and management alternatives for the proposed Flower Garden Banks National Marine Sanctuary, NOAA evaluated the environmental consequences of their implementation. This section discusses these consequences.

Section I: Environmental Consequences of Alternatives

A. Sanctuary Designation--The Preferred Alternative

The preferred alternative would promote resource protection in three ways. First, it would bolster the existing regulatory and enforcement regime. Second, it would establish an integrated research program focused on management-related issues facing the sanctuary. Third, it would include an interpretation program to strengthen public understanding of the importance of the Banks' coral-reef habitats and of the need for a long-term comprehensive management framework to protect them.

1. Resource Protection Regime

The proposed designation is designed to improve the existing regulatory regime by instituting new regulatory measures and, where feasible, by augmenting surveillance and enforcement activities. The primary environmental consequences of the proposed designation would result from these measures. The proposed regulations for the sanctuary include restrictions on exploration for, development, or production of oil, gas or minerals; anchoring or otherwise mooring; discharging or depositing materials or other matter; alteration of the seabed; possessing various marine resources; injuring or taking or attempting to injure or take sanctuary resources; possessing or using explosives or releasing electrical charges; feeding fish; and possessing (except while passing without interruption through the sanctuary) or using fishing gear except conventional hook and line gear. (This is a summary. See the regulations themselves for specifics.) NOAA also proposes, for areas of the sanctuary where oil, gas, and mineral activities are allowed (i.e., outside the no-activity zones), a requirement to shunt all drilling cuttings and fluids to the seabed through a downpipe that terminates an appropriate distance, but no more than ten meters, from the seabed. See Part III, Section II for a list of exceptions. The potential impacts of each regulation are discussed below.

(a) Hydrocarbon and Mineral Exploration, Development and Production

Exploring for, developing or producing oil, gas or minerals within the no-activity zones would be prohibited. Such activities are currently prohibited by the MMS stipulations on a lease-by-lease basis. This sanctuary regulation makes the prohibition permanent. Another sanctuary regulation would make the following MMS stipulation also permanent in the Sanctuary: Persons engaged in the exploration for, development of, or production of oil or gas in areas of the Sanctuary outside the no-activity zones must shunt all drilling cuttings and drilling fluids to the seabed through a downpipe that terminates an appropriate distance, but no more than ten meters, from the seabed.

(b) Vessel Anchoring

Anchoring or otherwise mooring by vessels of over 100 feet in registered length would be prohibited within the sanctuary. This and all other regulatory provisions would be applied to foreign persons and foreign vessels in accordance with recognized principles of international law, and in accordance with treaties, conventions, and other international agreements to which the United States is a party. (See also Part III Section II, A. 1.) Anchoring under emergency conditions would not be affected, and the prohibition would have no socio-economic impact.

The prohibition on anchoring by large vessels is considered the most important provision in the proposed regulations for the protection of sanctuary resources. It closes a gap in the existing regulatory regime that has resulted in extensive damage to the Flower Garden Banks coral reefs. The primary threat to these reefs is presented by vessel anchoring (see Subsection B, The Status Quo Alternative). Because the Flower Garden Banks coral reef zones occur within the 50 m isobaths around each Bank, this prohibition on anchoring within the Sanctuary (which is at all points greater than or equal to the 100 m isobath) provides substantial protective buffer zones around the reefs (see Part III, Section II, A. 1. Regulatory/Boundary Alternative 1). The prohibition should cause no hardship to vessel operators.

Under the regulations, vessels of less than or equal to 100 feet in registered length would not be permitted to anchor in areas of the sanctuary where a mooring buoy is available. They would, however, be permitted to anchor in areas of the sanctuary where a mooring buoy is not available provided that they use anchor lines of soft fiber, nylon, polypropylene, or similar material with no more than 15 feet of chain or wire rope attached to their anchors. This provision would reduce anchor damage caused by recreational boats while allowing continued recreational activity.

Requiring recreational boats and other boats less than or equal to 100 feet in registered length to anchor on sand flats was considered, but does not appear to be practical. The sand flats at the Flower Garden Banks reefs are small and are thus difficult anchoring targets (Blood, 1978, personal communication). Moreover, if anchors are successfully lowered into these areas, they may be dragged near or into the corals before taking hold. Such anchoring near coral heads could result in chafing by anchor chains that damage the coral. The restriction on the type of anchor lines used, however, would provide some protection even though anchoring on coral is permitted under certain circumstances as indicated above. Requiring recreational boaters to anchor completely outside of the reef zone would offer more protection, but would eliminate most recreational use of the reefs. The water beyond the reefs is too deep for most anchoring and its distance from attractive reef diving sites would make diving unsafe.

Permitting recreational boats and other boats less than or equal to 100 feet in registered length to anchor on the reefs in the absence of mooring buoys would involve accepting the possibility of some continuing anchor damage to corals, but at least such anchoring would be unlawful where buoys are installed over the reefs. Mooring buoys could be placed in sand flats within safe diving distance of attractive dive sites or in good fishing areas, very few of which are over the reefs. In addition to their use as mooring stations, these buoys could serve to mark reef areas for navigation and surveillance by sanctuary enforcement officers.

A potential disadvantage to a mooring buoy system is that it could result in a concentration of recreational use in particular areas in the sanctuary. These areas would be expected to experience more littering, souvenir collecting, and handling of corals than other areas of the sanctuary. Such activities, although prohibited, can be expected to occur and to impact resources at buoy sites. Present use levels, however, would probably not cause great impacts to resources.

If use levels increased to the point where severe impacts resulted, it might be possible to mitigate the effects of concentrated use by initiating a rotational system whereby only a portion of the buoys would be available at any one time. Alternatively, the buoys could be moved to spread the impact of concentrated use more evenly throughout the sanctuary.

The restrictions on anchoring (except the one regarding anchoring vessels of less than or equal to 100 feet in areas of the sanctuary where a mooring buoy is available) would not apply to necessary activities conducted in areas of the Sanctuary outside the no-activity zones and incidental to the exploration for, development of, or production of oil or gas in those areas.

If the regulations' restrictions on anchoring and the use of anchor lines by recreational vessels or other vessels less than or equal to 100 feet do not adequately prevent damage to Flower Garden Banks corals, other regulatory management options are available. NOAA could further restrict or prohibit all anchoring.

(c) Discharges

It would be prohibited for any person to discharge or deposit within the boundaries of the sanctuary any material or other matter of any kind or description except: fish, fish parts, chumming materials or bait used in or resulting from fishing with conventional hook and line gear in the sanctuary; biodegradable effluents incidental to vessel use and generated by marine sanitation devices approved in accordance with Section 312 of the Federal Water Pollution Control Act; water generated by routine vessel operations (e.g. cooling water, deck wash down, and graywater as defined by Section 312 of the Federal Water Pollution Control Act) excluding oily wastes from bilge pumping; or engine exhaust.

This prohibition would not apply to the discharge, in areas outside of the no-activity zones, of drilling cuttings and fluids necessarily discharged incidental to the exploration for, development of, or production of oil or gas in those areas unless such discharge injures a Sanctuary resource or quality. Depositing or discharging, from beyond the boundaries of the sanctuary,any material or other matter except for the exclusions discussed above would also be prohibited if it enters the sanctuary and injures a sanctuary resource or quality. Additionally, there would be a regulatory requirement of shunting of drilling cuttings and fluids for persons engaged in oil and gas activities in the sanctuary outside the no-activity zones.

The discharges that probably produce the most public concern are those involving oil and hazardous substances. From 1974 to 1981, there were 81 oil spills of more than 1,000 barrels in U.S. waters. Forty-one of the spills were in the Gulf of Mexico: 35 in port and three at sea (The Futures Group, 1982). During this period, however, there were only four spills of crude oil from outer continental shelf oil and gas facilities, including pipelines, that were greater than 1,000 barrels. Although the sanctuary regulations establish a scheme of strict liability and therefore of course apply to spills, spills, because they are unintentional, cannot be totally deterred by sanctuary regulations. It is hoped that the sanctuary regulations that prohibit discharges will be very successful in deterring intentional discharges and deposits.

The regulations would, for example, prohibit the use in the sanctuary of chumming materials for purposes other than

conventional hook and line fishing, for example to bring fish into the area to be viewed or photographed. This practice has been found to change the behavior of some fish in the Florida marine sanctuaries.

These regulations would also prohibit the disposal of solid matter, e.g., fishing lines and plastic or metal objects. Marine mammals, turtles, and birds may eat or become entangled in solid wastes. The Act to Prevent Pollution from Ships, as amended by the Marine Plastic Pollution Research and Control Act of 1987, and its implementing regulations prohibit the the disposal of plastic or garbage mixed with plastic into the Exclusive Economic Zone, which includes the sanctuary. They do not, however, prohibit the disposal of paper, rags, glass, metal bottles, crockery and similar refuse in the sanctuary. The sanctuary regulations would. Such refuse may reduce the aesthetic qualities of the reefs and thereby detract from their recreational value and may also pose a risk to marine mannals, turtles and birds, who may eat them. These regulations would also prohibit dredged-material disposal within the sanctuary.

The impact of adhering to these regulations on the operations of vessels and oil platforms is expected to be minor. Potentially harmful wastes, i.e., wastes not falling under one of the exceptions to the regulations, would have to be retained on vessels until they could be disposed of properly. If a valid regulation issued by another Federal authority conflicts with a sanctuary regulation, the more protective regulation shall govern.

The disposal of dredged material in Flower Garden Banks' waters has not been proposed in the past, does not now occur, and the area seems unlikely to become attractive for this purpose in the future. This prohibition makes permanent the existing situation and should thus have no burdensome impact on dredge disposal activities.

(d) Altering the Seabed

Altering the seabed for purposes of hydrocarbon exploration and development is presently prohibited within the no-activity zones by MMS lease sale stipulations. This sanctuary regulation would prohibit drilling into, dredging or otherwise altering the seabed for any purpose, or unintentionally, other than by anchoring. (The regulatory restrictions on anchoring are described above.) The regulation would also prohibit constructing or abandoning any structure, material or other matter on the seabed of the sanctuary. The regulation would not apply to necessary activities conducted in areas outside the no-activity zones and incidental to exploration for, development of, or production of oil or gas in those areas. The regulation would ensure the protection of sanctuary resources from, for example,

all dredging and construction operations. It is not expected to have any socio-economic effects. Construction of any structure and any excavation or fill activity in the territorial sea or on the outer continental shelf is already prohibited without a permit from the Corps of Engineers under section 10 of the Rivers and Harbors Act, 33 U.S.C. 403.

(e) Injuring or Removing Sanctuary Resources

It would be prohibited to injure or remove, or attempt to injure or remove, any coral or other bottom formation, coralline algae or other plant, marine invertebrate, brine-seep biota or carbonate rock within the Sanctuary. This regulation would go beyond the regulations implementing the coral fishery management plan in two ways: 1) the latter regulations only cover the 50 fathom isobath; and 2) As indicated above, the sanctuary regulation addresses more than just coral and coral reefs.

(f) Taking Marine Mammals or Turtles

It would be prohibited to take any marine mammal or turtle within the Sanctuary, except as permitted by regulations, as amended, promulgated under the Marine Mammal Protection Act, as amended, 16 U.S.C. §§ 1361 et seq., and the Endangered Species Act, as amended, 16 U.S.C. §§ 1531 et seq. This regulation would track the Marine Mammal Protection Act and Endangered Species Act with regard to marine mammals and turtles.

(g) Catching or Feeding Fish

Injuring, catching, harvesting, collecting or feeding, or attempting to injure, catch, harvest, collect or feed, any fish within the Sanctuary except by use of conventional hook and line gear would be prohibited within the Sanctuary. This regulation would go beyond the regulations implementing the coral fishery management plan in three main ways: 1) the latter regulations only cover the 50 fathom isobath; 2) the sanctuary regulations would prohibit spearfishing; and 3) the sanctuary regulations would prohibit fish feeding. This regulation is not expected to diminish recreational or commercial opportunities in the sanctuary significantly. Hook and line fishing is by far the most popular and successful method used by commercial and recreational fishermen to catch reef fish. During the period 1972-1974, 94 percent of all reef fish taken were caught with handlines. This fishing method would not be restricted by the sanctuary regulations, except, however, that use of bottom longlines would be prohibited and fishing with bottom longlines is already prohibited with the 50 fathom isobath by the regulations implementing the fishery management plan for coral and coral reefs. 50 CFR Part 638.

Fish feeding would be prohibited because it is believed to significantly alter the behavior of fish by disrupting normal feeding patterns.

(h) Possession of Resources

The sanctuary regulations would also prohibit the following: possessing within the Sanctuary (regardless of where taken, collected, caught, harvested or removed) any carbonate rock, coral or other bottom formation, coralline algae or other plant, marine invertebrate, brine-seep biota, or fish (except for fish caught by use of conventional hook and line gear). The regulations implementing the coral fishery management plan do not contain a prohibition on possession. This sanctuary regulation would aid the enforcement of the prohibitions discussed under (e), (f) and (g) above.

(i) Possession of Fishing Gear

Possessing or using within the Sanctuary, except possessing while passing without interruption through it, any fishing gear, device or equipment except conventional hook and line gear would be prohibited. The regulations implementing the coral reef fishery management plan do not contain a prohibition on possession, only use. This regulation would aid the enforcement of the sanctuary regulation discussed under (g).

(j) Possession or Use of Explosives or Release of Electrical Charges

Possessing or using explosives or releasing electrical charges within the Sanctuary would be prohibited. The intent of this prohibition is to protect Sanctuary resources from the harmful effects of explosives and electrical charges. The regulations implementing the fishery management plan for reef fish in the Gulf of Mexico, 50 CFR Part 641, already prohibit the use of explosives to take reef fish and prohibit vessels in the reef fish fishery from possessing any dynamite or similar explosive substance. The use of explosives and electrical charges in seismic operations, for example, has been documented to be lethal or damaging to fish eggs and larvae, disturbing to fish and other marine life, and possibly destructive to commercial fishing gear (Gulf of Mexico Sales 131, 135, and 137: Central, Western and Eastern Planning Areas DEIS, USDOI, MMS, 1990).

One exception to the Sanctuary regulatory prohibition has been carved out in order to allow necessary activities conducted in areas of the Sanctuary outside the no-activity zones and incidental to exploration for, development of, or production of oil or gas in those areas.

(k) Enforcement

The impact of the enhanced surveillance and enforcement efforts focused on sanctuary resources should be beneficial. Enforcement at the sanctuary will focus on a coordinated program with emphasis on resource protection at the Banks rather than an elaborate surveillance and enforcement presence.

2. Research and Interpretation

The impacts resulting from the implementation of the research and interpretation programs are expected to be positive. The research program should result in a coordinated mechanism for studying the sanctuary's resources and developing effective management strategies. The research program would provide a coordinated effort to obtain management-oriented data on the sanctuary environment and resources and possible impacts on them resulting from projected levels of human activity. These data can then be used in formulating measures to preserve the health of sanctuary resources.

The interpretation program would improve public awareness of the importance and fragility of the Flower Garden Banks resources and thus engender support for resource protection efforts. The program would provide audiovisual material, exhibits, and other information products for individuals, schools and interested groups.

3. Boundary Alternatives

All three regulatory/boundary alternatives would protect the coral and associated resources at the Banks. Both of the first two regulatory/boundary alternatives provide protection to the areas of significant coral and associated resources, but the second, the preferred alternative, would present fewer enforcement problems because it rounds out the Sanctuary boundaries so they can be plotted by geographic coordinates for enforcement purposes. The third alternative would also protect the critical core areas of the Flower Garden Banks coral reefs, but it would incorporate the entire 4-mile zones established by MMS around the Banks.

NOAA recognizes that activities occurring in the 4-mile zones may potentially generate pollutants that could threaten the significant resources of the Flower Garden reefs. NOAA therefore agrees that the reefs must be protected from the possible adverse impacts of buffer zone activities. Alternative 1 requires drilling operations comply with a sanctuary regulation prohibiting discharges and deposits that enter the sanctuary and injure a sanctuary resource or quality. NOAA believes that this regulation, applying to other discharges and deposits as well as

drilling wastes, provides broad protection to sanctuary resources. NOAA has also modified Alternative 1 by including a shunting requirement for oil and gas activities in the sanctuary (which are allowed only in the areas outside the no-activity zones). NOAA is therefore of the opinion that the Alternative 1 boundaries, which encompass the present boundaries of the no-activity zones, rounded out to allow more easy identification of the boundaries of the sanctuary for enforcement purposes, are more in keeping than the Alternative 3 boundaries with section 922.1(c)(2) of the National Marine Sanctuary program regulations (15 CFR Part 922), which states that sanctuary size will be no larger than necessary to ensure effective management.

With respect to activities within the no-activity zones, NOAA agrees that the Alternative 3 provision explicitly prohibiting hydrocarbon exploration, development or production within these zones provides stronger protection than the prohibition on altering the seabed, the primary means of regulating hydrocarbon activities within these zones under Alternative 1. NOAA has therefore modified Alternative 1 by incorporating into it an explicit prohibition of hydrocarbon exploration, development and production activities within the no-activity zones. Thus modified, Alternative 1 remains the preferred alternative.

4. Management Alternatives

Alternative 1 is less costly, but Alternative 2 is far more effective in day-to-day management and in responding to emergency situations.

B. The Status Quo Alternative

Under the status quo, the Flower Garden Banks would not have the degree of management or protection warranted by the significance of their marine resources. In the existing regime, management is provided by individual Federal agencies, each of which is responsible for regulating specific activities under the authority of statutes directed to specific and sometimes narrow objectives. Although this regime is able to provide some degree of protection to Flower Garden Banks resources against most potentially damaging human activities, it, for example, provides no protection from the effects of anchoring by large vessels, considered the most serious continuing threat to the Flower Garden Banks coral reefs (MMS, 1987), and it provides less protection from discharges and harmful fishing practices than would sanctuary regulations.

The MMS stipulations (see Part III, Section I), prevent most of the impacts to the Flower Garden Banks that may result from OCS oil and gas development. Such impact producing factors

include oil spills, blowouts, structure emplacement, and drilling discharges, as well as anchoring by vessels engaged in drilling and production activities. The protection provided by the MMS stipulations, however, is not permanent. The stipulations are imposed on a lease-by-lease basis and can be modified or eliminated at any time.

Oil spills may result from sea-surface sources (tanker accidents, platform leaks) and seafloor sources (pipeline accidents, oil well blowouts). Most small spills occur from surface sources, while medium-sized or large spills are equally likely to occur from surface or seafloor sources. Although it is possible that spills from seafloor sources could impinge directly on the Banks and cause significant adverse impacts to the biota, the probability of such a spill occurring and reaching the Flower Garden Banks is low (MMS, 1987). The threat of a seafloor spill directly over the Banks has currently been eliminated by MMS' establishment of the no-activity zones. If a subsurface spill were to occur under normal conditions nearby, the contaminants, instead of being deposited on the reefs, would be swept around the banks by the subsurface currents (Rezak et al., 1985).

The Flower Garden Banks coral reefs are also currently protected from the effects of oil industry construction and drilling discharges by the MMS stipulations. Construction activities by the oil industry are prohibited within the no-activity zones, and restrictions on the disposal of drilling wastes within four mile zones beyond the no-activity zones require them to be shunted to the bottom. The MMS notes (MMS, 1987) that "shunting of drilling effluent to the nephloid layer contains the effluent to a level deeper than the level of the living reef of a high relief topographic feature. Shunting is therefore an effective measure for protecting the biota of high relief topographic features (Bright and Rezak, 1978; Rezak and Bright, 1981; and NAS, 1983). Biological effect on the benthos from the deposition of unshunted discharge is mostly limited to within 1,000 m of the discharge (NAS, 1983)."

A large blowout occurring near a biologically sensitive area could have severe environmental consequences. Large amounts of sediment resuspended by a blowout could smother coral communities causing mortality. According to MMS (MMS, 1987), the biological stipulation "would not protect the banks from the adverse effects of.....a large blowout on a nearby oil or gas operation. Fortunately, blowouts are rare in the Gulf." Because of their rarity, blowouts generally pose far less environmental risk than do oil spills. Since 1970, no oil spill of 1 bbl or more has occurred as a result of a blowout during drilling operations. Moreover, the amount of oil pollution during blowouts has been decreasing. The amount of gas escaping during a blowout is difficult to determine; however, no identifiable environmental

damage was caused by blowouts during the period 1979-1984 (MMS, 1987).

Aside from their rarity, blowouts are unlikely to damage the Flower Garden Banks because of the greater depth of the water outside of the no-activity zones where drilling may occur. The flow of water at the base of the Flower Garden Banks is so strongly stratified that little vertical motion is possible as the flow encounters the banks. The flow then diverges around the banks with a very modest vertical excursion (on the order of 10 m) on the point of the banks where the flow diverges (Rezak et al., 1985). Consequently, the contaminants from blowouts would normally be swept around the banks by the currents instead of being deposited on the reefs.

The Flower Garden Banks are not as well protected from the impact of other activities as they are from oil and gas exploration and development. The amount of petroleum entering Gulf waters from vessels engaged in maritime transportation, most of it as the result of operational discharges from tankers, is eight times the amount caused by offshore oil exploration and production (MMS, 1987). Although the Clean Water Act (CWA) provides for the establishment of the National Contingency Plan to contain, disperse, or remove oil and hazardous substances after a spill (Part II, Section III), neither this act nor the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973, contains a general prohibition on the discharge of oil and hazardous substances into waters beyond 50 nautical miles (93 km) from the shore. The Flower Garden Banks, being more than twice that distance from shore and only 6 nautical miles (11 km) from a major shipping fairway, are located in a general area where vessel discharges of oil or oily mixtures might be expected.

Small surface spills, however, are unlikely to have any significant impact on the health of Flower Garden Banks corals. Oil from surface spills, driven into the water column to depths of 33 ft (10 m), is found only at concentrations several orders of magnitude lower than those shown to have an effect on corals. Oil released in surface spills and driven 50 ft (15 m) deep to the shallowest point on the Flower Garden Banks would be in such low concentrations that it would have no impact on these reefs (MMS, 1987). Chronic oil pollution in shallow waters above the reefs could, however, damage the environment aesthetically and thus detract from the recreational value of the area.

Although the CWA does not specifically prohibit the discharge of oil and other hazardous substances in the vicinity of the Flower Garden Banks, it does prohibit such discharges in harmful quantities "which may affect natural resources...under the exclusive management authority of the United States." Moreover, the EPA permit under the National Pollutant Discharge

Elimination System for discharges near the Flower Garden Banks requires compliance with the MMS biological stipulations that establish no-activity zones and requiring shunting in buffer zones beyond. If these stipulations cease to be applied, EPA may require a variety of restrictions, including limitations on discharge rates or a full prohibition on discharges. Further, the Oil Pollution Act of 1990 provides that any party responsible for the discharge, or the substantial threat of discharge, of oil into the Exclusive Economic Zone is liable for removal costs and damages.

The Act to Prevent Pollution from Ships, as amended by the Marine Plastic Pollution Research and Control Act of 1987, and its implementing regulations prohibit the disposal of plastic or garbage mixed with plastic into the Exclusive Economic Zone. They do not, however, prohibit the disposal 12 nautical miles and more from the nearest land of paper, rags, glass, metal bottles, crockery and similar refuse. Such litter may reduce the aesthetic qualities of the reefs and thereby detract from their recreational value and may also pose a risk to marine mammals, turtles and birds, who may eat them.

Anchoring in the no-activity zones by vessels engaged in oil and gas exploration and development activities is prohibited on a lease by lease basis by MMS, but neither MMS nor NMFS has the authority to regulate anchoring by other vessels, e.g., vessels engaged in maritime commerce. Thus anchoring by these vessels continues to pose the greatest continuing threat to Flower Garden Banks resources.

A good example of the extent of damage caused by anchoring is contained in a report prepared by Continental Shelf Associates, Inc. (1984), describing the October 1983 anchoring by a tug, M/V NICK CANDIES, and tow barge at the East Flower Garden Banks (see Part II, Section II, C. 5. Anchoring). The impacted area was on the coral reef between 55 and 90 ft (17 m and 27 m) depths. Newly broken and overturned coral heads, gouges and abrasions were observed in a band approximately 10 ft (3 m) wide extending for 200 ft (61 m) or so across the shallower portion of the anchor drag. The band of damage narrowed to about 5 ft (1.5 m) in deeper water, but extended for an additional length of 400 ft (122 m). Damage was considerably less on the deeper part of the drag. Swimming approximately 150 ft (46 m) along the shallow damaged area, Bright counted 205 damaged coral heads (Bright, 1985b). The "softer" corals (Colpophyllia and Diploria) suffered more extensive disruption than did the more solidly built forms (e.g. Montastrea).

The NMFS regulations implementing the coral fishery management plan make it unlawful without a scientific or educational permit to fish for coral or to use toxic chemicals to take fish or other marine organisms. Fishing with bottom

longlines, traps, pots or bottom trawls is also prohibited. (See Part III, Section I). The proposed Flower Garden Banks marine sanctuary regulations are substantially similar (see Part III, Section II), but the sanctuary regulations would apply within the 100 m (328 ft) isobath around each Bank, whereas the NMFS regulations apply within the 50 fathom (300 ft) isobath only. Further, the sanctuary regulations would prohibit spearfishing and fish feeding. Moreover, the penalties for violating sanctuary regulations would be more severe than those for violating the regulations issued under the coral fishery management plan. Sanctuary regulations should therefore be more effective in deterring prohibited activities.

Finally, little literature or other educational information on the Flower Garden Banks and its habitat values is available to the general public. The public is largely unaware of the Banks' existence. Consequently, there is no informed public that can appreciate the worth of its resources and support efforts to protect them.

Under the status quo alternative, existing activities and controls will continue as presently administered. Although this regime affords some protection to Flower Garden Banks reefs, it does not provide the protection needed, especially from large-vessel anchoring. Despite the widely acknowledged natural significance of the Banks, there is no comprehensive plan for the management of the Banks' resources and no organizational structure to coordinate research and regulation and apply research findings to the resolution of management issues.

Section II: Unavoidable Adverse Environmental Effects

No unavoidable adverse environmental impacts due to the implementation of the management plan and regulations are foreseen.

Section III: Relationship Between Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

Sanctuary designation emphasizes the importance of the natural resources of Flower Garden Banks. The quality of the Flower Garden Banks' environment is still pristine. Designation provides long-term assurance that the natural resources of the area will be available for future use and enjoyment, particularly in terms of research and public awareness of the marine environment. Implementation of the preferred alternative ensures that changes in use patterns which could degrade Bank environments are monitored.

The interpretation and surveillance/enforcement programs will provide information, management and protection that develops a foundation for wise public use of the area and results in long-term productivity. Similarly, information collected in the research program will assist Federal managers in making better management decisions. Better management will in turn help resolve use conflict and mitigate the adverse impacts of human activities.

Part V: LIST OF PREPARERS

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PART VI: LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS RECEIVING COPIES

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Federal Agencies

Advisory Council on Historic Preservation
Council on Environmental Quality
Department of Agriculture
Department of the Air Force
Department of the Army
Department of the Army/Corps of Engineers
Department of Commerce
Department of Defense
Department of Energy
Department of the Interior
Department of Justice
Department of the Navy
Department of State
Department of Transportation
Environmental Protection Agency
Federal Emergency Management Agency
Federal Energy Regulatory Commission
Gulf of Mexico Fishery Management Council
Marine Fisheries Advisory Commission
Marine Mammal Commission
Maritime Administration
National Science Foundation
U.S. Coast Guard

Congressional

Committee on Commerce, Science, and Transportation;
United States Senate
Committee on Merchant Marine and Fisheries;
U.S. House of Representatives
Honorable Lloyd Bentsen, United State Senate
Honorable John B. Breaux, United States Senate
Honorable Phil Gramm, United States Senate
Honorable J. Bennett Johnston, United States Senate
Honorable Michael A. Andrews, U.S. House of Representatives
Honorable Bill Archer, U.S. House of Representatives
Honorable Lindy Boggs, U.S. House of Representatives
Honorable Jack Brooks, U.S. House of Representatives
Honorable Tom DeLay, U.S. House of Representatives
Honorable E. (Kika) de la Garza, U.S. House of Representatives
Honorable Jack Fields, U.S. House of Representatives
Honorable Jimmy Hayes, U.S. House of Representatives
Honorable Craig A. Washington, U.S. House of Representatives
Honorable Bob Livingston, U.S. House of Representatives
Honorable Solomon P. Ortiz, U.S. House of Representatives
Honorable W. J. (Billy) Tauzin, U.S. House of Representatives
Honorable Charles Wilson, U.S. House of Representatives

State Government and Agencies

Honorable Bill Clements, Governor of Texas
Honorable Buddy Roemer, Governor of Louisiana
Honorable Debre Danburg, Texas House of Representatives
Louisiana Coastal Management Program
Louisiana Department of Culture, Recreation and Tourism
Louisiana Department of Environmental Quality
Louisiana Department of Natural Resources
Louisiana Department of State
Louisiana Department of Wildlife and Fisheries
Louisiana Geological Survey
Louisiana Office of Intergovernmental Affairs
Louisiana Office of State Parks
Louisiana State Office of Conservation
President, Louisiana Senate
Speaker, Louisiana House of Representatives
Speaker, Texas House of Representatives
Speaker Pro-Tem, Texas Senate
Texas Attorney General
Texas Committee on Natural Resources
Texas General Land Office
Texas Governor's Office of Budget and Planning
Texas Office of Intergovernmental Affairs
Texas Office of State-Federal Relations
Texas Parks and Wildlife Department
Texas Secretary of State
Texas Tourist Development Agency

Interest Groups

Alliance for Environmental Education, Inc.
Anadarko Petroleum Corporation
American Association of Port Authorities
American Bureau of Shipping
American Conservation Association
American Fisheries Society
American Gas Association
American Institute of Merchant Shipping
American Littoral Society
American Petroleum Institute
American Recreation Coalition
Americans for the Environment
Amoco Production Company
Atlantic Richfield Company
Audubon Society
Boating Industry Association
CONOCO Inc.
Center for Law and Social Policy
Center for Marine Conservation
Cities Service Oil and Gas Corporation
Citizens Advisory Committee on the Gulf Initiative

Citizens Environmental Coalition
Clean Water Action Project
Coast Alliance
Coastal Society
Coastal States Organization
Conservation Education Association
Conservation Foundation
Conservation Fund
Continental Oil Company
Continental Shelf Associates
Council of State Planning Agencies
Council on Ocean Law
Cousteau Society
Defenders of Wildlife
Edison Electric Institute
El Paso Natural Gas Company
Environmental Action Foundation
Environmental Defense Fund, Inc.
Environmental Law Institute
Environmental Policy Center
Environmental Policy Institute
Exxon Company, U.S.A.
Federation of American Controlled Shipping
Friends of the Earth
Galveston Bay Foundation
Galveston Island Diving Association
Greenpeace
Gulf and Caribbean Fisheries Institute
Gulf Coast Authority
Gulf Oil Exploration and Production Company
Houston Sierra Club
Houston Sportsmen's Club
Houston Underwater Club
Institute for the Human Environment
International Association of Fish and Wildlife Agencies
International Oceanographic Foundation
Izaak Walton League of America, Inc.
Louisiana University Marine Consortium
Louisiana Wildlife Federation
Marine Science Institute
Marine Technology Society
Mobile Oil Corporation
National Association of Conservation Districts
National Association of Counties
National Association of State Recreation Planners
National Audubon Society
National Coalition for Marine Conservation
National Federation of Fisherman
National Fisheries Institute
National Marine Education Association
National Maritime Council
National Ocean Industries Association

National Parks and Conservation Association
National Recreation and Parks Association
National Wildlife Federation
Natural Resources Defense Council
Nature Conservancy
New Orleans Steamship Association
Oceanic Society
Petroleum Information Corporation
Port of Corpus Christi Authority
Port of Houston Authority
Port of Lake Charles
Port of Orange
Resources for the Future
Rigs to Reefs Company
Rinn Boats, Inc.
Shell Oil Company
Sierra Club
Sport Fishing Institute
Sportsmen's Clubs of Texas, Inc.
Standard Oil Company
Texaco, Inc.
Texas Conservation Foundation
Texas Environmental Coalition
Texas Shrimp Association
Texas State Aquarium
Union Oil Company
United Nations Environment Programme
United States Chamber of Commerce
United States Tourist Council
Water Pollution Control Federation
West Gulf Maritime Association
Wilderness Society
Wildlife Management Institute
Wildlife Society, Louisiana Chapter
Wildlife Society, Texas Chapter
World Resources Institute
World Wildlife Fund - U.S.

PART VII: REFERENCES

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PART VIII: APPENDICES

APPENDIX 1: FINAL DESIGNATION DOCUMENT FOR THE FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY

PREAMBLE

DESIGNATION DOCUMENT FOR
THE FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY

Under the authority of Title III of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended (the "Act"), 16 U.S.C. §§ 1431 et seq., two separate areas of ocean waters over and surrounding the East and West Flower Garden Banks, and the submerged lands thereunder including the Banks, in the northwestern Gulf of Mexico, as described in Article II, are hereby designated as the Flower Garden Banks National Marine Sanctuary for the purposes of protecting and managing the conservation, ecological, recreational, research, educational, historic and esthetic resources and qualities of these areas.

Article I. Effect of Designation

The Act authorizes the Secretary of Commerce to issue such final regulations as are necessary and reasonable to implement the designation, including managing and protecting the conservation, recreational, ecological, historical, research, educational, and esthetic resources and qualities of a sanctuary. Section 1 of Article IV of this Designation Document lists those activities that may have to be regulated on the effective date of designation or at some later date in order to protect Sanctuary resources and qualities. Thus, the act of designation empowers the Secretary of Commerce to regulate the activities listed in section 1. Listing does not necessarily mean that an activity will be regulated; however, if an activity is not listed it may not be regulated, except on an emergency basis, unless section 1 of Article IV is amended by the same procedures by which the original designation was made.

Article II. Description of the Area

The Flower Garden Banks National Marine Sanctuary consists of two separate areas of ocean waters over and surrounding the East and West Flower Garden Banks, and the submerged lands thereunder including the Banks, in the northwestern Gulf of Mexico. The area designated at the East Bank is located approximately 120 nautical miles south-southwest of Cameron, Louisiana, and encompasses 19.20 square nautical miles, and the area designated at the West Bank is located approximately 110 nautical miles southeast of Galveston, Texas, and encompasses 22.50 square nautical miles. The two areas encompass a total of 41.70 square nautical miles (143.21 square kilometers).

Appendix I to this designation document sets forth the precise Sanctuary boundaries.

Article III. Characteristics of the Area That Give It Particular Value

The Flower Garden Banks sustain the northernmost living coral reefs on the U.S. continental shelf. They are isolated from other reef systems by over 300 nautical miles (550 kilometers) and exist under hydrographic conditions generally considered marginal for tropical reef formation. The composition, diversity and vertical distribution of benthic communities on the Banks are strongly influenced by this physical environment. Epibenthic populations are distributed among several interrelated biotic zones, including a Diploria-Montastrea-Porites zone, a Madracis mirabilis zone, and an algal sponge zone.

The complex and biologically productive reef communities that cap the Banks offer a combination of esthetic appeal and recreational and research opportunity matched in few other ocean areas. These reef communities are in delicate ecological balance because of the fragile nature of coral and the fact that the Banks lie on the extreme northern edge of the zone in which extensive reef development can occur. In addition to their coral reefs, the Banks contain the only known oceanic brine seep in continental shelf waters of the Gulf of Mexico. Because of these features, the Flower Garden Banks are particularly valuable for scientific research.

Article IV. Scope of Regulations

Section 1. Activities Subject to Regulation

The following activities are subject to regulation, including prohibition, to the extent necessary and reasonable to ensure the protection and management of the conservation, recreational, ecological, historical, research, educational and esthetic resources and qualities of the area:

a. Anchoring or otherwise mooring within the Sanctuary;

b. Discharging or depositing, from within the boundaries of the Sanctuary, any material or other matter;

c. Discharging or depositing, from beyond the boundaries of the Sanctuary, any material or other matter;

d. 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;

e. Exploring for, developing or producing oil, gas or minerals within the Sanctuary;

f. Taking, removing, catching, collecting, harvesting, feeding, injuring, destroying or causing the loss of, or attempting to take, remove, catch, collect, harvest, feed, injure, destroy or cause the loss of, a Sanctuary resource;

g. 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.

h. Possessing or using within the Sanctuary, any fishing gear, device, equipment or means.

i. Possessing or using explosives or airguns or releasing electrical charges within the Sanctuary.

Section 2. Consistency with International Law

The Sanctuary regulations shall be applied to foreign persons and foreign vessels in accordance with generally recognized principles of international law, and in accordance with treaties, conventions, and other international agreements to which the United States is a party.

Section 3. Emergencies

Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality, or minimize the imminent risk of such destruction, loss or injury, any and all activities, including those not listed in section 1 of this Article, are subject to immediate temporary regulation, including prohibition.

Article V. Effect on Other Regulations, Leases, Permits, Licenses, and Rights

Section 1. Fishing Regulations, Licenses, and Permits

The regulation of fishing is authorized under Article IV. All regulatory programs pertaining to fishing, including fishery management plans promulgated under the Magnuson Fishery Conservation and Management Act, 16 U.S.C. §§ 1801 et seq., shall remain in effect. Where a valid regulation promulgated under these programs conflicts with a Sanctuary regulation, the

regulation deemed by the Secretary of Commerce or designee as more protective of Sanctuary resources and qualities shall govern.

Section 2. Other

If any valid regulation issued by any Federal authority of competent jurisdiction, regardless of when issued, conflicts with a Sanctuary regulation, the regulation deemed by the Secretary of Commerce or designee as more protective of Sanctuary resources and qualities shall govern.

Pursuant to section 304(c)(1) of the Act, 16 U.S.C. § 1434(c)(1), no valid lease, permit, license, approval, or other authorization issued by any Federal authority of competent jurisdiction, or any valid right of subsistence use or access, may be terminated by the Secretary of Commerce or designee as a result of this designation or as a result of any Sanctuary regulation if such authorization or right was in existence on the effective date of this designation. However, the Secretary of Commerce or designee may regulate the exercise of such authorization or right consistent with the purposes for which the Sanctuary is designated.

Accordingly, the prohibitions set forth in the Sanctuary regulations shall not apply to any activity authorized by any valid lease, permit, license, approval, or other authorization in existence on the effective date of Sanctuary designation and issued by any Federal authority of competent jurisdiction, or by any valid right of subsistence use or access in existence on the effective date of Sanctuary designation, provided that the holder of such authorization or right complies with Sanctuary regulations regarding the certification of such authorizations and rights (e.g., notifies the Secretary or designee of the existence of, requests certification of, and provides requested information regarding such authorization or right) and complies with any terms and conditions on the exercise of such authorization or right imposed as a condition of certification by the Secretary or designee as he or she deems necessary to achieve the purposes for which the Sanctuary was designated.

Pending final agency action on the certification request, such holder may exercise such authorization or right without being in violation of any prohibitions set forth in the Sanctuary regulations, provided the holder is in compliance with Sanctuary regulations regarding certifications.

The prohibitions set forth in the Sanctuary regulations shall not apply to any activity authorized by any valid lease, permit, license, approval or other authorization issued after the effective date of Sanctuary designation by any Federal authority of competent jurisdiction, provided that the applicant complies

with Sanctuary regulations regarding notification and review of applications (e.g., notifies the Secretary or designee of the application for such authorization and provides requested information regarding the application), the Secretary or designee notifies the applicant and authorizing agency that he or she does not object to issuance of the authorization, and the applicant complies with any terms and conditions the Secretary or designee deems necessary to protect Sanctuary resources and qualities.

The prohibitions set forth in the Sanctuary regulations shall not apply to any activity conducted in accordance with the scope, purpose, terms, and conditions of a National Marine Sanctuary permit issued by the Secretary or designee in accordance with the Sanctuary regulations. Such permits may only be issued if the Secretary or designee finds that the activity for which the permit is applied will: further research related to Sanctuary resources; further the educational, natural or historical resource value of the Sanctuary; further salvage or recovery operations in or near the Sanctuary in connection with a recent air or marine casualty; or assist in managing the Sanctuary.

The prohibitions set forth in the Sanctuary regulations shall not apply to any activity conducted in accordance with the scope, purpose, terms, and conditions of a Special Use permit issued by the Secretary or designee in accordance with Section 310 of the Act.

If the Sanctuary regulations prohibit oil, gas, or mineral exploration, development or production in any area of the Sanctuary, the Secretary or designee may in no event permit or otherwise approve such activities in that area, and any leases, licenses, permits, approvals, or other authorizations issued after the effective date of Sanctuary designation authorizing the exploration, development, or production of oil, gas, or minerals in that area shall be invalid.

Article VI. Alterations to This Designation

The terms of designation may be modified only by the same procedures by which the original designation is made, including public hearings, consultation with any appropriate Federal, State, regional and local agencies, review by the appropriate Congressional committees and approval by the Secretary of Commerce or designee.

Accordingly, for the reasons set forth above, 15 CFR is amended as follows:

1. Part 943 is added to read as follows:

Part 943 - Flower Garden Banks National Marine Sanctuary

Sec.

943.1 Purpose.

943.2 Boundaries.

943.3 Definitions.

943.4 Allowed activities.

943.5 Prohibited activities.

943.6 Shunting requirements applicable to hydrocarbon-drilling discharges.

943.7 Emergency regulations.

943.8 Penalties.

943.9 National Marine Sanctuary permits - application procedures and issuance criteria.

943.10 Certification of pre-existing leases, licenses, permits, approvals, other authorizations, or rights to conduct a prohibited activity.

943.11 Notification and review of applications for leases, licenses, permits, approvals, or other authorizations to conduct a prohibited activity.

943.12 Appeals of administrative action.

Appendix I--Flower Garden Banks National Marine Sanctuary Boundary Coordinates

Appendix II--Coordinates for the Department of the Interior topographic lease stipulations for OCS lease sale 112.

Authority: Sections 302, 303, 304, 305, 307, and 310 of Title III of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 16 U.S.C. §§ 1431 et seq.

§ 943.1 Purpose.

The purpose of the regulations in this Part is to implement the designation of the Flower Garden Banks National Marine Sanctuary by regulating activities affecting the Sanctuary consistent with the terms of that designation in order to protect and manage the conservation, ecological, recreational, research, educational, historical and esthetic resources and qualities of the area.

§ 943.2 Boundaries.

The Flower Garden Banks National Marine Sanctuary consists of two separate areas of ocean waters over and surrounding the East and West Flower Garden Banks, and the submerged lands thereunder including the Banks, in the northwestern Gulf of Mexico. The area designated at the East Bank is located approximately 120 nautical miles south-southwest of Cameron, Louisiana, and encompasses 19.20 square nautical miles, and the area designated at the West Bank is located approximately 110 nautical miles southeast of Galveston, Texas, and encompasses 22.50 square nautical miles. The two areas encompass a total of 41.70 square nautical miles (143.21 square kilometers). The boundary coordinates for each area are listed in Appendix I, following § 943.11.

§ 943.3 Definitions.

(A) "Act" means Title III of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 16 U.S.C. §§ 1431 et seq.

(B) "Administrator" or "Under Secretary" means the Administrator of the National Oceanic and Atmospheric Administration/Under Secretary of Commerce for Oceans and Atmosphere.

(C) "Assistant Administrator" means the Assistant Administrator for Ocean Services and Coastal Zone Management, National Ocean Service, National Oceanic and Atmospheric Administration.

(D) "Conventional hook and line gear" means any fishing apparatus operated aboard a vessel and composed of a single line terminated by a combination of sinkers and hooks or lures and spooled upon a reel that may be hand- or electrically operated, hand-held or mounted. This term does not include bottom longlines.

(E) "Director" means the Director of the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration.

(F) "Effective date of Sanctuary designation" means the date the regulations implementing the designation of the Sanctuary become effective.

(G) "Historical resource" means a resource possessing historical, cultural, archaeological or paleontological significance, including sites, structures, districts, and objects significantly associated with or representative of earlier people, cultures, and human activities and events.

(H) "Injure" means change adversely, either in the long or short term, a chemical, biological or physical attribute of, or the viability of. To "injure" therefore includes, but is not limited to, to cause the loss of and to destroy.

(I) "No-activity zone" means one of the two geographic areas delineated by the Department of the Interior in stipulations for OCS lease sale 112 over and surrounding the East and West Flower Garden Banks as areas in which activities associated with exploration for, development of, or production of hydrocarbons are prohibited. The precise coordinates of these areas are provided in Appendix II. These particular coordinates define the geographic scope of the "no-activity zones" for purposes of the regulations in this Part. These coordinates are based on the "1/4 1/4 1/4" system formerly used by the Department of the Interior, a method that delineates a specific portion of a block rather than the actual underlying isobath.

(J) "Person" means any private individual, partnership, corporation, or other entity; or any officer, employee, agent, agency, department or instrumentality of the Federal government, of any State or local unit of government, or of any foreign government.

(K) "Sanctuary" means the Flower Garden Banks National Marine Sanctuary.

(L) "Sanctuary quality" means a particular and essential characteristic of the Sanctuary, including but not limited to water quality and air quality.

(M) "Sanctuary resource" means any living or non-living resource of the Sanctuary that contributes to its conservation, recreational, ecological, historical, research, educational or esthetic value, including, but not limited to, carbonate rock, corals and other bottom formations, coralline algae and other plants, marine invertebrates, brine-seep biota, fish, turtles and marine mammals.

(N) "Shunt" means to discharge expended drilling cuttings and fluids near the ocean seafloor.

(O) "Vessel" means a watercraft of any description capable of being used as a means of transportation in the waters of the Sanctuary.

Other terms appearing in the regulations in this Part are defined at 15 CFR. § 922.2 and/or in the Marine Protection, Research, and Sanctuaries Act of 1972, as amended (33 U.S.C. §§ 1401 et seq. and 16 U.S.C. §§ 1431 et seq.).

§ 943.4 Allowed activities.

All activities except those prohibited by section 943.5 may be undertaken subject to the requirements of section 943.6, subject to any emergency regulations promulgated pursuant to section 943.7, and subject to all prohibitions, restrictions, and conditions validly imposed by any other Federal authority of competent jurisdiction. If any valid regulation issued by any Federal authority of competent jurisdiction, regardless of when issued, conflicts with a Sanctuary regulation, the regulation deemed by the Director or designee as more protective of Sanctuary resources and qualities shall govern.

§ 943.5 Prohibited activities.

(a) Except as specified in paragraphs (c) through (h) below, the following activities are prohibited and thus unlawful for any person to conduct or cause to be conducted:

(1) Exploring for, developing or producing oil, gas or minerals within a no-activity zone.

(2) Anchoring or otherwise mooring within the Sanctuary a vessel greater than 100 feet (30.48 meters) in registered length.

(3) Anchoring a vessel of less than or equal to 100 feet (30.48 meters) in registered length within an area of the Sanctuary where a mooring buoy is available.

(4) Anchoring a vessel within the Sanctuary using more than fifteen feet (4.57 meters) of chain or wire rope attached to the anchor.

(5) Anchoring a vessel within the Sanctuary using anchor lines (exclusive of the anchor chain or wire rope permitted by (4) above) other than those of a soft fiber or nylon, polypropylene, or similar material.

(6) Discharging or depositing, from within the boundaries of the Sanctuary, any material or other matter except:

(i) fish, fish parts, chumming materials or bait used in or resulting from fishing with conventional hook and line gear in the Sanctuary;

(ii) biodegradable effluents incidental to vessel use and generated by marine sanitation devices approved in accordance with Section 312 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1322;

(iii) water generated by routine vessel operations (e.g., cooling water, deck wash down, and graywater as defined by Section 312 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1322) excluding oily wastes from bilge pumping; or

(iv) engine exhaust.

The prohibitions in this paragraph (6) do not apply to the discharge, in areas of the Sanctuary outside the no-activity zones, of drilling cuttings and drilling fluids necessarily discharged incidental to the exploration for, development of, or production of oil or gas in those areas unless such discharge injures a Sanctuary resource or quality. (See section 943.6 for the shunting requirement applicable to such discharges.)

(7) Discharging or depositing, from beyond the boundaries of the Sanctuary, any material or other matter, except those listed in paragraph (6)(i)-(iv) above, that subsequently enters the Sanctuary and injures a Sanctuary resource or quality.

(8) Drilling into, dredging or otherwise altering the seabed of the Sanctuary (except by anchoring); or constructing, placing or abandoning any structure, material or other matter on the seabed of the Sanctuary.

(9) Injuring or removing, or attempting to injure or remove, any coral or other bottom formation, coralline algae or other plant, marine invertebrate, brine-seep biota or carbonate rock within the Sanctuary.

(10) Taking any marine mammal or turtle within the Sanctuary, except as permitted by regulations, as amended, promulgated under the Marine Mammal Protection Act, as amended, 16 U.S.C. §§ 1361 et seq., and the Endangered Species Act, as amended, 16 U.S.C. §§ 1531 et seq.

(11) Injuring, catching, harvesting, collecting or feeding, or attempting to injure, catch, harvest, collect or feed, any fish within the Sanctuary by use of bottom longlines, traps, nets, bottom trawls or any other gear, device, equipment or means except by use of conventional hook and line gear.

(12) Possessing within the Sanctuary (regardless of where collected, caught, harvested or removed), except for valid law enforcement purposes, any carbonate rock, coral or other bottom formation, coralline algae or other plant, marine invertebrate, brine-seep biota or fish (except for fish caught by use of conventional hook and line gear).

(13) Possessing or using within the Sanctuary, except possessing while passing without interruption through it or for valid law enforcement purposes, any fishing gear, device equipment or means except conventional hook and line gear.

(14) Possessing, except for valid law enforcement purposes, or using explosives or releasing electrical charges within the Sanctuary.

(b) The regulations in this Part shall be applied to foreign persons and foreign vessels in accordance with generally recognized principles of international law, and in accordance with treaties, conventions, and other international agreements to which the United States is a party.

(c) The prohibitions in paragraph (a)(2),(4),(5),(8) and (14) do not apply to necessary activities conducted in areas of the Sanctuary outside the no-activity zones and incidental to exploration for, development of, or production of oil or gas in those areas.

(d) The prohibitions in paragraph (a)(2)-(14) do not apply to activities necessary to respond to emergencies threatening life, property, or the environment.

(e)(1) The prohibitions in paragraph (a)(2)-(14) do not apply to activities being carried out by the Department of Defense as of the effective date of Sanctuary designation. Such activities shall be carried out in a manner that minimizes any adverse impact on Sanctuary resources and qualities. The prohibitions in paragraph (a)(2)-(14) do not apply to any new activities carried out by the Department of Defense that do not have the potential for any significant adverse impacts on Sanctuary resources or qualities. Such activities shall be carried out in a manner that minimizes any adverse impact on Sanctuary resources and qualities. New activities with the potential for significant adverse impacts on Sanctuary resources or qualities may be exempted from the prohibitions in paragraph (a)(2)-(14) by the Director or designee after consultation between the Director or designee and the Department of Defense. If it is determined that an activity may be carried out, such activity shall be carried out in a manner that minimizes any adverse impact on Sanctuary resources and qualities.

(2) In the event of threatened or actual destruction of, loss of, or injury to a Sanctuary resource or quality resulting from an untoward incident, including but not limited to spills and groundings, caused by a component of the Department of Defense, the cognizant component shall promptly coordinate with the Director or designee for the purpose of taking appropriate actions to respond to and mitigate the harm and, if possible, restore or replace the Sanctuary resource or quality.

(f) The prohibitions in paragraph (a)(2)-(14) do not apply to any activity executed in accordance with the scope, purpose, terms, and conditions of a National Marine Sanctuary permit issued pursuant to section 943.9 or a Special Use permit issued pursuant to Section 310 of the Act.

(g) The prohibitions in paragraph (a)(2)-(14) do not apply to any activity authorized by a valid lease, permit, license, approval, or other authorization in existence on the effective date of Sanctuary designation and issued by any Federal authority of competent jurisdiction, or by any valid right of subsistence use or access in existence on the effective date of Sanctuary designation, provided that the holder of such authorization or right complies with section 943.10 and with any terms and conditions on the exercise of such lease, permit, license, approval, other authorization, or right imposed by the Director or designee as a condition of certification as he or she deems necessary to achieve the purposes for which the Sanctuary was designated.

(h) The prohibitions in paragraph (a)(2) - (14) do not apply to any activity authorized by any lease, permit, license, approval or other authorization issued after the effective date of Sanctuary designation, provided that the applicant complies with section 943.11, the Director or designee notifies the applicant and authorizing agency that he or she does not object to issuance of the authorization, and the applicant complies with any terms and conditions the Director or designee deems necessary to protect Sanctuary resources and qualities.

(i) Notwithstanding paragraphs (f), (g) and (h) above, in no event may the Director or designee issue a National Marine Sanctuary permit under section 943.9 or a Special Use permit under Section 310 of the Act authorizing, or otherwise approve, the exploration for, development of, or production of oil, gas or minerals in a no-activity zone, and any leases, licenses, permits, approvals, or other authorizations authorizing the exploration for, development of, or production of oil, gas or minerals in a no-activity zone and issued after the effective date of Sanctuary designation shall be invalid.

§ 943.6 Shunting requirements applicable to hydrocarbon-drilling discharges.

Persons engaged in the exploration for, development of, or production of oil or gas in areas of the Sanctuary outside the no-activity zones must shunt all drilling cuttings and drilling fluids to the seabed through a downpipe that terminates an appropriate distance, but no more than ten meters, from the seabed.

§ 943.7 Emergency regulations.

Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality, or minimize the imminent risk of such destruction, loss or injury, any and all activities are subject to immediate temporary regulation, including prohibition.

§ 943.8 Penalties for commission of prohibited activities.

(a) Each violation of the Act, any regulation in this Part, or any permit issued pursuant thereto, is subject to a civil penalty of not more than $50,000. Each day of a continuing violation constitutes a separate violation.

(b) Regulations setting forth the procedures governing administrative proceedings for assessment of civil penalties, permit sanctions and denials for enforcement reasons, issuance and use of written warnings, and release or forfeiture of seized property appear at 15 CFR Part 904.

(c) Under Section 312 of the Act, any person who destroys, causes the loss of, or injures any sanctuary resource is liable to the United States for response costs and damages resulting from such destruction, loss, or injury, and any vessel used to destroy, cause the loss of, or injure any sanctuary resource is liable in rem to the United States for response costs and damages resulting from such destruction, loss, or injury.

§ 943.9 National Marine Sanctuary permits - Application procedures and issuance criteria.

(a) A person may conduct an activity prohibited by section 943.5(a)(2) - (14) if conducted in accordance with the scope, purpose, terms, and conditions of a permit issued under this section.

(b) Applications for such permits should be addressed to the Director of the Office of Ocean and Coastal Resource Management; ATTN: Sanctuaries and Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration, 1825 Connecticut Avenue,

N.W., Washington, D.C. 20235. An application must include a detailed description of the proposed activity including a timetable for completion of the activity and the equipment, personnel, and methodology to be employed. The qualifications and experience of all personnel must be set forth in the application. The application must set forth the potential effects of the activity, if any, on Sanctuary resources and qualities. Copies of all other required licenses, permits, approvals, or other authorizations must be attached.

(c) Upon receipt of an application, the Director or designee may request such additional information from the applicant as he or she deems necessary to act on the application and may seek the views of any persons.

(d) The Director or designee, at his or her discretion, may issue a permit, subject to such terms and conditions as he or she deems appropriate, to conduct an activity prohibited by section 943.5(a)(2) - (14), if the Director or designee finds that the activity will: further research related to Sanctuary resources; further the educational, natural or historical resource value of the Sanctuary; further salvage or recovery operations in or near the Sanctuary in connection with a recent air or marine casualty; or assist in managing the Sanctuary. In deciding whether to issue a permit, the Director or designee shall consider such factors as: the professional qualifications and financial ability of the applicant as related to the proposed activity; the duration of the activity and the duration of its effects; the appropriateness of the methods and procedures proposed by the applicant for the conduct of the activity; the extent to which the conduct of the activity may diminish or enhance Sanctuary resources and qualities; the cumulative effects of the activity; and the end value of the activity. In addition, the Director or designee may consider such other factors as he or she deems appropriate.

(e) A permit issued pursuant to this section is nontransferable.

(f) The Director or designee may amend, suspend, or revoke a permit issued pursuant to this section or deny a permit application pursuant to this section, in whole or in part, if it is determined that the permittee or applicant has acted in violation of the terms or conditions of the permit or of these regulations or for other good cause. Any such action shall be communicated in writing to the permittee or applicant and shall set forth the reason(s) for the action taken. Procedures governing permit sanctions and denials for enforcement reasons are set forth in Subpart D of 15 CFR Part 904.

(g) It shall be a condition of any permit issued that the permit or a copy thereof be displayed on board all vessels or aircraft used in the conduct of the activity.

(h) The Director or designee may, inter alia, make it a condition of any permit issued that any information obtained under the permit be made available to the public.

(i) The Director or designee may, inter alia, make it a condition of any permit issued that a NOAA official be allowed to observe any activity conducted under the permit and/or that the permit holder submit one or more reports on the status, progress, or results of any activity authorized by the permit.

(j) The applicant for or holder of a National Marine Sanctuary permit may appeal the denial, conditioning, amendment, suspension, or revocation of the permit in accordance with the procedures set forth in section 943.12.

§ 943.10 Certification of pre-existing leases, licenses, permits, approvals, other authorizations, or rights to conduct a prohibited activity.

(a) The prohibitions set forth in § 943.5(a)(2) - (14) do not apply to any activity authorized by a valid lease, permit, license, approval or other authorization in existence on the effective date of Sanctuary designation and issued by any Federal authority of competent jurisdiction, or by any valid right of subsistence use or access in existence on the effective date of Sanctuary designation, provided that: 1) the holder of such authorization or right notifies the Director or designee, in writing, within 90 days of the effective date of Sanctuary designation, of the existence of such authorization or right and requests certification of such authorization or right; 2) the holder complies with the other provisions of this section 943.10; and 3) the holder complies with any terms and conditions on the exercise of such authorization or right imposed as a condition of certification, by the Director or designee, to achieve the purposes for which the Sanctuary was designated.

(b) The holder of a valid lease, permit, license, approval or other authorization in existence on the effective date of Sanctuary designation and issued by any Federal authority of competent jurisdiction, or of any valid right of subsistence use or access in existence on the effective date of Sanctuary designation, authorizing an activity prohibited by section 943.5(a)(2) - (14) may conduct the activity without being in violation of section 943.5, pending final agency action on his or her certification request, provided the holder is in compliance with this section 943.10.

(c) Any holder of a valid lease, permit, license, approval, or other authorization in existence on the effective date of Sanctuary designation and issued by any Federal authority of competent jurisdiction, or any holder of a valid right of subsistence use or access in existence on the effective date of Sanctuary designation may request the Director or designee to issue a finding as to whether the activity for which the authorization has been issued, or the right given, is prohibited under section 943.5(a)(2) - (14).

(d) Requests for findings or certifications should be addressed to the Director, Office of Ocean and Coastal Resource Management; ATTN: Sanctuaries and Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration, 1825 Connecticut Avenue, N.W., Washington, D.C. 20235. A copy of the lease, permit, license, approval or other authorization must accompany the request.

(e) The Director or designee may request additional information from the certification requester as or he deems necessary to condition appropriately the exercise of the certified authorization or right to achieve the purposes for which the Sanctuary was designated. The information requested must be received by the Director or designee within 45 days of the postmark date of the request. The Director or designee may seek the views of any persons on the certification request.

(f) The Director or designee may amend any certification made under this section whenever additional information becomes available justifying such an amendment.

(g) The Director or designee shall communicate any decision on a certification request or any action taken with respect to any certification made under this section, in writing, to both the holder of the certified lease, permit, license, approval, other authorization or right, and the issuing agency, and shall set forth the reason(s) for the decision or action taken.

(h) Any time limit prescribed in or established under this section may be extended by the Director or designee for good cause.

(i) The holder may appeal any action conditioning, amending, suspending, or revoking any certification in accordance with the procedures set forth in section 943.12.

(j) Any amendment, renewal or extension not in existence on the effective date of Sanctuary designation of a lease, permit, license, approval, other authorization or right is subject to the provisions of section 943.11.

§ 943.11 Notification and review of applications for leases, licenses, permits, approvals, or other authorizations to conduct a prohibited activity.

(a) The prohibitions set forth in section 943.5(a)(2) - (14) do not apply to any activity authorized by any valid lease, permit, license, approval or other authorization issued after the effective date of Sanctuary designation by any Federal authority of competent jurisdiction, provided that: 1) the applicant notifies the Director or designee, in writing, of the application for such authorization (and of any application for an amendment, renewal or extension of such authorization) within fifteen (15) days of the date of application or of the effective date of Sanctuary designation, whichever is later; 2) the applicant complies with the other provisions of this section 943.11; 3) the Director or designee notifies the applicant and authorizing agency that he or she does not object to issuance of the authorization (or amendment, renewal or extension); and 4) the applicant complies with any terms and conditions the Director or designee deems necessary to protect Sanctuary resources and qualities.

(b) Any potential applicant for a lease, permit, license, approval or other authorization from any Federal authority (or for an amendment, renewal or extension of such authorization) may request the Director or designee to issue a finding as to whether the activity for which an application is intended to be made is prohibited by section 943.5(a)(2) - (14).

(c) Notifications of filings of applications and requests for findings should be addressed to the Director, Office of Ocean and Coastal Resource Management; ATTN: Sanctuaries and Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration, 1825 Connecticut Avenue, N.W., Washington, D.C. 20235. A copy of the application must accompany the notification.

(d) The Director or designee may request additional information from the applicant as he or she deems necessary to determine whether to object to issuance of such lease, license, permit, approval or other authorization (or to issuance of an amendment, extension or renewal of such authorization), or what terms and conditions are necessary protect Sanctuary resources and qualities. The information requested must be received by the Director or designee within 45 days of the postmark date of the request. The Director or designee may seek the views of any persons on the application.

(e) The Director or designee shall notify, in writing, the agency to which application has been made of his or her review of the application and possible objection to issuance. After review

of the application and information received with respect thereto, the Director or designee shall notify both the agency and applicant, in writing, whether he or she has an objection to issuance and what terms and conditions he or she deems necessary to protect Sanctuary resources and qualities. The Director or designee shall state the reason(s) for any objection or the reason(s) that any terms and conditions are deemed necessary to protect Sanctuary resources and qualities.

(f) The Director or designee may amend the terms and conditions deemed necessary to protect Sanctuary resources and qualities whenever additional information becomes available justifying such an amendment.

(g) Any time limit prescribed in or established under this section may be extended by the Director or designee for good cause.

(h) The applicant may appeal any objection by, or terms or conditions imposed by, the Director or designee to the Assistant Administrator or designee in accordance with the procedures set forth in section 943.12.

§ 943.12 Appeals of administrative action.

(a) Except for permit actions taken for enforcement reasons (see Subpart D of 15 CFR Part 904 for applicable procedures), an applicant for, or a holder of, a section 943.9 National Marine Sanctuary permit, an applicant for, or a holder of, a Section 310 of the Act Special Use permit, a section 943.10 certification requester, or a section 943.11 applicant (hereinafter appellant) may appeal to the Assistant Administrator or designee: 1) the grant, denial, conditioning, amendment, suspension, or revocation by the Director or designee of a National Marine Sanctuary or Special Use permit; 2) the conditioning, amendment, suspension, or revocation of a certification under section 943.10; or 3) the objection to issuance or the imposition of terms and conditions under section 943.11.

(b) An appeal under paragraph (a) of this section must be in writing, state the action(s) by the Director or designee appealed and the reason(s) for the appeal, and be received within 30 days of the action(s) by the Director or designee. Appeals should be addressed to the Assistant Administrator, Office of Ocean and Coastal Resource Management, ATTN: Sanctuaries and Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration, 1825 Connecticut Avenue, N.W., Washington, D.C. 20235.

(c) While the appeal is pending, appellants requesting certification pursuant to section 943.10 who are in compliance

with such section may continue to conduct their activities without being in violation of the prohibitions in section 943.5(a)(2) - (14). All other appellants may not conduct their activities without being subject to the prohibitions in section 943.5(a)(2) - (14).

(d) The Assistant Administrator or designee may request the appellant to submit such information as the Assistant Administrator or designee deems necessary in order for him or her to decide the appeal. The information requested must be received by the Assistant Administrator or designee within 45 days of the postmark date of the request. The Assistant Administrator may seek the views of any other persons. The Assistant Administrator or designee may hold an informal hearing on the appeal. If the Assistant Administrator or designee determines that an informal hearing should be held, the Assistant Administrator or designee may designate an officer before whom the hearing shall be held. The hearing officer shall give notice in the Federal Register of the time, place, and subject matter of the hearing. The appellant and the Director or designee may appear personally or by counsel at the hearing and submit such material and present such arguments as deemed appropriate by the hearing officer. Within 60 days after the record for the hearing closes, the hearing officer shall recommend a decision in writing to the Assistant Administrator or designee.

(e) The Assistant Administrator or designee shall decide the appeal using the same regulatory criteria as for the initial decision and shall base the appeal decision on the record before the Director or designee and any information submitted regarding the appeal, and, if a hearing has been held, on the record before the hearing officer and the hearing officer's recommended decision. The Assistant Administrator or designee shall notify the appellant of the final decision and the reason(s) therefor in writing. The Assistant Administrator or designee's decision shall constitute final agency action for the purposes of the Administrative Procedure Act.

(f) Any time limit prescribed in or established under this section other than the 30 day limit for filing an appeal may be extended by the Assistant Administrator, designee, or hearing officer for good cause.

Appendix I: Coordinates for the Flower Garden Banks National Marine Sanctuary

East Flower Garden Bank

Point No.	Latitude	Longitude
E-1	27°52'52.13"	93°37'40.52"
E-2	27°53'33.81"	93°38'22.33"
E-3	27°55'13.31"	93°38'39.07"
E-4	27°57'30.14"	93°38'32.26"
E-5	27°58'27.79"	93°37'42.93"
E-6	27°59'00.29"	93°35'29.56"
E-7	27°58'59.23"	93°35'09.91"
E-8	27°55'20.23"	93°34'13.75"
E-9	27°54'03.35"	93°34'18.42"
E-10	27°53'25.95"	93°35'03.79"
E-11	27°52'51.14"	93°36'57.59"

West Flower Garden Bank

Point No.	Latitude	Longitude
W-1	27°49'09.24"	93°50'43.35"
W-2	27°50'10.23"	93°52'07.96"
W-3	27°51'13.14"	93°52'50.68"
W-4	27°51'31.24"	93°52'49.79"
W-5	27°52'49.55"	93°52'21.89"
W-6	27°54'59.08"	93°49'41.87"
W-7	27°54'57.08"	93°48'38.52"
W-8	27°54'33.46"	93°47'10.36"
W-9	27°54'13.51"	93°46'48.96"
W-10	27°53'37.67"	93°46'50.67"
W-11	27°52'56.44"	93°47'14.10"
W-12	27°50'38.31"	93°47'22.86"
W-13	27°49'11.23"	93°48'42.59"

Appendix II: Coordinates for the Department of the Interior Topographic Lease Stipulations for OCS Lease Sale 112

FLOWER GARDEN

Block A-
SE¼, SW¼;

S½, NE¼, SE¼; SE¼, NW¼, SE¼;
S½, SE¼;

Block A 367
W½, NW¼, SW¼; SW¼, W½, SW¼.

Block A-374
W½, NW¼, NW¼; W½, SW¼, NW¼;
SE¼, SW¼, NW¼;

SW¼, NE¼, SW¼; W½, SW¼;
W½, SE¼, SW¼; SE¼, SE¼, SW¼.

Block A-375
E½;

E½, NW¼, NW¼; SW¼, NW¼, NW¼;
E½, SW¼, NW¼; NW¼, SW¼, NW¼;

SW¼.

Block A-388
NE¼;

E½, NW¼; E½, NW¼, NW¼;
NE¼, SW¼, NW¼;

E½, SW¼; E½, NE¼, SW¼;
NW¼, NE¼, SW¼; NE¼, NW¼, SW¼;
NE¼, SE¼, SW¼;

NE¼, NE¼, SE¼; W½, NE¼, SE¼;
NW¼, SE¼; NW¼, SW¼, SE¼.

Block A-389
NE¼, NW¼; NW¼, NW¼; SW¼, NW¼;
NE¼, SE¼, NW¼; W½, SE¼, NW¼;

N½, NW¼, SW¼.

WEST FLOWER GARDEN

Block A-383
E½, SE¼, SE¼; SW, SE¼,SE¼.

Block A-384
W½, SW¼, NE¼; SE¼, SW¼, NE¼;
S½, SE¼, NE¼;

SE¼, NW¼;

E½, SW¼; E½, NW¼, SW¼;
SW¼, NW¼, SW¼; SW¼, SW¼;

SE¼.

Block A-385
SW¼, SW¼, NW¼;

NW¼, SW¼; NW¼, SW¼, SW¼.

Block A-397
W½, W½, NW¼;

W½, NW¼, SW¼; NW¼, SW¼, SW¼.

Block A-398
Entire block.

Block A-399
E½;

SE¼, NE¼, NW¼; E½, SE¼, NW¼;

E½, NE¼, SW¼; SW¼, NE¼, SW¼;
NE¼, SE¼, SW¼.

Block A-401
NE¼, NE¼; N½, NW¼, NE¼;
NE¼, SE¼, NE¼.

Block 134
That portion of the block north of a line connecting points 17 and 18, defined under the universal transverse mercator grid system as follows:
Point 17: X= 1,378,080.00'
Y=10,096,183.00'
Point 18: X= 1,376,079.41'
Y=10,096,183.00'

Block 135
That portion of the block northwest of a line connecting points 16 and 17, defined under the universal transverse mercator grid system as follows:
Point 16: X= 1,383,293.84'
Y=10,103,251.93'
Point 17: X= 1,378,080.00'
Y=10,096,183.00'

APPENDIX 2: LEGISLATIVE AUTHORITY FOR EXISTING MANAGEMENT JURISDICTION

APPENDIX 2: LEGISLATIVE AUTHORITY FOR EXISTING MANAGEMENT JURISDICTION

Major Legislative Authority for Existing Federal Management Jurisdiction in the Area of the Proposed Flower Garden Banks National Marine Sanctuary

This appendix is designed to provide reviewers additional information beyond that provided in the status quo section of the FEIS/MP (Part III, Section I) on existing Federal jurisdiction over activities conducted at the Flower Garden Banks. The appendix serves as a basic reference to the status quo (Part III, Section I) and environmental consequences (Part IV) sections of the FEIS/MP.

1. Magnuson Fishery Conservation and Management Act (MFCMA) (16 U.S.C. 1801 et seq.)

The MFCMA provides for the conservation and management of all fishery resources in the zone between 3 and 200 nautical miles (5.6-370 km) offshore. The National Marine Fisheries Service (NMFS), NOAA, of the Department of Commerce is charged with establishing guidelines for, and approving, fishery management plans (FMP's) prepared by Regional Fishery Management Councils for selected fisheries. These plans determine levels of commercial and sport fishing that are consistent with the goal of achieving and maintaining an optimum yield for each fishery. The Gulf of Mexico Fishery Management Council is responsible for preparing FMP's governing fisheries in the area of Flower Garden Banks. The MFCMA is enforced by the U.S. Coast Guard (USCG) and NMFS.

In July 1983, the Gulf of Mexico Fishery Management Council approved an FMP to protect the coral and coral reefs of the Gulf of Mexico and the South Atlantic. This FMP provides the primary basis for fishery management at the Flower Garden Banks. The final rules implementing the FMP were published on July 23, 1984 (49 FR 29607 (1984), codified at 50 CFR Part 638). These regulations establish management measures to be applied in coral habitat areas of particular concern (HAPC's) such as the Flower Gardens. The areas within the 50 fathom (300 foot) isobath surrounding the East and West Flower Garden Banks are established by the regulations as an HAPC. Within the HAPC, the following restrictions apply:

(1) Fishing for coral is prohibited except as authorized by scientific or educational permit; and

(2) Fishing with bottom longlines, traps, pots, and bottom trawls is prohibited.

(3) The use of toxic chemicals to take fish or other marine organisms is prohibited except as authorized by scientific or educational permit.

Another FMP that has some application to Flower Garden resources is the FMP for the reef fish resources of the Gulf of Mexico. The regulations implementing this FMP, 50 CFR Part 641, set bag and size limits, place restrictions on the use of certain types of fishing gear, and establish reporting and permit systems. They also prohibit the use of poisons and explosives to take reef fish; however, they allow powerheads to be used outside the stressed areas. They also prohibit vessels in the reef fish fishery from possessing on board any dynamite or similar explosive substance. Further, they establishes a stressed area in Gulf, where reef fish are subject to special management measures, and a longline and buoy gear restricted area. The Flower Garden Banks are not included in these areas.

2. Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.)

The ESA provides protection for listed species of plants and animals in the territorial sea and upon the high seas. The Fish and Wildlife Service (FWS), in the Department of the Interior, and NMFS determine which species need protection and maintain the lists of endangered and threatened species. The most significant protection provided by the ESA is the prohibition on taking. The term "take" is defined broadly to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct" (16 U.S.C. 1532(19)). The FWS regulations define the term "harm" to include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. The regulations define the term "harass" to mean "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering" (50 CFR 17.3).

The ESA also provides some protection to endangered species and their habitats from less direct threats. This is accomplished by means of a consultation process (known as section 7) designed to ensure that projects authorized, funded, or carried out by Federal agencies are not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary (of the Interior or Commerce, as the case may be) to be critical, unless an exemption is granted by a Cabinet-level committee set up for that purpose under the ESA (16 U.S.C. 1536). Critical habitat areas for endangered species are designated by the FWS or NMFS depending on the species.

3. Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361 et seq.)

The MMPA is designed to protect all species of marine mammals. Its provisions apply in the territorial sea and on the high seas. The MMPA establishes the Marine Mammal Commission, which advises the Fish and Wildlife Service and the National Marine Fisheries Service on marine mammal matters and sponsors relevant scientific research. The National Marine Fisheries Service is responsible for implementation of the MMPA's provisions with respect to cetaceans (whales, porpoises, dolphins), and pinnipeds other than sea lions and walruses. The Fish and Wildlife Service is responsible for all other marine mammals.

The primary management features of the MMPA include: 1) a moratorium on "taking" of marine mammals; 2) the development of management designed to achieve an "optimum sustainable population" (OSP) for all species or population stocks of marine mammals; and 3) protection of marine mammal populations determined to be "depleted."

The MMPA defines "take" broadly to include "harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal" (16 U.S.C. 1362(12)). The term "harass" has been interpreted to encompass acts which cause unintentional adverse effects on marine mammals, such as operation of motor boats in waters where marine mammals are found. The MMPA allows certain exceptions to the moratorium on taking. For example, to implement a recent MMPA amendment, the National Marine Fisheries Service issued in May 1989 an interim rule, providing a five-year exemption for certain incidental takings of marine mammals during commercial fishing operations.

The MMPA also directs officials to seek "an optimum sustainable population [of marine mammals]" (16 U.S.C. 1361(6)). Optimum sustainable population (OSP) is defined as, "with respect to any population stock, the number of animals which will result in the maximum productivity of the population or the species keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element" (16 U.S.C. 1362(8)).

Marine mammal species whose populations are determined to be "depleted" receive additional protection under the MMPA. With the exception of scientific research permits, no permits for taking depleted species may be issued. Species occurring within the area of the proposed Sanctuary which have been determined to be depleted include the humpback whale, fin whale, northern right whale, sei whale, and blue whale, based on their "endangered" status under the Endangered Species Act.

4. Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA) (33 U.S.C. 1251 et seq.)

The CWA establishes the basic scheme for restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters.

(a) Discharges in General

The CWA's chief mechanism for preventing or reducing water pollution is the National Pollutant Discharge Elimination System (NPDES), administered by EPA. Under the NPDES program, a permit is required for the discharge of pollutants from a point source into navigable waters of the U.S., the waters of the contiguous zone, or ocean waters. For example, an NPDES permit is required for discharges associated with oil and gas development pursuant to Federal (outer continental shelf) lease sales. EPA generally grants NPDES permits for offshore oil and gas activities based on published effluent limitation guidelines (40 CFR Part 435). Other conditions beyond these guidelines may, however, be imposed by the Regional Administrator on a case-by-case basis.

(b) Oil Pollution

The CWA prohibits the discharge of oil or hazardous substances in quantities that may be harmful to the public health or welfare or the environment, including but not limited to fish, shellfish, wildlife, and public and private property, shorelines and beaches: 1) into navigable waters of the U.S., adjoining shorelines, or into the waters of the contiguous zone, and 2) in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the U.S., except, in the case of such discharges into the waters of the contiguous zone or which may affect the above-mentioned natural resources, where permitted under the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships.

When harmful discharges do occur, the National Contingency Plan for the removal of oil and hazardous substances takes effect. The U.S. Coast Guard, in cooperation with EPA, administers the Plan, which establishes the organizational framework for clean-up, including of oil spills resulting from activities under the Outer Continental Shelf Lands Act. The National Contingency Plan is discussed in greater detail in the FEIS/MP in PART II, Section III, B. 3.

(c) Vessel Sewage

The CWA (33 U.S.C. 1322) requires vessels equipped with installed toilet facilities to contain operable and certified marine sanitation devices.

(d) Discharging Dredged or Fill Materials

Section 404 permits, issued by the Army Corps of Engineers and based on EPA-developed guidelines, are required prior to discharging dredged or fill materials within three nautical miles of shore.

5. The Rivers and Harbors Act (33 U.S.C. 401 et seq.)

Section 10 (33 U.S.C. 403) prohibits the unauthorized obstruction of navigable waters of the United States. The construction of any structure or any excavation or fill activity in the territorial sea or on the outer continental shelf is prohibited without a permit from the Army Corps of Engineers. Section 13 (33 U.S.C. 407) prohibits the discharge of refuse into navigable waters, but has been largely superseded by the CWA, discussed above.

6. Ports and Waterways Safety Act (PWSA) (33 U.S.C. 1231 et seq.)

The PWSA, as amended by the Port and Tanker Safety Act of 1978, is designed to promote navigation and vessel safety and the protection of the marine environment. The PWSA applies out to 200 nautical miles. The PWSA authorizes the U.S. Coast Guard (USCG) to establish vessel traffic services for ports, harbors, and other waters subject to congested vessel traffic or otherwise hazardous. Two such services are the Vessel Traffic Separation Scheme (VTSS) and designation of necessary fairways.

In addition to vessel traffic control, the USCG regulates other navigational and shipping activities and has promulgated numerous regulations relating to vessel design, construction, and operation designed to minimize the likelihood of accidents and to reduce vessel source pollution. The 1978 amendments to the PWSA establish a comprehensive program for regulating the design, construction, operation, equipping, and banning of all tankers using U.S. ports to transfer oil and hazardous materials. These requirements are, for the most part, in agreement with protocols (passed in 1978) to the International Convention for the Prevention of Pollution from Ships, 1973, and the International Convention on Safety of Life at Sea, 1974.

The USCG is also vested with the primary responsibility for maintaining boater safety, including the conduct of routine vessel inspections and coordination of rescue operations.

7. Outer Continental Shelf Lands Act (OCSLA) (43 U.S.C. 1331 et seq.)

The OCSLA, as amended in 1978 and 1985, establishes Federal jurisdiction over the mineral resources of the Outer Continental Shelf (OCS) beyond 3 nautical miles, and gives the Secretary of the Interior primary responsibility for managing OCS mineral exploration and development. The Secretary's responsibility has been delegated to the Minerals Management Service (MMS).

The MMS has overall responsibility for leasing OCS lands. In unique or special areas, MMS may impose special lease stipulations designed to protect specific geological and biological phenomena. These stipulations may vary among lease tracts and sales. As noted in the FEIS/MP (Part II, Section II, C. 1, Oil and Gas Activities) the MMS has established biological stipulations for tracts at, and adjacent to, the Flower Garden Banks.

The MMS is also charged with supervising OCS operations, including the approval of plans for exploratory drilling and applications for pipeline rights-of-way on the OCS. Several types of regulatory authority are used in carrying out its supervisory role. Such authority includes the enforcement of regulations made pursuant to the OCSLA (30 CFR Parts 250 and 256) and the enforcement of stipulations applicable to particular leases.

8. Title I of the Marine Protection, Research, and Sanctuaries Act (MPRSA) (33 U.S.C. 1401 et seq.)

The MPRSA, also known as the Ocean Dumping Act, prohibits: 1) any person from transporting, without a permit, from the U.S. any material for the purpose of dumping it into ocean waters (defined to mean those waters of the open seas lying seaward of the baseline from which the territorial sea is measured) and 2) in the case of a vessel or aircraft registered in the U.S. or flying the U.S. flag or in the case of a U.S. agency, any person from transporting, without a permit, from any location any material for the purpose of dumping it into the ocean waters. The MPRSA also prohibits any person from dumping, without a permit, into the territorial sea, or the 12-nautical-mile contiguous zone to the extent that it may affect the territorial sea or the territory of the U.S., any material transported from a location outside the United States. EPA regulates, through the issuance of permits, the transportation, for the purpose of dumping, and the dumping of all materials except dredged material; COE, the transportation, for the purpose of dumping, of dredged material.

9. Act to Prevent Pollution from Ships (APPS) (33 U.S.C. 1901 et seq.)

The International Convention for the Prevention of Pollution of the Sea by Oil, 1954; and the Oil Pollution Act of 1961 have been superseded by the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the related 1978 Protocol (MARPOL 73/78), and implemented in the United States by the Act to Prevent Pollution from Ships, 1980, as amended in 1982 and 1987 (APPS). APPS, in implementing Annex I of MARPOL 73/78, regulates the discharge of oil and oily mixtures from seagoing ships, including oil tankers. APPS, in implementing Annex II of MARPOL 73/78, regulates the discharge of noxious liquid substances from seagoing ships. Enforcement of APPS is the responsibility of the U.S. Coast Guard.

When more than 12 nautical miles from the nearest land, any discharge of oil or oily mixtures into the sea from a ship subject to APPS other an oil tanker or from machinery space bilges of an oil tanker subject to APPS is prohibited except when: 1) the oil or oily mixture does not originate from cargo pump room bilges; 2) the oil or oily mixture is not mixed with oil cargo residues; 3) the ship is not within a Special Area (the Flower Garden Banks are not a Special Area for purposes of APPS); 4) the ship is proceeding en route; 5) the oil content of the effluent without dilution is less than 100 parts per million; and 6) the ship has in operation oily-water separating equipment, a bilge monitor, bilge alarm or combination thereof. 33 CFR 151.10(a). The restrictions on discharges 12 nautical miles or less from the nearest land are more stringent. 33 CFR 151.10(b).

A tank vessel subject to APPS may not discharge an oily mixture into the sea from a cargo tank, slop tank or cargo pump bilge unless the vessel: 1) is more than 50 nautical miles from the nearest land; 2) is proceeding en route; 3) is discharging at an instantaneous rate of oil content not exceeding 60 liters per nautical mile; 4) is an existing vessel and the total quantity of oil discharged into the sea does not exceed 1/15000 of the total quantity of the cargo that the discharge formed a part (1/30000 for new vessels); 5) discharges, with certain exceptions, through the above waterline discharge point; 6) has in operation a cargo monitor and control system that is designed for use with the oily mixture being discharged; and 7) is outside the Special Areas. 33 CFR 157.37.

APPS is amended by the Marine Plastic Pollution Research and Control Act of 1987 (MPPRCA), which implements Annex V of MARPOL 73/78 in the U.S. The MPPRCA and implementing regulations at 33 CFR 151.51 to 151.77 apply to U.S. ships (except warships and ships owned or operated by the U.S.) everywhere, including recreational vessels, and to other ships subject to MARPOL 73/78

while in the navigable waters or the Exclusive Economic Zone of the U.S. They prohibit the discharge of plastic or garbage mixed with plastic into any waters and the discharge of dunnage, lining and packing materials that float within 25 nautical miles of the nearest land. Other unground garbage may be discharged beyond 12 nautical miles from the nearest land. Other garbage ground to less than one inch may be discharged beyond three nautical miles of the nearest land. Fixed and floating platforms and associated vessels are subject to more stringent restrictions. "Garbage" is defined as all kinds of victual, domestic and operational waste, excluding fresh fish and parts therof, generated during the normal operations of the ship and liable to be disposed of continuously or periodically, except dishwater, graywater and certain substances. 33 CFR 151.05.

10. Oil Pollution Act of 1990 (OPA) (P.L. 101-380)

The OPA addresses a wide range of problems associated with preventing, responding to, and paying for oil spills. It does so by creating a comprehensive regime for dealing with vessel and facility-caused oil pollution. The OPA provides for environmental safeguards in oil transportation greater than those existing before its passage by: setting new standards for vessel construction, crew licensing, and manning; providing for better contingency planning; enhancing Federal response capability; broadening enforcement authority; increasing penalties; and authorizing multi-agency research and development. A one billion dollar trust fund is available to cover clean-up costs and damages not compensated by the spiller.

Title I establishes liability and limits to liability.

Liability: Any party responsible for the discharge, or the substantial threat of discharge, of oil into navigable waters or adjoining shorelines or the Exclusive Economic Zone is liable for removal costs and damages. [§ 1002(a)]

Damages: Recoverable damages include damages for injury to natural resources, real or personal property, subsistence use, revenues, profits and earning capacity, public services, and the cost of assessing those damages. [§§ 1002(b), 1001(5)]

The measure of damages for natural resources is the cost of restoring, rehabilitating, replacing, or acquiring the equivalent; the diminution in value pending restoration; plus the reasonable cost of assessing damages. [§ 1006(d)(1)] NOAA has the responsibility of promulgating damage assessment regulations and following the regulations will create a rebuttable presumption in favor of a given assessment. [§ 1006(e)]

Sums recovered by a trustee for natural resource damages are retained in a revolving trust account to reimburse or pay costs incurred by the trustee with respect to those resources.

Title II makes numerous amendments to conform other Federal statutes, particularly section 311 of the Clean Water Act, to the provisions of the OPA.

Title III encourages the establishment of an international inventory of spill removal equipment and personnel and requires the Secretary of State to review relevant agreements and treaties with Canada.

Title IV, subpart A, Prevention, gives added responsibility to the Coast Guard regarding merchant marine personnel. It also imposes new requirements on the operation of oil tankers (double hulls on new vessels, and eventually on older vessels).

Title IV, subpart B, Removal, substantially amends subsection 311(c) of the Clean Water Act, requiring the Federal government to effectively ensure immediate removal from navigable waters or adjoining shorelines or the Exclusive Economic Zone of harmful quantities of oil or hazardous substances. [§ 4201(a)] It also requires a revision and republication of the National Contingency Plan within one year [§4201(c)] that will include, among other things, a fish and wildlife response plan developed in consultation with NOAA and the Fish and Wildlife Service. [§4201(b)]

Title IV, subpart C, Penalties and Miscellaneous, substantially alters and increases the penalties for illegal discharges and violations of regulations promulgated under the Clean Water Act.

Title V relates to Prince William Sound.

Title VI addresses the Oil Spill Liability Trust Fund.

Title VII creates an interagency committee to coordinate a program of oil pollution research and technology development and requires monitoring of long-term environmental effects of large oil spills.

Title VIII provides for improvements to the Tran-Alaska Pipeline System.

Title X addresses the Oil Spill Liability Trust Fund.

APPENDIX 3: ABBREVIATIONS

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bbls - barrels
BLM - Bureau of Land Management, Department of the Interior
C - Celsius
CFR - Code of Federal Regulations
CSA - Continental Shelf Associates
CWA - Clean Water Act
DEIS - Draft Environmental Impact Statement
DOS - Department of State
DOD - Department of Defense
DOI - Department of the Interior
EIS - Environmental Impact Statement
EPA - Environmental Protection Agency
F - Fahrenheit
F. - Family (biological classification)
FEIS -Final Environmental Impact Statement
FMP - Fishery Management Plan
ft - foot
HAPC -Habitat Area of Particular Concern
km - kilometer
LRA - List of Recommended Areas
m - meter
MMS - Minerals Management Service, Department of the Interior
MPRSA - Marine Protection, Research, and Sanctuaries Act of 1972
NAS - National Academy of Sciences
NEPA - National Environmental Policy Act
NMFS - National Marine Fisheries Service, NOAA, Department of Commerce
NOAA - National Oceanic and Atmospheric Administration, Department of Commerce
NOSIC - Naval Ocean Surveillance Information Center
NRP - National Research Plan (prepared by the MEMD)
OCS - outer continental shelf
ppt - parts per thousand
RFP - Request for Proposal
SEL - Site Evaluation List
sp. - species
SRP - Sanctuary Research Program
SRD - Sanctuaries and Reserves Division, Ocean and Coastal Resource Management, NOAA, Department of Commerce
USC - United States Code
USCG - United States Coast Guard

APPENDIX 4: COMMENTS AND RESPONSES

Appendix 4 includes the comments received on the Draft Environmental Impact Statement/Management Plan (DEIS/MP) prepared on the proposed Flower Garden Banks National Marine Sanctuary, and provides the National Oceanic and Atmospheric Administration's responses to these comments. Generally, the responses to comment are provided in one or a combination of forms:

1. Expansion, clarification of other revision of the DEIS/MP,

2. Generic Responses to comments raised by several reviewers, and/or

3. Brief responses to detailed comments received from each reviewer.

Written comments from individuals, organizations, State and local governments and Federal, State and local agencies are printed verbatim, and verbal comments, received at public hearings, have been summarized.

Eleven general issues were raised frequently by reviewers of the DEIS/MP. The responses to these issues are presented below. Commenters will be referred to these generic in the text.

AMERICAN LITTORAL SOCIETY

CORAL REEF CONSERVATION CENTER

For The Study and Conservation of Marine Life

75 VIRGINIA BEACH DRIVE • KEY BISCAYNE • MIAMI, FLORIDA 33149 • (305) 361-4495

April 19, 1989

Joseph A. Uravitch, Chief
OCRM - MEMD / NOAA
1825 Connecticut Ave., NW.
Washington, D.C. 20235

re: Flower Garden Banks National Marine Sanctuary
Review of DEIS / Draft Management Plan
subject: Need for Designation

Dear Mr. Uravitch:

The American Littoral Society strongly supports the designation of a Flower Garden Banks National Marine Sanctuary.

NOAA's resource inventory has revealed the Flower Garden Banks to be "unique among the banks of the northwestern Gulf of Mexico in that they bear the northernmost tropical Atlantic coral reefs on the continental shelf and support the most highly developed offshore hard-bank communities in the region." (DEIS, p. 16)

This same resource inventory finds that "the Flower Garden Banks harbor approximately 500 acres of submerged tropical coral reefs with 18 species of hermatypic (reef-building) corals. Cresting at approximately 50 feet below the water surface, the reefs extend downward to 150-foot depths...The two coral reef zones on the shallowest crests of the Flower Garden Banks have no counterparts on the 15 or so similar banks stretching eastward towards the Mississippi." (DEIS, p. 23)

The shallowest of the 2 coral reef zones mentioned above (the Diploria-Montastrea-Porites zone) is found at depths of 50 to 120 feet and is even more remarkable in that the coral reefs in that zone "are isolated from other reef systems by over 300 nautical miles and exist under hydrographic conditions generally considered marginal for tropical reef formation." (DEIS, p. 25)

We find that the resource assessment above clearly qualifies the Flower Garden Banks under 16 USC 1431 et seq. as a "discrete marine area of special national significance "(with) distinctive natural resources whose protection and beneficial use requires comprehensive planning and management (of its) conservation, recreational, ecological, research, educational and esthetic values."

The Flower Garden Banks clearly merit designation as a national marine sanctuary, with boundaries and regulations adequate to fulfill the protective intent of that designation.

Sincerely,

Alexander Stone

ALEXANDER STONE
Center Director

AS:hm

No response necessary.

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April 19, 1989

Joseph A. Uravitch, Chief
OCRM - MEMD / NOAA
1825 Connecticut Ave., NW.
Washington, D.C. 20235

re: Flower Garden Banks National Marine Sanctuary
Review of DEIS / Draft Management Plan
subject: Prohibited Activities (15 CFR 943.6)

Dear Mr. Uravitch:

The American Littoral Society strongly supports the designation of a Flower Garden Banks National Marine Sanctuary. To achieve the protective intent of that designation, we request the following improvements to the sanctuary's regulatory regime.

Anchoring by Vessels (15 CFR 943.6(a)(1)i,ii & iii)

NOAA has inarguably shown the need for anchoring restrictions to protect the Flower Garden Banks' coral reefs (DEIS, p. 44-46). NOAA has also documented that offshore platform service vessels traversing the area are 90 to 180 feet long (DEIS, p. 14).

1. The DEIS provides no evidence that the anchoring damage from a 90-foot vessel is materially different than the damage from a 100-foot vessel.

Therefore, we request that 15 CFR 943.6(a)(1)i, ii, and iii be changed to apply to vessels "greater than 90 feet in registered length," instead of the currently proposed 100-foot limit.

Altering the Seabed (15 CFR 943.6(a)(3))

The need for regulations to protect sanctuary resources from direct and indirect effects of seabed alteration is illustrated by the recent leasing of 42 "blocks" in the vicinity of the sanctuary for hydrocarbon exploration and development (DEIS, p. 36).

Most of the natural values meant to be protected by a sanctuary designation in this area are related to coral reef resources and their attendant reef fish communities. The potential impacts of hydrocarbon operations on these resources is very high.

The coral reefs of the Flower Garden Banks have already been declared a Habitat Area of Particular Concern by the Gulf of Mexico Fishery Management Council (DEIS, p. 8). More recently, the same Council's review of its Reef Fish Fishery Management Plan

1. Several of the excursion vessels that take divers to the Flower Garden reefs are between 90 and 100 feet in length. NOAA considers the passengers of these vessels to be legitimate users of the sanctuary. As NOAA has no evidence that the anchoring damage from a 100 foot vessel is materially different from that of a 90 foot vessel, NOAA reaffirms its decision to permit anchoring of 100 foot vessels subject to sanctuary regulations. See also Generic Responses E and F. Note that the sanctuary regulations have been revised to prohibit anchoring of vessels of less than or equal to 100 feet within an area of the sanctuary where a mooring buoy is available.

concluded that one of the "primary threats to (reef fish) offshore habitat comes from oil and gas development and production..." (GMFMC, p. 32-33, attached). The GMFMC's findings are incorporated to this review by reference.

2. These findings include "adverse effects on fish and other biota from the discharge of drilling muds, drill cuttings, and minor petroleum pollution due to washdown activities, effluent discharges and trash disposal." (GMFMC, attached). Given these findings, even "discharges authorized for routine operations" of offshore platforms (DEIS, p. 55) should be restricted.

NOAA finds that the Minerals Management Service has established biological lease stipulations to prevent damage to sensitive natural resources in the Flower Garden Banks area (DEIS, p. 74). However, NOAA has also found that "these stipulations may vary among lease tracts and sales." (DEIS, p. 136). Additionally, our inquiries have found that NOAA-HEMD staff does not know whether or under what conditions the Minerals Management Service could move to change and/or cancel such stipulations.

This highly uncertain situation cannot be considered to provide adequate assurance of protection for sensitive sanctuary resources. It is essential that NOAA codify an acceptable set of biological lease stipulations as specific sanctuary regulations.

NOAA has acknowledged the wisdom of such a sanctuary regulatory codification for "the existing situation on dredge disposal activities" (DEIS, p. 90). The same logic should apply to hydrocarbon development operations.

3. Therefore, we request that 15 CFR 943.6(a)(3) specifically incorporate and list out the biological lease stipulations listed on page 74 of the DEIS, preferably using the language appearing on DEIS pages 81-82 under Regulatory/Boundary Alternative 3.

4. Similarly, we request that 15 CFR 943.3 specifically incorporate and list out the "no activity zones" for hydrocarbon exploration appearing on DEIS Table 4 (DEIS, p. 75).

Activities Necessary for the National Defense
(15 CFR 943.6(a) and (b))

5. As proposed, NOAA's sanctuary regulations exempt the Department of Defense from any and all activity prohibitions, including large vessel anchoring and the detonation of explosives where "any activity necessary for the national defense" is involved.

Although the defense of the United States is unquestionably necessary, it is NOT unquestionably necessary to conduct training gunnery and other habitat-destructive operations in the sanctuary.

Therefore, we request that NOAA negotiate with DOD and incorporate into 15 CFR 943.6 appropriate restrictions on military training operations and their attendant vessel anchorings.

Sincerely,

Alexander Stone

ALEXANDER STONE
Center Director

AS:hm/enc.

2. NOAA has added a regulation, § 943.6, requiring shunting of drilling cuttings and drilling fluids to the seabed in areas where oil and gas activities are allowed, i.e., outside the no-activity zones. See also Generic Response D.

3. See Generic Response A.

4. NOAA has added the definition of the no-activity zones, formerly contained in § 943.6(a)(3), to the list of definitions in § 943.3. It thus becomes unnecessary to define these zones elsewhere in the regulations.

5. See Generic Response K.

6.3. Habitat Threats

Currently, the primary threat to offshore habitat comes from oil and gas development and production, offshore dumping, platform removals, and the discharge of contaminants by river systems, such as the Mississippi River, which empty into the Gulf of Mexico. The destruction of suitable reefs (natural and man-made) or other types of hard bottom areas also may prove deleterious to this fishery as most of the current data indicate an affinity for these habitats by reef fish (Starck, 1968; Bright and Pequegnat, 1974; Shinn, 1974; Gallaway et al., 1981; Gallaway and Lewbel, 1982; Huntsman and Waters, 1987). Natural impacts on reef habitat may arise from severe weather conditions such as hurricanes, red tide, and excessive freshwater discharge resulting from heavy rain. Human impacts on reef habitat result from activities such as pollution, dredging and treasure salvage, boat anchor damage, fishing and diving related perturbations, and petroleum hydrocarbons (Jaap, 1984). Ocean dumping and nutrient overenrichment also may cause local problems. An additional problem occurs in the northern Gulf, mainly off Louisiana, where large areas of oxygen depleted waters have been observed (Stuntz et al., 1982; Boesch, 1983; Renaud, 1986). The effect of this "hypoxia" is unknown.

Nearshore reefs, especially off Florida, may be impacted by coastal pollution such as sewage and non-point-source discharges, urban runoff, herbicides, and pesticides (Jaap, 1984). Residues of the organochlorine pesticides DDT, PCB, dieldrin, and endrin have been found in gag, red grouper, black grouper, and red snapper (Stout, 1980). Heavy metal accumulations in sediment and reef biota near population centers have been noted (Manker, 1975). Disposal of wastes has created local problems. Jaap (1984) reports of batteries and refuse disposed of on the reef flat at Carysfort Lighthouse in Florida. Juvenile snapper and grouper temporarily residing in estuaries may be adversely affected by coastal pollutants and alterations. The habitat section for the amended Red Drum FMP (NMFS, 1986) provides details on the value of estuaries and the impacts to them.

Dredging and salvaging near or on reefs is potentially the most damaging physical human activity. Dredge gear impacts reefs by dislodging corals and other organisms and by creating lesions or scars that lead to infection or mortality. Sedimentation from dredging may seriously damage reefs. Dredged sediments may be anaerobic and bind up available oxygen thereby stressing corals and other sessile reef organisms. If the organisms cannot purge the sediments deposited on them, they generally are killed. Silt generated by dredging may remain in the area for long periods and continue to impact reefs when suspended during storms. Reef habitat also may be removed by dredging for borrow materials and disposal on beaches and by dredging and filling associated with navigation channel construction and maintenance.

Anchor damage is a significant threat to reefs, especially those composed of corals. Anchors, ground tackle, lines, and chains can break hard and soft corals, scar reefs, and open lesions which can become infected. Heavy use of reef areas by boaters can compound the problem. Although anchoring by oil and gas lease operators is prohibited on most of the coral reefs in the Gulf of Mexico, anchoring for other purposes is not restricted. Fishing gear such as bottom trawls, bottom longlines, and traps also may damage reefs. Effects would be similar to anchor damage. Hook-and-line fishing and related losses of line, leaders, hooks, and sinkers also may damage corals. Disposal of garbage by boats has been identified as a problem at Pulaski Shoal near Dry Tortugas (Jaap, 1984).

Recreational spearfishing has damaged corals and may become more of a problem in areas of heavy diver concentration. Divers often illegally overturn corals and cause other damage. Specimen collecting also may result in localized reef damage, especially when chemical collecting agents are improperly used. Collecting corals and the use of chemicals are regulated under the Coral FMP (GMFMC and SAFMC, 1982). Although there are some potential positive aspects of existing operational platforms acting as artificial reefs, unfortunately, these positive aspects are

severely compromised due to adverse effects on fish and other biota from the discharge of drilling muds, drill cuttings, and minor petroleum pollution due to wash down activities, effluent discharges, and trash disposal. Malins (1982) reviewed laboratory experiments describing the deleterious effects of petroleum fractions on fish. Grizzle (1981) and Pierce et al., (1980) have documented that wild fish have been injured by petroleum pollutants. Grizzle (1983) suggested that larger liver weights in fish collected in the vicinity of production platforms versus control reefs could have been caused by increased toxicant levels near the platforms. He also suspected that severe gill lamella epithelium hyperplasia and edema in red snapper, vermilion snapper, wenchman, sash flounder, and creole fish were caused by toxicants near the platforms. These types of lesions are consistent with toxicosis and their prevalence and severity increased near drilling platforms. The kinds of effects listed above could result from typical daily activities at platforms. In addition, the possibility of major spills and/or well blowouts exists.

Extensive environmental impact statements were a prerequisite to the installation of offshore platforms. However, prior to 1986 no formal environmental monitoring of structure removals was required. The U.S. Department of Interior, Minerals Management Service (1987), estimates that there were 3,435 platforms in the federal outer continental shelf as of December, 1986 and predicts between 60 and 120 platforms will be removed annually for the next five years. The National Research Council (1985) estimates approximately 1,700 platforms will be removed between 1984 and 2000. The Council predicts about 100 to 130 removals annually between 1990 and 2000. This projection raises questions about the impacts of the potential loss of valuable habitat to a wide variety of marine life. Serious consideration should be given to research projects centered on assessing the importance of platforms to reef fish productivity.

Besides the loss of potential habitat, the removal of a platform often destroys the associated platform ecosystem where one exists. In addition to killing fish at a platform removal site, platform removal will result in dispersal of survivors. This would adversely affect some of the commercial and recreational fishermen that fish near platforms. For example, approximately 112 commercial snapper/grouper boats from Florida fish the platforms off Mississippi and Louisiana on a regular basis (Dimitroff, 1982). The removal of platforms in the Gulf of Mexico may reduce the catches of reef fish. Accordingly, new methodologies for platform removals aside from the standard use of bulk explosives should be devised.

6.4. Habitat Information Needs

The following research needs relative to reef fish habitat are provided so that state, federal, and private research efforts can

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April 19, 1989

Joseph A. Uravitch, Chief
OCRM - MEMD / NOAA
1825 Connecticut Ave., NW.
Washington, D.C. 20235

re: Flower Garden Banks National Marine Sanctuary
Review of DEIS / Draft Management Plan
subject: Sanctuary Boundaries

Dear Mr. Uravitch:

The American Littoral Society strongly supports the designation of a Flower Garden Banks National Marine Sanctuary. To achieve the protective intent of that designation, we request the adoption of Regulatory/Boundary Alternative 3 (DEIS, p. 81).

1. The preferred Regulatory/Boundary Alternative 1 (DEIS, p. 79-80) leaves sections of the sanctuary's coral reefs very exposed to the potential impacts of hydrocarbon operations. On the West Bank, this alternative allows as little as 1000 feet between the coral reefs and the boundary of the Mineral Management Service's No Activity Zone. On the East Bank, as little as 1300 feet is allowed between the reefs and potential siting of a hydrocarbon platform (DEIS, p. 80). These buffers cannot be considered to be adequate to safeguard sensitive coral reefs and their associated fish communities from the impacts of hydrocarbon operations.

Regulatory/Boundary Alternative 3 provides for an adequate buffer area around the core No Activity Zone.

2. NOAA states that such a boundary alternative would "add little substantive protection to that already provided by MMS stipulations" (DEIS, p. 83). However, it would codify the existing situation and assure NOAA of adequate future protection.

NOAA has acknowledged the wisdom of such a sanctuary regulatory codification for the "existing situation on dredge disposal activities" (DEIS, p. 90). The same logic should apply to hydrocarbon development operations and the establishment of sanctuary boundaries that provide an appropriate buffer between sanctuary resources and potential hydrocarbon impacts.

Sincerely,

Alexander Stone

ALEXANDER STONE
Center Director

AS:hm/enc.

1. The DEIS states (p. 80) that there is 1000 feet on the west bank and 1300 feet on the east bank between the coral reefs and the 100 meter isobaths (not the no-activity zone boundaries). The 100 meter isobaths at their closest to the reefs are well inside the no-activity zone on the west bank and just inside the no-activity zone on the east bank. NOAA considers these distances to provide adequate buffer zones to safeguard the reefs.

2. See Generic Response A.

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April 19, 1989

Joseph A. Uravitch, Chief
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1825 Connecticut Ave., NW.
Washington, D.C. 20235

re: Flower Garden Banks National Marine Sanctuary
Review of DEIS / Draft Management Plan
subject: Interpretation and Education Plan

Dear Mr. Uravitch:

The American Littoral Society strongly supports the designation of a Flower Garden Banks National Marine Sanctuary. To achieve the protective intent of such a designation, we request a total redrafting of NOAA's plans for interpretation and education.

In the particular case of the Flower Garden Banks National Marine Sanctuary, "interpretation" must be strategically redefined and implemented as a resource protection tactic and NOT as the "soft" public education activity envisioned by NOAA. (DEIS, p. 11)

1. The primary target audience of such a redefined interpretation plan must be the potential impactor-users of the sanctuary and NOT the more general "individuals, schools and interested groups" being targeted by NOAA. (DEIS, p. 91)

Interpretation as a Resource Protection Strategy

NOAA acknowledges that "neither NOAA nor the U.S. Coast Guard has the resources to conduct systematic surveillance and enforcement operations to ensure compliance... Because of the remoteness of the site, compliance with regulations is dependent more than usual on effective information transfer, coupled with good will of users. Emphasis must therefore be placed on information development and dissemination." (DEIS, p. 58-59)

This self-assessment clearly calls for proactive information transfer aimed at identified major impactor-user groups and implemented at the locations where these groups can be reached.

Targeting the Primary Impactor-User Groups

The primary impactor-user groups are NOT the recreational "visitors to the site, visitors to information centers (or) interested groups not visiting the site of the centers." that NOAA sees as the appropriate interpretation audiences. (DEIS, p. 65)

1. See Generic Response J.

2. It is imperative that NOAA focus its information transfer efforts on the groups NOAA itself has identified as the sanctuary's primary users and/or potential impactors: the commercial fishermen coming primarily from Pensacola, Florida (DEIS, p. 40), the general shipping traffic using nearby vessel fairways primarily headed to or from Corpus Christi, Texas (DEIS, p. 44), and the offshore hydrocarbon platform working crews and service vessels coming primarily from Morgan City, Louisiana (DEIS, p. 14).

3. Additionally, NOAA's total dependence on Coast Guard and Minerals Management Service personnel for surveillance activities mandates that proactive and ongoing information transfer be aimed at those agencies' constantly changing and uninformed personnel.

Appropriate Siting for Interpretation Activities

Information transfer and interpretation for the sanctuary's primary user-impactor groups can not be accomplished through the passive intaking of visitors to information centers sited at parks and museums, as envisioned by NOAA. (DEIS, p. 66)

4. To be effective and to reach the right target groups, interpretation at this sanctuary must be primarily a proactive outreach activity designed to reach the groups identified above on site in Corpus Christi, Morgan City, Pensacola and to a lesser extent some other ports identified by NOAA. (DEIS, p. 14)

This outreach can be accomplished by a formal program of sanctuary staff travel, communications with user industry associations, sanctuary staff and information display siting at those locations, and/or contract services provided through non-governmental organizations (NGOs), consultants or educational centers.

Redefining Sanctuary Staff Roles

5. This proactive interpretation and information transfer strategy requires restructuring of the sanctuary staff's roles and activities. Until additional funding and staffing is achieved, the sanctuary manager and assistant manager must take on the tasks and travel necessary to achieve information transfer to the sanctuary's primary user-impactor groups. This is justifiable, given that (1) NOAA's management plan for the sanctuary doesn't envision surveillance/patrolling duties for the staff, (2) personnel management needs will be minimal, and (3) research administration cannot logically take up most of the sanctuary manager's time.

Adequate Funding Priority for Intepretation

6. Currently, NOAA has allocated for interpretation an inadequate 5% of the first year's sanctuary budget and 8% of the second year's budget for a "grand" two-year total of $19,000. (Designation Prospectus, p. 33-34) In line with the above restructuring of the interpretation program, funding must be realigned.

Sincerely,

Alexander Stone

ALEXANDER STONE
Center Director

AS:hm

2. See Generic Response J.

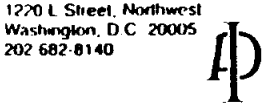
3. NOAA fully intends to keep personnel from other agencies informed about matters that may assist them in developing surveillance information for the enforcement of sanctuary regulations.

4. See Generic Response J.

5. See Generic Response J.

6. See Generic Response J.

American Petroleum Institute
1220 L Street, Northwest
Washington, D.C. 20005
202 682-8140



C. I. Sawyer
Vice President

April 25, 1989

Mr. Joseph A. Uravitch
Chief, Marine and Estuarine Management Division
Offices of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration
1825 Connecticut Avenue, N.W.
Washington, D.C. 20235

Re: Flower Garden Banks National Marine Sanctuary,
54 Fed. Reg. 7953, February 24, 1989

Dear Mr. Uravitch:

The American Petroleum Institute (API) welcomes this opportunity to comment on the proposed regulations implementing the Flower Garden Banks National Marine Sanctuary. API is a petroleum industry trade association representing more than 200 companies, many of which are engaged in oil and gas leasing and development operations in the Gulf of Mexico. The designation of the Flower Garden Banks as a national marine sanctuary and the regulations proposed by the National Oceanic and Atmospheric Administration (NOAA) for the implementation of the sanctuary are of great interest to our members.

API commends NOAA for the agency's concern that the regulations proposed for the implementation of the Flower Garden Banks Sanctuary do not unnecessarily interfere with oil and gas activities that are located near the sanctuary. However, API believes that the regulations, as proposed, are not sufficiently clear or precise so as to ensure that oil and gas operations in the Gulf of Mexico are not unduly restricted. Therefore, API submits the following comments.

A. Proposed Sanctuary Boundaries

Under Section 943.3 of the proposed regulations, the sanctuary consists of two areas of marine waters located 110 nautical miles southeast of Galveston, Texas. The boundaries include the "no activity zone" established by the Department of Interior over the East and West Flower Garden Banks. From the draft environmental impact statement/management plan for the sanctuary, it appears that the sanctuary boundaries have been "rounded out" to facilitate identification of the sanctuary.
API is concerned that these "rounded out" boundaries could have

an adverse impact on oil and gas activities in the area. Therefore, API recommends that NOAA:

1. 1) Make the boundaries of the sanctuary identical to the boundaries of the current no activity zone, or

   2) Exempt oil and gas operations from the various prohibitions listed under Section 943.6(a) of the regulations if these activities take place outside the current no activity zone.

B. Proposed Prohibition on Deposits or Discharges of Materials and Substances Outside the Sanctuary

2. Under Section 943.6(a)(2)(ii) of the proposed regulations, NOAA has banned the deposit or discharge of materials or substances of any kind from any location beyond the boundaries of the sanctuary which may enter the sanctuary and injure a sanctuary resource. However, the draft environmental impact statement prepared for the Flower Garden Banks Sanctuary clearly points out that stipulations found in current oil and gas leases are sufficient to protect the sanctuary from any potential damage. Since current restrictions provide adequate protection, API believes that the no discharge prohibition should specifically exempt oil and gas operations.

Sincerely,

1. See Generic Response C.

2. See Generic Response B.

ANADARKO PETROLEUM CORPORATION 1880 GREENSPOINT PARK DRIVE • HOUSTON TEXAS 77060 • 713/875 0858

Anadarko

April 20, 1989

Marine and Estvarine
Management Division
Office of Ocean and Coastal
Resource Management
National Ocean Service/NOAA
1825 Connecticut Ave., N.W.
Washington, D.C. 20235

Attn: Messrs. Joseph A. Urovitch, Chief
Rafael V. Lopez, Regional Manager

Anadarko Petroleum Corporation is very interested in NOAA's efforts to establish the Flower Garden Banks as a national Marine Sanctuary. As you are aware, Anadarko has operated an oil and gas production platform on Block A-376 since the early eighties. We have reviewed the draft Environmental Impact Statement/Draft Management Plan and support the Section II, Alternative 1 proposal.

We believe that oil and gas production operations such as ours have proven that oil and gas activities can be harmoniously conducted within the Sanctuary's boundaries. Anadarko supports the prohibition of oil and gas activities within the "No Activity Zone" as it does the other prohibited activities listed under Section II Regulatory/Boundary Alternative 1 in order to protect the natural beauty of the Flower Gardens. Further, we believe that the Minerals Management Service and Coast Guard guidelines presently in place provide substantial protection for the Banks and that the other proposed alternatives would add very little substantive protection for the Flower Gardens.

Should you wish to discuss our views further, please contact the undersigned at (713) 875-0858.

Sincerely,

Paul Lankford
Coordinator of Regulatory
Affairs and Safety

PFL/ncl
PLNOSLE

cc: Mr. David Cottingham
Director, Office of Ecology
and Conservation
U.S. Dept. of Commerce, Rm. 6222
Washington, D.C. 20230

No response necessary. See also Part III, Additional Comments At Public Hearings.

Center for Marine Conservation
Formerly Center for Environmental Education

4/6/89

Ralph Lopez
National Marine Sanctuary Program
Marine and Estuarine Management Division
National Ocean Service
National Oceanic and Atmospheric Administration
1825 Connecticut Avenue, N.W.
Washington, DC 20235

Dear Mr. Lopez:

Please find enclosed the Center's written comments regarding the proposed designation and DEIS for the Flower Garden Banks National Marine Sanctuary.

1. Thank your for your consideration of our views. We strongly support the sanctuary, but feel that Alternative 3 provides the minimum protection necessary to adequately protect the nationally significant resources of this spectacular site.

Sincerely,

Jack Sobel
Director, Marine Protected Areas

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1. See Generic Response A.

1725 DeSales Street NW Washington DC 20036 (202) 429-5609 Telefax (202) 872-0619

Center for Marine Conservation

Formerly Center for Environmental Education Est. 1972

CMC TESTIMONY ON DEIS FOR FLOWER GARDEN BANKS NMS

The Center for Marine Conservation strongly supports the designation of Flower Garden Banks as a National Marine Sanctuary. We are pleased to see that action is finally being taken to designate this worthy site following more than ten years of consideration. The presence of the northernmost and best developed living coral reefs on the U.S. Gulf Coast, and the only known oceanic brine-seep community in continental shelf waters of the Atlantic Ocean, certainly merit sanctuary status for this outstanding site. We applaud the decision to include this site in the program due to these significant national treasures.

Although we agree that the resources of Flower Garden Banks are indeed worthy of the protection that can be afforded only through the National Marine Sanctuary Program, we are convinced that the preferred alternative outlined in the DEIS does not properly safeguard these resources. NOAA claims to have analyzed the institutional, boundary, regulatory, and management alternatives in terms of achieving optimum protection of the ecosystem. Such consideration for environmental protection is consistent with the sanctuary program's primary objective of protecting the nationally significant resources that qualify a site for inclusion in the program. Unfortunately, NOAA's preferred alternative is not compatible with the program's Congressionally-mandated priority of protecting these resources.

2. We believe that had NOAA analyzed the alternatives in terms of achieving optimum protection of the Flower Garden Banks ecosystem , Regulatory/Boundary Alternative 3 would have been selected as the preferred alternative. We strongly support this alternative over Regulatory/Boundary Alternative 1 which NOAA selected as its preferred alternative in the DEIS and urge NOAA to adopt it as the preferred alternative in the FEIS. Such action would ensure the adequate and comprehensive protection that this important area deserves. Failure to take this action would be inconsistent with the primary objective of the sanctuary program to protect nationally significant marine areas and with President Bush's stated concerns for protecting sensitive marine areas.

Alternative 3 would create a 259 square nautical mile sanctuary extending four nautical miles around the banks and would include two regulatory zones. Under this alternative, a core zone consisting of the Mineral Management Service's (MMS)

3. no-activity zone would be surrounded by a buffer zone. The same regulations would apply to the core zone as under Alternative 1 with the addition that oil and gas exploration would be specifically prohibited. Hydrocarbon exploration and development would be allowed in the buffer zone subject to applicable

1725 DeSales Street NW Washington DC 20036 (202) 429 5609 Telefax (202) 872-0619

2. See Generic Response A.

3. This specific prohibition of oil and gas operations within the no-activity zones has been incorporated into sanctuary regulations. See Generic Response A.

regulations. Sanctuary regulations would further require hydrocarbon activities in the buffer zone to shunt cuttings and drilling muds to within 10 meters of the bottom, to receive a finding from the Assistant Administrator that bulk discharges will not significantly impact sanctuary resources, and to obtain certification from the Assistant Administrator that discharges will be adequately monitored.

Alternative 3 would guarantee the long-term comprehensive protection of the Flower Garden Banks ecosystem. NOAA recognized this in 1980 when it selected an essentially identical plan as the preferred alternative for Flower Garden Banks. We do not know of any new information that has surfaced since that time to invalidate that selection. In fact, additional information that has surfaced since 1980 supports the need for the type of regulatory regime provided by Alternative 3.

4. NOAA cites two arguments against making Alternative 3 the preferred alternative. First, NOAA argues that the additional regulations add little protection to that already provided by the MMS stipulation on current oil leases. The regulations are indeed very similar to and compatible with the MMS stipulation. MMS stated in its FEIS on lease sales 113, 115, and 116, "The stipulation would prevent damage to the biota of the banks from the routine oil and gas activities resulting from the proposal. Furthermore, oil and gas resources present near such areas could be recovered." If this assessment is correct, it seems reasonable to permanently provide similar protection for the banks. However, the stipulations do not provide permanent protection. They are applied on a lease by lease basis. Permanent protection is essential for nationally significant sanctuary resources such as Flower Garden Banks and would be provided by Alternative 3.

5. The only additional oil and gas requirements contained in Alternative 3 that are not in the stipulation are the finding by the Assistant Adminsistrator that discharges will not result in significant impact to sanctuary resources and the certification by the Assistant Administrator that discharges are adequately monitored. These additional requirements are minor and necessitated by the fragile and sensitive nature of coral reefs and by the uncertainty concerning the effects of oil and gas activities on them. Although a 1983 National Research Council study found that discharges have minimal impact except on the immediate environment, more recent studies, including a 1985 EPA study not mentioned in the DEIS, have shown considerable impacts on benthic communities several miles away. The monitoring of effects certainly fits well within both the research and protection objectives of the program.

6. The most disturbing aspect of NOAA's approach to oil and gas regulations is their complete deference to MMS on these matters. This deference is troubling because of the divergent missions of MMS with respect to oil and gas development and NOAA with respect to the marine sanctuary program. MMS is charged with fostering

4. See Generic Response A.

5. NOAA intends to address the issue of monitoring the effects of oil and gas on sanctuary resources as part of sanctuary research. See also Generic Response A.

6. The proposed regulations were intended to have the effect of making permanent the protection provided to the Flower Gardens on a lease-by-lease basis by the MMS stipulations. These sanctuary regulatory provisions have been strengthened. See Generic Response A.

offshore oil and gas development. With regards to the sanctuary program, NOAA's primary responsibility is to protect sanctuary resources. Therefore, it is incumbent upon NOAA to independently evaluate oil and gas regulations as they relate to protection of sanctuary resources. Unlike MMS, NOAA's evaluation should be based solely on resource protection. We do not believe that such an evaluation was performed in the DEIS. Furthermore, the present MMS regulatory regime applicable to Flower Garden Banks was not described in enough detail to allow a decision maker to make an informed decision regarding alternatives. 7.

Even MMS recognized in its FEIS that, "the stipulation would not protect the banks from the effects of an accident, such as a large blowout on a nearby oil or gas operation." NOAA did not address the possibility of such an accident or the potential effects of such an accident on sanctuary resources. Recent events in Alaska demonstrate that accidents do happen! While they may not be entirely preventable, accidents should not be ignored. More predictable threats to sanctuary resources, such as those posed by routine oil and gas operations, deserve even greater attention. The regulations proposed in Alternative 3 are a reasonable, moderate approach that would allow recovery of oil and gas from the area while providing some protection for the Flower Garden Banks ecosystem. The degree of protection afforded under Alternative 3 is the minimum amount that should be considered acceptable for a sanctuary. 8.

The second argument made by NOAA against Alternative 3 is that the larger boundaries would somehow contradict the goal of the program to designate discrete areas of special national significance to promote effective conservation of their resources. Although NOAA does not state how the larger boundaries would contradict this goal, the implication seems to be that such a sanctuary would not be a discrete area. However, it is not clear how NOAA made this determination. The area within the boundaries specified in Alternative 3 does not seem any more or less distinct than those specified in Alternative 1. 9.

Furthermore, the goal of promoting effective conservation is better served by the inclusion of the buffer area. If NOAA's argument is that the inclusion of a deepwater area surrounding a shallow water feature makes the area less discrete, this is inconsistent with their recent decision to include such a deepwater area in the preferred alternative for the Cordell Bank Sanctuary. 10. 11.

In summary, we strongly support the decision to finally designate Flower Garden Banks as a national marine sanctuary. The richness and diversity of the area certainly merit the comprehensive management and increased protection that designation will bring. However, we feel that the primary goal of the program to promote effective conservation of a sanctuary's nationally significant resources would be better served via Alternative 3. Therefore, we urge NOAA to select Alternative 3 as the preferred alternative.

7. The MMS regulatory regime is described in considerable detail in the DEIS/MP, p. 74. The regulatory regime at the Flower Gardens is based on the MMS Topographic Features Stipulation for the Western Planning Area. In its application to the Flower Gardens, the stipulation reads as follows: "No activity including structures, drilling rigs, pipelines, or anchoring will be allowed within the listed isobath ('No Activity Zone') of the banks as listed above. Operations within the area shown as '1 Mile Zone' shall be restricted by shunting all drill cuttings and drilling fluids to the bottom through a downpipe that terminates an appropriate distance, but no more than 10 meters, from the bottom." The listed isobath for the Flower Gardens is the 100 meter isobath as defined by ¼ ¼ ¼ system, and the shunting requirement applies in a 4 mile zone instead of a 1 mile zone.

8. The DEIS/MP contained brief references to the rarity of blowouts, their possible impacts, and the improbability of a seafloor spill's impinging on Flower Garden resources (pp. 93-94) (see also Generic Response D). This discussion has been expanded in the FEIS/MP.

9. The bottom area of the Flower Garden reefs and nearby bank surfaces are markedly distinct from the undifferentiated soft-bottom areas of the surrounding continental shelf. NOAA is unaware of any distinctive natural resources in these zones that warrant protection by the National Marine Sanctuary Program.

10. See Generic Response A.

11. NOAA finds little similarity between the circumstances at Cordell Bank and at the Flower Gardens. A large deepwater area was included in the Cordell Bank National Marine Sanctuary to reduce the threat of pollutant discharges in this area that could be carried to the resources at the higher levels of Cordell Bank by upwelling, to protect habitat and foraging area used by marine mammals and birds, and to facilitate management by making the boundaries of the Cordell Bank and Gulf of the Farallones sanctuaries more fully contiguous. There are no comparable factors - upwelling to transport pollutants, significant marine mammal and bird populations, or opportunities to combine sanctuary management resources - to be considered at the Flower Gardens.

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GREENPEACE

Greenpeace USA • 1436 U Street NW • Washington DC 20009 • Tel (202) 462 1177
Tlx 89 2359 • Fax (202) 462 4507

19 April 1989

Mr. Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, NW
Washington, DC 20235

Re: Comments on the Flower Garden Banks National Marine Sanctuary Draft Environmental Impact Statement/Management Plan

Dear Mr. Uravitch,

Greenpeace firmly supports the decision to finally designate the East and West Flower Garden Banks as a National Marine Sanctuary. These biologically rich and unique coral reef ecosystems are a national treasure which deserve the highest degree of protection.

We continue to be disappointed, however, by NOAA's capitulation to MMS and the offshore oil industry. We have seen no evidence that coral reefs and offshore oil development are compatible, in fact we have seen considerable evidence to indicate that they are not. For instance, every time an offshore well is drilled, an average of 1,500 to 2,000 tons of drilling fluids (which lubricate the drill bit and maintain down-hole pressure) and drill cuttings (pieces of rock ground by the drill bit) are discharged into the ocean. This constitutes an enormous quantity of drilling discharges. Research has shown that components of drilling fluids are highly toxic to marine organisms generally and that coral reef ecosystems are composed of extremely sensitive marine organisms. Greenpeace firmly believes that exceptions for resource protection should not be made for oil exploration and development. 1.

We have read the testimony of the Center for Marine Conservation, presented on 30 March 1989 in Houston Texas, and although we believe that they understate the case, the points they raise are well made and need not be repeated here. We concur that Boundary Alternative 3 is the preferred alternative, and the only one that offers any hope of protecting the Flower Gardens. 2.

1. See Generic Response D.

2. See Generic Response A.

Although the DEIS states that vessel anchoring is considered the most important provision in the proposed regulations for the protection of sanctuary resources, it is not clear how the marine sanctuary program plans on implementing this regulation. Therefore Greenpeace would like to offer the following suggestions.

The international regulations which govern the safety of navigation at sea (the Convention on the International Regulation for Preventing Collisions at Sea, 1972, and the International Convention for the Safety of Life at Sea, 1974), also include provisions which are being used for the protection of specific environmentally sensitive sea areas through the establishment of ship routing measures.

One of these provisions is the designation of an area such as the Flower Garden Banks as an "Area to be Avoided" by ships. There are several examples of where this has already been used to achieve protection for coral reefs. Part of the Great Barrier Reef in Australia and part of the reef track of Bermuda have been designated as Areas to be Avoided, as well as an area north-west of the Hawaiian Islands.

A decision to designate the Flower Garden Banks as an Area to be Avoided must be taken by the International Maritime Organization (IMO). The Organization is currently discussing how to better use existing IMO regulations for the environmental protection of specific sea areas. A draft manual discussing criteria for "Particularly Sensitive Sea Area" status is on the agenda for the next meeting. This manual is aimed at making further improvements in the protection offered to specific, relatively small, sensitive sea areas from damage by ships.

3.

A proposal to designate the Flower Garden Banks as an Area to be Avoided would have to be submitted by the Government of the United States, and NOAA's work on this proposal would have to be coordinated with the US Coast Guard.

The following criteria must be discussed in the proposal:
(a) the ecological sensitivity of the area;
(b) the shipping patterns in the area which can cause damage to the reef;
(c) the scientific value of the area; and
(d) the importance to fisheries.

We believe this course of action would help with notification to foreign vessels of the anchoring problems associated with the Flower Garden Banks, as well as providing a buffer against the discharge of sewage and other matter from ships in the vicinity of the Marine Sanctuary.

3. See Generic Response F.

In summary, Greenpeace fully supports the designation of the East and West Flower Garden Banks as a National Marine Sanctuary; we recommend that Boundary Alternative 3 be considered the preferred alternative; we further recommend that resource protection take precedence over oil and gas exploration and development; and, that a recommendation be made to the IMO that the Flower Garden Banks be designated as an Area to be Avoided by ships.

Thank you for the opportunity to comment on this important matter.

Sincerely,

Lynn Davidson,
Marine Habitat
Policy Coordinator

PENNZOIL EXPLORATION AND PRODUCTION COMPANY
U S OFFSHORE DIVISION • PENNZOIL PLACE • P.O. BOX 2967 • HOUSTON, TEXAS 77252-2967 • (713) 546-4000

April 24, 1989

Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration
1825 Connecticut Avenue, NW
Washington, DC 20235

RE: Proposal
Flower Garden Banks National Marine Sanctuary Regulations
54 FR 7953 (February 24, 1989)

Dear Mr. Uravitch:

Pennzoil Company is a natural resources company engaged through its subsidiaries in the exploration, production, refining and sales of petroleum products, and in the mining and sales of sulphur. Pennzoil through its subsidiary, Pennzoil Exploration and Production Company (PEPCO), engages in oil and gas exploration and development operations on U.S. leases in the Gulf of Mexico. One of these leases is in the vicinity of the proposed Flower Garden Banks National Marine Sanctuary. Because of this proximity, we appreciate the opportunity to comment on the National Oceanic and Atmospheric Administration (NOAA) proposed regulations designating the Flower Garden Banks a marine sanctuary.

We agree with NOAA that delicate environmental areas such as the Flower Garden Banks should be protected to maintain the value of the area's resources. We also agree that activities that could injure the Sanctuary should be prohibited. We believe that the no discharge prohibition for facilities in or outside the Sanctuary included in this regulation needs to be changed to specifically exempt oil and gas operations. Our comments will center on this issue.

No Discharge Prohibition

In the proposal, NOAA bans certain activities inside the boundaries of the Sanctuary. Section 943.6(a)(ii) specifically prohibits the discharge of any material or substance within boundaries of the Sanctuary. In addition, it prohibits the discharge from outside the boundaries of any material or substance that would enter the Sanctuary and injure a resource therein. We believe that normal discharges from oil and gas operations both inside and outside the Sanctuary should be

exempted from this prohibition because current rules and regulations provide adequate protection to the marine environment including the Sanctuary.

Under the Minerals Management Service (MMS) lease sale notice for areas around the Sanctuary, all operators of offshore oil and gas leases must shunt their drill cuttings and drilling fluids discharges to a depth of no more than ten meters from the ocean floor (52 FR 7549, March 11, 1987). Any material discharged at the depth required by shunting remains at this depth, and cannot rise up to the shallower area of the reefs, due to the phenomenon known as the nepheloid layer or, more commonly, the bottom boundary layer. A report by Texas A&M University demonstrates this point:

> Water and sediment dynamics studies indicate that water flows around topographic prominences on the seafloor rather than flowing upslope and over the crest of the prominence. In terms of sediments or pollutants of any kind entrained in the nepheloid layer which exists around the bases of many high relief banks, it is physically impossible to transport sediment to the crest of the reef or bank. This conclusion is supported by both geological and biological evidence. No clay minerals have been found in sediments collected from depths shallower than 70 m at the Flower Garden Banks, and only traces have been found at depths of 80 to 85 m.[1]

The MMS shunting requirements were obviously designed with the intent to prevent the discharges from presenting a problem. Consequently, these current requirements provide sufficient protection for the Sanctuary from any potential damage regardless of the location of the discharge.

Conclusion

We believe that current MMS requirements specifically tailored for the Flower Garden Banks provide adequate protection from any adverse impacts of oil and gas discharges, such that that NOAA should specifically exempt oil and gas operations from

1. **See Generic Response B.**

the no discharge prohibition. Alternatively, NOAA could simply incorporate into its own regulations the same shunting and no activity requirements imposed by the MMS.

[1] Texas A&M University. Reefs and Banks of the Northwestern Gulf of Mexico: Their Geological, Biological, and Physical Dynamics. Final Report, no. 83-1-T. 1983, page 4.

Very truly yours,

Ronald L. Lewis, Ph.D.
U.S. Offshore Division Manager

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE OKLAHOMA 74004 918 661-6600

EXPLORATION AND PRODUCTION GROUP

April 25, 1989

15 CFR Part 943
Docket No. 80851-8151
Flower Garden Banks National
Marine Sanctuary

Joseph A. Uravitch
Chief, Marine and Estuarine
Management Division
Office of Ocean and Coastal Resource
Management
National Ocean Service
National Oceanic and Atmospheric
Administration
1825 Connecticut Avenue, N.W.
Washington, D.C. 20235

Dear Sir:

Phillips Petroleum Company appreciates the opportunity to comment on the proposed rules in 15 CFR Part 943 pertaining to the Flower Garden Banks National Marine Sanctuary.

Phillips acquired leases on Blocks 366 and 367 in OCS Lease Sale 84 in 1984 which are in the immediate vicinity of the designated sanctuary. In fact, Alternative Boundary 1, the preferred alternative in the proposed rules, encompasses approximately the southern one-third of Block 366 and the southwest one-eighth of Block 367. We agree with the selection of Alternative Boundary 1 as preferable and the finding that Alternative Boundary 3 would be unsatisfactory.

In the proposed rules, we refer to Section 943.6 Prohibited activities (a) (6) Explosives, Electrical Charges and Toxins. This section prohibits the detonation of explosives or the release of electrical charges within the Sanctuary. We would ask you to consider adding to this section a specific exemption for the use of air guns in the acquisition of seismic data. We, and others, have acquired seismic data by this method on Blocks 366 and 367 and seek to acquire additional such data as part of our exploration program.

1.

1. NOAA has no intention of regulating the use of air guns in seismic surveys at the present time. This activity has been listed for regulation, however, so that if the use of air guns is later demonstrated to have an adverse impact on sanctuary resources, additional regulations can be proposed. If such regulations are eventually proposed, the public will have an opportunity to comment on them at that time.

We are, of course, aware of the stipulation attached to our leases by the Minerals Management Service which bans development drilling in the "no-activity zones" surrounding the Banks. The prohibition on drilling in no way diminishes the value of seismic data we seek to obtain in the portions of our lease blocks which would become part of the proposed Sanctuary. Our goal is to understand the geology of the blocks as thoroughly as possible in our attempt to locate new petroleum reserves.

Thank you for your consideration of this request.

Sincerely,

Susan J. Robb

Susan J. Robb
Staff Director, Legislative & Regulatory Affairs

SJR/te

seaspace

HOUSTON UNDERWATER CLUB

April 21, 1989

COPY

Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, D.C. 20235

RE: Flower Garden Banks National Marine Sanctuary

Dear Mr. Uravitch,

The Houston Underwater Club is delighted to hear that the Flower Garden Banks will be designated a National Marine Sanctuary no later than September of this year. I am writing to repeat the concerns expressed by members of the diving community at the Houston public hearing.

1. First, as anchor damage is a primary concern, we would like to see permanent moorings, with anchoring prohibited, in the very near
2. future. Should the cooperation of the Houston-Galveston-Freeport diving community be of use in this matter, please advise us.

3. Second, we would like this sanctuary to be truly a safe haven for all marine life, with no fishing of any kind and
4. no live collecting allowed.

Houston Underwater Club spearheaded the effort for this sanctuary, and our 500+ members hope very much that our opinions will influence the future management of this delightful resource.

Thank you,

Page S. Williams

(Ms.) Page S. Williams
Environmental Chairperson

cc: David Cottingham, Director, Office of Ecology and Conservation
Room 6222, U.S. Department of Commerce, Washington D.C. 20230

Houston Underwater Club, Inc. P O Box 3753 Houston, Texas 77253-3753

1. See Generic Response E.
2. NOAA plans to consult with the local diving community and any other group that can be of use in managing the sanctuary.
3. See Generic Response G.
4. See Generic Response I.

SIERRA CLUB

LONE STAR CHAPTER
Houston Group of the Sierra Club

April 2, 1989

Joseph M. Uravitch
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, D.C. 20235

Attention: Freedom of Information Request

Dear Mr. Uravitch,

Enclosed are the comments of the Houston Sierra Club concerning the Draft Environmental Impact Statement/Management Plan for the proposed Flower Garden Banks National Marine Sanctuary. The Club has had over a decade of interest in seeing the Flower Gardens (FG) protected as a National Marine Sanctuary (NMS) and is cautiously optimistic that this time designation will occur.

Before we look at the document and give you our specific comments we want to mention several other items. We appreciated the fact that NOAA held the public hearing in Houston, Texas and that one session of the hearing was in the evening so that the general public could attend after work. We are concerned, however, with the short public notice given. The public notice appeared in The Houston papers on March 26th, Sunday, only four days prior to the public hearing and the mailed public notice was received on March 29th only one day before the public hearing. In the future at least a minimum of two weeks should be given for public notice and preferably one month.

I also had trouble getting on your mailing list to receive the DEIS. Even though over the past year I wrote to NOOAA at least twice to ensure that my name would be on the list I heard that the DEIS was available from a friend who had already received his copy. Therefore I had to write NOAA again and once more for a copy of the document. This is not acceptable public participation procedure and I request that NOAA ensure that my name and address, shown at the end of this letter, is on the mailing list to receive any information about the FG that NOAA sends out in the future.

1. The Club also wants to input into the level contingency and emergency response plan (page 57) which MEMD will develop. This is a crucial plan since it is acknowledged in the DEIS that more ship traffic and oil and gas drilling is ongoing and expected to increase in the future. Therefore we need to ensure that adequate additional spill controls and prevention measures are available right at the NMS and other areas to ensure quick enough response times.

2. We also would like to participate in the annual research plan update. We would like to mention however that an annual update may be too frequent since research needs several years to occur with data collection and analysis. A more realistic timeframe may be every 3-5 years for a research update. Emergency situations which require unanticipated research can always be worked into the budget each year. We also request under the FOIA a copy of the research protocol on the East FG coral recovery from anchoring study which is now ongoing.

1. NOAA intends to consider any suggestions received for the development of contingency and emergency response plans.

2. Representatives from other agencies, academic institutions, and environmental organizations may be invited to participate in workshops and other planning processes as the research plan is developed. Sierra Club representatives may be considered for participation as appropriate in the future planning of research for the Flower Gardens sanctuary.

Also, as mentioned on page 54, please keep us informed about development of procedures to address specific management concerns. The Club wants to be actively involved in this effort.

Now we would like to give specific, page-by-page comments about the DEIS and management plan.

3. 1) Page 9. We see the need to list all potentially impacting activities now so that NOAA can regulate them quickly and not have to seek specific approval for an amendment to this plan. Therefore collecting, spearfishing, oil and gas drilling, recreational fishing, etc. all need to be listed and if possible have regulations drawn up now to maximize protection for this important ecological area that has already had much damage visited upon it.

3. These activities are listed in the Designation Document. See Generic Response A with regard to oil and gas drilling. See Generic Responses G and H with regard to fishing.

4. 2) Page 9. It is not acceptable, if true protection for the FG is to occur, to say that the scope and scale of programs may be reduced due to budget constraints. If true long-term protection of the FG is to occur a steady source of funding is needed. NOAA must get Mr. Mossbacher, our Texas Secretary of Commerce Department, educated about the importance of his homegrown FG. Then Mr. Mossbacher can see that President Bush and Congress are informed about the need for more monies. This is the only way to guarantee that sufficient resources will be available to protect the FG. In addition Mr. Mossbacher can see that the Coast Guard gets sufficient funds to enforce the MPS so that people will be dissuaded from abusing the area. NOAA cannot relie on people's good faith efforts to ensure that enforcement of the FG will occur. We do not need laizefaire enforcement. NOAA also needs to force EPA to accept its responsibility to enforce out in the Gulf the NPDES wastewater permits so that the FG will be protected. EPA and the CG need to do most of the enforcement because MMA has an inherent conflict of interest in promoting oil and gas drilling as well as protecting resources. In addition their personnel are not trained to look at environmental damage the way EPA and CG personnel are.

4. U.S. Government budgets are authorized on an annual basis. It is not possible therefore for NOAA, EPA, or the U.S. Coast Guard to have a constantly predictable flow of funds available for their programs. Budgets may fluctuate, and unforeseeable budgetary constraints may cause modifications in the scope and scale of programs.

5. 3) Page 10. NOAA could also deputize other state and federal agencies to ensure that more policing of the MPS will occur.

5. The Flower Garden Banks are well beyond the jurisdiction of coastal states. However, NOAA does plan to work with other federal agencies to maximize surveillance efforts.

6. 4) Page 11. For interpretation and public education NOAA needs to have an extensive very active outreach program with slide shows, movies, brochures, speakers bureau, active volunteer program, fact sheets, bumper stickers, buttons to wear, radio and TV talk shows and PSA's, visits to the oil industry, insurers, shippers, pilots associations, tanker owners, charter boat captains, etc. to inform the user groups about the importance of their cooperation to the continued interrity of the Flower Gardens. Perhaps a non profit organization, like the National Park Service has at many of its parks, could be formed which would raise additional funds for research, educational endeavors, volunteer projects, and specific projects like marker and tie-up buoys.

6. See Generic Response J.

7. NOAA plans to work with non-profit organizations and volunteers wherever possible. See also Generic Response E.

8. Although NOAA says on page 53 that interested organizations and the public will play an important role in attaining resource protection goals it is not stated what this role is and how it will be helped by the public. It is obvious that since onsite users (page 65) are using the area and thus have the highest potential for direct damage to the FG their education and cooperation should be sought first to prevent damage to the area. We also suggest that since the city of Galveston has had a long history of interest in the FG that the information center be located there either at the NOAA lab or at the Texas A&M campus on Pelican Island.

8. The role of the public was explained more fully on pp. 58-59 of the DEIS. See also Generic Response J.

9. These and other sites are being considered for the location of information centers.

10. 5) Page 40. Regulations for commercial fishing with respect to reef fisheries should be better cooordinated with the Gulf of Mexico Fishery Management Council. They have a new Reef Fish Fishery Management Plan out in draft form which NOAA needs to take a look at. In addition since Red Snapper, other snappers, groupers, and other reef fish appear to be overfished NOAA needs to seriously consider whether regulations for recreational and comercial fishing need to be promulgated. These regulations would be different than

10. As required by the Marine Protection, Research and Sanctuaries Act and the National Marine Sanctuary Program regulations, NOAA consulted with the Gulf of Mexico Fishery Management Council in preparing its proposed Flower Garden Banks Sanctuary regulations. See also Generic Response G.

11. See Generic Response H.

12. See Generic Response G.

13. See Generic Response H.

14. See Generic Response J.

15. See Generic Responses A and B.

16. See Generic Response F.

17. See Generic Response A.

18. See Generic Response B.

19. See Generic Response D.

20. NOAA acknowledges that oil entering the area from vessels is a result of oil and gas exploration somewhere.

[illegible] be protected. But this method of management allows damage that may not be reversible before anything is done and then NOAA proposed to study the damage done that was revealed by monitoring to see if regulation is needed! This is not protective of the resource.

14. 6) Page 44. As mentioned under 4 above special education efforts are needed for users of the area. Here NOAA shows that most of the boat traffic comes from Corpus Christi, Lavaca, Point Comfort, and Freeport with respect to commercial shipping and therefore these are precisely the places that NOAA should start with first in its education endeavors on trash disposal, anchoring, tanker washing, and other activities that these ships might be involved in that might impact the FG.

15. 7) Pages 47, 55, 80, 92, 94, 96. We are deeply troubled by NOAA's lack of willingness to regulate oil and gas drilling operations. It is admitted that there is increased development in deep offshore areas for oil and gas and that tanker traffice or all vessel traffic is increasing in the area (page 47). Many of the deeper areas that will be drilled will use tankers instead of pipelines and could be a direct threat to the FG. In addition the regional impacts of long-term oil and gas withdrawl on the stability of the banks and their potential for active faulting and subsidence is not known.

16.

17. We find it unacceptable that NOAA would allow any seabed alternations by hydrocarbon extraction activities. We need to protect the entire reef form the top to the bottom along with areas of clean water to ensure a sufficient buffer zone is in place that if a bad accident does occur there may be some mitigation via deilution to keep harmful materials away from the reefs in impacting quantities. Nb one yet knows how the bottom of the entire reef structure is ralted to the corals or reef-building zones. It is not consciousable to allow such experiments with the natural resources here. Prevention is the key and that is why we support strongly alternative boundary three with 4 nautical miles of clean water to provide a mitigating buffer from oil and gas incidents.

18. We disagree strongly that regulation of oil and gas activities are not needed more than what MMS already does. In 1983 MMS allowed a lease tract which included part of the FG to be leased by Exxon. Only a last minute intercession by Texas Governor Mark White convinced Exxon to drop its lease bid and not drill in this sensitive tract. We cannot be assured that this will not occur again sometime in the future. It is also ridiculous

19. to say a subsea oil spill will simply be swept around the banks. No one has the data to prove this and the more likely scenario is that some would reach the FG and impact areas. We believe, as we have stated over and over that the MAS study is a flawed one which reached conclusions which were not tenable with existing information. We also remind

20. NOAA (page 94) that oil entering the area from vessels is a result of oil and gas exploration somewhere and needs to be acknowledged as such.

11. See Generic Response H.

12. See Generic Response G.

13. See Generic Response H.

14. See Generic Response J.

15. See Generic Responses A and B.

16. See Generic Response F.

17. See Generic Response A.

18. See Generic Response B.

19. See Generic Response D.

20. NOAA acknowledges that oil entering the area from vessels is a result of oil and gas exploration somewhere.

NOAA should be very careful in referencing the MMS's EIS because they often are flawed documents themselves. Studies are referenced which have been discredited in public or which have never faced peer review because they are gray literature, or which were done by the oil companies or consultants hired by the oil companies. We have documented problems in the past with these documents and would be more than happy to send you copies of our comments if you so desire them.

21. Oil and gas operations should also be regulated for the same reason that you regulate other activities. For instance on page 90 you prohibit dredging even though it essentially will not occur now so why not do the same for oil and gas operations. Also on page 96 you talk about regulating and using stiffer penalties to discourage abuses which also could be a good deterent for any oil and gas activities that have problems and impinge on the FG NMS. We want the stiffer penalties to apply to all activites that potentially could impact the FG.

22. 8) Page 55. We believe all anchoring should be regulated since all anchors damage some coral. The impacts, even from recreational anchoring are cumulative and there are obvious alternatives, like mooring buoys that can be utilized. We need to put in a buoy system now and not wait for more damage to occur.

23. 9) Page 55. We are not in favor of allowing any discharges over the reefs. Cooling waters may have oil in them and marine sanitation devices can fail. We particularly are against the phrase "or routine operations". This is do broad and has not definition that almost anything could be allowed. We want no discharges in the FG NMS.

24. 10) Page 56. We are totally opposed to any National Security exemption for explosives or electrical charges or anything else. There is no earthly excuse for using the FG at any time for national security purposes. The FG must be protected from all threats, period.

25. 11) Pages 69 and 76. For some reason NOAA does not acknowledge EPA's important roll in NPDES discharges. In addition NOAA needs to hook into EPA's Gulf Initiative and other ocean programs to ensure that the FG is recognized and perhpas funding can come from EPA for research in particular areas.

26. 12) Page 71. Nature viewing boat cruises are mentioned. Please give a complete explanation of what this is. How will it impact the FG?

27. 13) Page 80. The description of the preferred alternative leaves out recreational anchoring which is included on page 54.

We appreciate this opportunity to comment and look forward to receiving a copy of the FEIS and management plan and being included on the NOAA mailing list to be kept apprised of all future NOAA activities as they relate to the FG NMS. Thank you.

Sincerely,

Brandt Mannchen
Conservation Committee
Houston Sierra Club
629 Euclid
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H713-861-7552, W713-640-4311

21. See Generic Response A.

22. See Generic Response E.

23. Vessel discharges permitted include cooling water, deck wash down, graywater, non-oily discharge from bilge pumping and effluents from approved sanitation devices. Such discharges are considered necessary to the operation of vessels visiting the sanctuary. NOAA has no evidence that these discharges threaten sanctuary resources. As noted in Generic Response G, NOAA intends to facilitate compatible uses of the sanctuary and therefore will not make it impossible for vessels to visit there.

24. See Generic Response K.

25. Comment accepted. The FEIS/MP has been corrected accordingly.

26. The wording of this phrase should have read, "excursion-boat cruises." The FEIS/MP has been corrected accordingly.

27. The preferred alternative, described on p. 80 of the DEIS, discusses regulations to be promulgated at the time of sanctuary designation. On p. 54, the DEIS mentions the possibility that additional regulations may be promulgated at a later date.

SIERRA CLUB

LONE STAR CHAPTER
COASTAL AFFAIRS COMMITTEE

F. Herman Wolfenberg, M.D.
[illegible] Avenue, 1/2
Galveston, Texas 77550

20 April, 1989

Jesse A. Gravitch, Jr.
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N. W.
Washington, D.C. 20235

Dear Mr. Gravitch:

These comments pertain to the Draft EIS and Management Plan for the Flower Gardens National Marine Sanctuary. I have participated since before day one in public hearings and commentary to previous draft EISs, and it appears that NOAA is PUT LIGHTLY'S. It is discouraging. Please excuse the lateness of these comments in view of my recent chest surgery which has made typing difficult, and I have no secretary for help.

Bright has estimated that coral reef recovery from damage, such as from anchors, chemicals, or particulate deposits may take as long as 400 years (yes, four hundred). Secondly, what we all are attempting to achieve is a SANCTUARY. The FEIS takes neither of these considerations to heart, rather seeks to establish essentially a status quo plus prohibition of anchoring by large vessels, which is on a voluntary basis -- if the captain of the vessel happens to have been informed, remembers, and feels that he can do without anchoring there in the condition perceived as nobody watching him! There is already-documented damage from anchoring and from unknown causes. To consider making changes, with the slowness of the process also being adverse, AFTER new degradation is discovered is like putting the fox in with the chickens.

A sanctuary is exactly that, a site where nature continues undisturbed. For all we know the sum of today's activities by fishermen and the oil industry may show up in 5 or ten years and then, as always, it is too late to benefit this ecosystem.

1. For example, you have no way of determining whether the EIS-declared NO-ACTIVITY zone is the proper size; indeed you do not even propose to do studies to verify this! The EIS has a notorious record biologically. EPA surveillance and enforcement has been essentially absent. Oil Company studies were indicative of vested interests, and thus cannot be relied upon; further they have not been reviewed in the public literature and are therefore scientifically not 100% acceptable. The Clements Report agreement entered into at the Flower Gardens by EPA, Oil Companies, and the environmental organizations is neither mentioned in the DEIS, nor likely being enforced.

2.

1. The horizontal distance between the 50 m isobaths, which contain the coral reef zones, and the 100 m isobaths, which lie well within the no-activity zone boundaries, is 400 to 4430 m (1300 to 14500 ft) at the East Bank (Bright, 1977) and 300 to 1000 m (1000 to 3300 ft) at the West Bank (Bright and Pequegnat, 1974). Contaminant spills at depths would be carried around the Banks (see Generic Response D). Contaminants in surface layers are unlikely to reach the reefs 50 to 120 feet below (see DEIS). The no-activity zones thus appear to be adequate. If they are later demonstrated to be inadequate, NOAA can enact temporary emergency regulations, during which time more permanent measures can be devised.

2. The agreement among Anadarko Production Co., the Pennzoil Co., National Resources Defense Council, Sierra Club, and EPA resolved a dispute about the granting of NPDES permits to the oil companies. NOAA was not a party to the dispute and does not believe that it must consider the agreement in developing NOAA plans for managing the proposed sanctuary. NOAA does, however, intend to conduct monitoring studies of the effects of discharges on the health of Flower Garden resources.

No indication is included in the DEIS that there is any question about the safety of any hydrocarbon activity, whether pipeline or drilling activity. The doubt that the EIS has not expressed is uppermost in our minds, and must be addressed in the next EIS. Very simply stated, the Flower Garden Banks are in a motile environment. Even an addition of the four mile zone to the current no-activity zone may be inadequate, but to permit continuation of hydrocarbon activities in and about the Banks is not at all in keeping with the term SANCTUARY. The cessation of activity by oil companies will be difficult. But it must be addressed.

3. First of all, no new drilling blocks may be leased; that is the easy step. Next, existing leases without activity, backdated to some prior date, so that the leaseholder doesn't quickly bring in drilling equipment, must be cancelled, perhaps bought out. This would include no more dollars than had been paid for the lease plus appropriate interest that might have been generated.

4. In return, a promise will be made that in perhaps 20 years, following completion of adequate studies, if that large block is then made available, the same lessor will be given precedence.

What to do about existing drilling or producing activities? The best is to shut them down; but that is likely impractical.

5. And yet, the continued extraction of gas or oil may cause fault slippage, perhaps even subsidence, and other geologic processes in THIS UNDERSEA LOCATION which nothing is known about (and which is not at all addressed in the DEIS!). The first step may well be to control the rate of production from existing wells, while an independent geological group studies the potential problem at this location. And in some years (5,10,maybe as much as 20) the production will cease and the equipment removed - or it could perhaps be converted, e.g. the mobil platform in block 389, as an anchoring-tie-up site, monitoring base, or whatever suits.

6. In short, the DEIS avoids questioning hydrocarbon activities, and we do. When "offshore service vessels...are usually between 90 and 180 ft in length" (page 14) and the proposed limitation on anchoring uses 100 feet, there is something woefully wrong in someone's thinking. 100 is as arbitrary as 110 or 50. The choice is not defended. Certainly no offshore service vessels should be allowed to anchor, no matter how long they are! Anchoring should also be a function of currents and wind, since these are the forces that cause anchor dragging with an unpowered vessel. Folks, let's think about these things and be rational in order to PROTECT the Banks!

7. Spearfishing should be prohibited also; perhaps limited permits can be issued in later years. For the present there is no control over this and that situation could lead to decimation of specific desirable, or (probably) predator, species if unregulated. "e" on page 117 should be as generic as statement "a"; thus statement one in article 5 on that page should be deleted.

8. On page 2 is stated that a FIVE MILE surround (diameter) is now a sanctuary for the U.S.S. MONITOR. WOW. Doesn't it make sense to make at least the four mile zone around a biologically unique reef part of its sanctuary?

3. NOAA believes that its preferred alternative, as modified (see Generic Response A), will provide adequate protection to the Flower Gardens. It may be worth noting, however that a ban on additional lease sales in the area might not have a sizeable effect on future oil and gas activities because many of the 20 currently unleased tracts, lying wholly or partly within the outer boundaries of the four-mile buffer zones, may be unattractive for leasing. Twelve of the 20 were previously leased. Their current unleased status may indicate that they have little potential for development. Another two of the unleased tracts (A-375 & A-398) are entirely, or almost entirely, within the no-activity zones, and three (133, 136, & 138) are extremely small. Of the total of 59 tracts, leased and unleased, only three (179, A-386, & A-394) have not recently been under lease, are of standard size, and lie entirely beyond the no-activity zones.

4. Title III, § 304 (c), of the Marine Protection, Research, and Sanctuaries Act specifically states that the Act does not grant the Secretary of Commerce the right to terminate valid leases in existence at the time of sanctuary designation.

5. If it is indicated to NOAA in the future that fault slippage or subsidence is occurring, NOAA will consult with MMS to determine what measures should be taken.

6. Several of the excursion vessels that take divers to the Flower Garden reefs are between 90 and 100 feet in length. NOAA considers the passengers of these vessels to be legitimate users of the sanctuary. As NOAA has no evidence that the anchoring damage from a 100 foot vessel is materially different from that of a 90 foot vessel, NOAA reaffirms its decision to permit anchoring of 100 foot vessels subject to sanctuary regulations. See also Generic Responses E and F.

7. Comment accepted. See Generic Response H.

8. The criteria used by NOAA in establishing the size of the MONITOR National Marine Sanctuary are irrelevant to the resource protection requirements at the Flower Garden Banks and thus have no value in determining the appropriate size of the proposed Flower Garden Banks National Marine Sanctuary.

9. Text, I [illegible] reminded of [illegible] of meat being thrown overboard to your customers for filming or study. There is no call for any discharge within the sanctuary, or nearby, as on page 55, vessel cooling water discharge, so long as it is free of metals and hydrocarbons, I can accept; but other items must be deleted.

10. It is unnecessary. Further "discharges authorized for routine operations" negates any limitation and needs deletion. Don't muck up the Sanctuary! Take it some miles away or home.

11. Page 65, top. Consider [illegible] site [illegible] lives on or the [illegible] [illegible] location for [illegible] the office and [illegible] display site. It is also most appropriate [illegible] nearest the [illegible].

12. Page 69, E. 1. You fail to list an important role and responsibility [illegible] public information and displays, getting the word out to the maritime industry, and getting new [illegible] to contain

13. [illegible] information. The latter is useful only for those [illegible] who need [illegible], and does not get to the majority! While [illegible], [illegible] 1 Fisheries [illegible], etc, all have some [illegible] documentation, a SINGLE all-inclusive document is needed. Further, if the [illegible] Division can also enforce and fine for breaking [illegible]

14. rules (which [illegible] are not under sanctuary control) that would be better; one way is to adopt these [illegible] restrictions as part of this Sanctuary's Management Plan in such a way that if the other agency makes a change which is detrimental to the sanctuary, it is still protected. We cannot afford loopholes.

Since we are dealing with an ecosystem here which really has no defined boundary and at the same time is in moving sea currents, there are several inadequacies in present regulations which are not suitably recognized for evaluation, or even change, see page

15. 74 [illegible] The 100 meter isob th limitation for the no-activity zone is arbitrary and its correctness needs study. The presence of nutritive currents makes this arbitrary round number suspect. (2)

16. Shunting by drillers is a common practice which puts thousands of tons of material purposely into the nepheloid layer where it is to at least some extent migrated about. But the bottom still rises, hills may cause changes in currents, etc, and it poses a potential impact upon the downstream ecosystem which has not been evaluated. It needs to be evaluated as well as limited, and likely stopped.

17. (3) Items in the top paragraph of page 75 are clearly inadequate for an area designated as a SANCTUARY. Stricter regulation is needed.

18. In all locations where the prohibition of discharge is discussed, the parentheses which cites "aesthetics or toxins" should have added to it "fish attractants".

19. Pages 80-93. First of all [illegible], as indicated, IT [illegible] MAY only be accepted as "adequately" regulating hydrocarbon operations for biological, and especially sanctuary, protection. Further, I

20. suggest that NASA remote sensing be incorporated in monitoring and enforcement activities.

9. The regulations have been changed to prohibit feeding, or attempting to feed, fish.

10. See response to comment #23 in letter from Brandt Mannchen.

11. These and other sites are being considered.

12. This role was listed on p. 70 of the DEIS under D.(d).

13. The inclusion on nautical charts of information about sanctuary regulations was discussed on pp. 57 and 58 of the DEIS.

14. NOAA has incorporated into the management plan: 1) proscriptions of the NMFS pertaining to the Flower Garden HAPC; 2) proscriptions of the MMS pertaining to hydrocarbon activities within the no-activity zones; and 3) proscriptions of other agencies pertaining to pollutant discharges. *MMS* proscriptions applying in the four-mile buffer zones have not been incorporated into the management plan, but other provisions of the plan are designed to provide the same or broader protection (See Generic Response A.).

15. See response to comment #1 in the letter about boundary alternatives from the American Littoral Society.

16. See Generic Response D.

17. This paragraph is not concerned with proposed sanctuary regulations. The paragraph describes existing regulations promulgated under the Fishery Management Plan for coral and coral reefs.

18. That part of the regulation now reads "any material or other matter." By this NOAA means everything; thus, the listing of specific items included is unnecessary and possibly misleading, because it implies that some things are not included.

19. See Generic Responses A and B.

20. Comment accepted. NOAA will explore the feasibility of using NASA remote sensing data for sanctuary monitoring and enforcement activities.

21. [illegible] 97 discusses [illegible]. There should be a local [illegible] within 5 years [illegible] as well as [illegible] regarding length of vessel permitted, wind and current limitations, and radiotelephone link contact to the [illegible]'s office, as a minimum.

22. [illegible]. While the [illegible] for [illegible] the FG might be "low" it would be devastating. [illegible], the [illegible] subsurface spill would be "swept around the banks by currents (Rezak et al, 1985)" is grossly [illegible], inaccurate, unlikely, and not in keeping with hydrodynamic [illegible] as well as practical science. Then, [illegible] at one point forms sticky blobs, [illegible] well be driven onto the reefs [illegible], [illegible] mechanical and chemical damage. The statement on the top of page 95, "no impact", is ludicrous and unbelievable.

23. [illegible] 95 shows yet another likely error in reasoning. [illegible] are mentioned, how do these relate to 100 feet? Likely area is less than 100 feet. What would still be permitted to anchor?

24. And then there is no prohibition of supply vessels crossing the present no activity zone, which in an accident might lose their drilling mud, caustic, wastes, or whatever! Certainly they, as well as any large ocean-going commercial vessel should not be permitted to transit here.

25. I suggest that anchoring buoys be provided AWAY FROM the peak areas. There is only a little high-elevation coral, but much more low-elevation area, and so damage here would lose a smaller portion of that stratum.

26. Finally, Department of Defense activities related to "national defense" include recreational activities. This has been learned in discussions relating to the CBRA designations. Such a liberal interpretation has no business being in conflict with a sanctuary for as fragile a site as the FGs. Many DOD activities can readily be relocated. In order to make permitted continued activities suitable, I suggest rewording line 4-5 on page 118 to read "...activity that is DIRECTLY necessary for IMMEDIATE national defense...", and also 2 lines lower.

In addition to my comments above, I endorse the comments by Brandt Mannchen of the Houston Group of the Sierra Club, dated April 2, 1989 which address mainly different points. Please incorporate these comments by Brandt as if I, too, had cited them.

Thank you for this opportunity to comment,

Sincerely yours,

F Hermann Rudenberg

F. Hermann Rudenberg, Ph.D.
member, Coastal Affairs Committee
Lone Star Chapter, and member,
Galveston Regional Group, Sierra Club

21. See Generic Response E. Decisions about labelling buoys with directions for their use and similar measures will be made by NOAA after sanctuary designation.

22. See Generic Response D.

23. See Generic Response E.

24. See Generic Response F.

25. Divers are attracted to the Flower Gardens primarily because of the presence of the high elevation coral areas. NOAA believes that diving in these areas should be considered a legitimate use of sanctuary resources. However, if such diving is later demonstrated to have an adverse impact on the high elevation corals, NOAA may remove the mooring buoys over these corals. NOAA also has the ability to regulate diving in these areas on a temporary emergency basis, during which time more permanent measures can be formulated for resolving the problem.

26. See Generic Response K.

TEXAS A&M UNIVERSITY
COLLEGE OF GEOSCIENCES
COLLEGE STATION, TEXAS 77843-3146

Reply to
Department of
OCEANOGRAPHY

rec'd
MAR 30 1989
in Houston

Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Ave., N.W.
Washington D.C. 20235

March 28, 1989

Dear Mr. Uravitch,

I am pleased to have the opportunity to comment on the Draft EIS/ management plan for the proposed Flower Garden Banks National Marine Sanctuary. In general, the DEIS/management plan is very thorough and well researched. I would like to comment on several specifics. As information to qualify me for comment, I have spent considerable time on the Flower Garden Banks involved in numerous research efforts [a total of 28 cruises, 186 scuba dives (also submersible and heliox-supplied bell dives), and 223 sea-days on the banks].

1. • (p 31) An additional brine seep was discovered at the East Flower Garden Bank at a depth of 48 m (27° 54.37', 93° 36.49') during the three year National Marine Fisheries study, Ecological Effects on Energy Development on Reef Fish of the Flower Garden Banks (Boland *et. al.* 1983)

1. Comment accepted. This information has been added in the FEIS/MP.

2. • In support of your premise that snappers are seldom found within diving depths (p 42): I quantitatively analyzed a total of 357 hours of video transect records at the banks resulting in surveyed areas of 1,335,532 m^2 and 427,108 m^2 at the East and West Banks respectively. The commercially important red snapper, Lutianus campechanus and vermillion snapper, Rhomboplites aurorubens were never observed in the coral reef habitat. The only snapper species occurring with any frequency at all on the high or low diversity reef is the gray snapper, Lutianus griseus (Boland *et. al.* 1983)

2. No response necessary.

3. • (p 55) One major concern of myself and several colleagues is the matter of spearfishing within the Marine Sanctuary. My personal feeling is that large groupers (the only highly desirable food fish in the coral habitat) are very rare, and depletion by spearfishing would essentially eliminate this resource from enjoyment by other divers. To be consistent with the "highest priority management goal" of protecting the resources of the Flower Garden Banks, it would seem this activity should be totally prohibited.

3. See Generic Response H.

4. • Marine Sanctuary Boundary Alternative 1 (p 78) seems far superior to the tremendous area included in Alternative 3 encompassing primarily soft bottom habitat prevalent throughout the shelf at these depths. I believe any theoretical additional protection beyond current MMS stipulations provided by the additional restrictions on oil and gas development has been shown by existing literature and previously performed monitoring studies to be negligible.

5. • (p 80) Mention might be included about capture or injury to marine turtles, even though they are all protected by the Endangered Species Act. I have personally had the opportunity to have contact with a large resident loggerhead turtle on numerous occasions at the West Flower Garden Bank.

• With regard to lobster resources on the banks: During the NMFS study of 1980-82, numerous night dives were performed. Except for a few uncertain observations, 100% of the lobster sightings were of the spotted lobster, Panulirus guttatus. Interestingly, I did observe spiny lobsters, (Panulirus argus) on the Mobil platform 3 weeks after installation and on numerous occasions afterwards, but spotted lobsters were never seen on the platform.

6. Spotted lobsters appeared to be numerous on the Flower Garden Banks, but unrestricted collection could possibly deplete this resource. Restriction for collection of this invertebrate could be included specifically in the regulations, assuming divers would attempt to use spear fishing "equipment" for collection (p 80).

7. • (p 83) I believe a professional on-site manager would be far superior to relying on public cooperation (and probable observational biases) for surveillance of sanctuary activities and resource condition. Direct involvement in research and actual visitation to the Flower Garden Banks is invaluable for informed contribution to management decisions.

Reference:

Boland, G.S., B.J. Gallaway, J.S. Baker, G.S. Lewbel. 1983. Ecological effects on energy development on reef fish of the Flower Garden Banks. LGL Ecological Research Assoc. Inc. Final Report to National Marine Fisheries, Galveston, Texas. Contract No. NA80-GA-C-00057. 466 p.

Sincerely,

Gregory S. Boland

Gregory S. Boland
Research Associate

cc: Mr. David Cottingham
Dr. Thomas J. Bright
Mr. Ralph Lopez

4. No response necessary.

5. Comment accepted. Turtles have been included among the resources mentioned in § 943.5 (a) (10) of the sanctuary regulations.

6. The injury or removal of spotted lobsters or other invertebrates is prohibited by § 943.5 (a) (9) of the sanctuary regulations. § 945.(a) (13) prohibits use of spearfishing equipment.

7. A professional, site-specific manager and staff is provided for in Management Alternative 2, the preferred alternative.

TEXAS A&M UNIVERSITY
COLLEGE OF GEOSCIENCES
COLLEGE STATION, TEXAS 77843-3146

Reply to
Department of
OCEANOGRAPHY

22 March 1989

Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, D.C. 20235

Dear Mr. Uravitch,

I welcome the opportunity for written comment on the draft environmental impact statement/management plan (DEIS/MP) prepared for the proposed Flower Garden Banks National Marine Sanctuary. Members of our Texas A&M Flower Gardens group have been discussing the document since it arrived, and the topic most often discussed has been the question of spearfishing within the Sanctuary.

My personal views on this topic are tempered by two decades of working with and around fellow SCUBA users, including spearfishermen, with the result that I strongly oppose permitting spearfishing within this or any other National Marine Sanctuary. In fact, since spearfishing is already officially prohibitted at least at the Key Largo and Looe Key National Marine Sanctuaries, I believe that it would be at best philosophically inconsistent to permit spearfishing at the Flower Garden Banks National Marine Sanctuary. Also, my experience in other fisheries management situations suggests that it would be much more difficult to stop spearfishing, once allowed, than to prohibit it initially. The word "sanctuary" itself seems at odds with the mental images conjured by the term "spearfishing". There are more compelling reasons, described below, to not permit spearfishing at the Flower Gardens.

Most often in my work, SCUBA is used as a means of getting us to our work/study sites, and permitting underwater data-gathering. However, I have on many occasions dealt with sport-divers whose primary use of SCUBA was recreational. Spearfishermen are primarily recreational divers, and these come in all sizes, ages, and personalities. Spearguns range from the venerable, simple, and relatively safe Hawaiian slings and pole-spears to very sophisticated, powerful, and relatively dangerous gas-operated and multi-rubber powered guns. The latter types, in the hands of inexperienced and even experienced hairy-chested deep-sea underwater hunter-gatherer sportsmen can be extremely hazardous to more than just the targetted fish. Even the simpler types of spearguns in the hands of the inexperienced can be very dangerous. Because of the distance of the Flower Garden Banks from shore and proper medical emergency care, I think that spearguns should not be permitted simply from the standpoint of Sanctuary user-safety. The question of liability in case of serious injury or death due to a speargun accident within a

1.

1. See Generic Response H.

National Marine Sanctuary may also need to be considered. Would the federal government or any of its Sanctuary Office employees be liable? This is probably not an easily answered question, but might be totally avoided by making spearfishing officially illegal.

From a biological standpoint, spearfishing at the Flower Garden Sanctuary should not, at least initially, be permitted. Because of the "working" water depths (70 to 100 feet or so), and hence the limits on time which may be spent on the bottom by divers, there is much more not known than known about the population densities of fish and other critters there which would be probable targets of spearfishermen. What is empirically known by those of us who have worked out there over the years is that greater concentrations of large fish are found under and around oil-platforms than at our "working" sites at the Flower Gardens. This is not to say that there are not concentrations of large fish at other places at the Flower Gardens - it is to say that we do not now have an answer to that question, and that spearfishing should obviously not be permitted until we do. Population densities and diveristies of fish, corals, and other organisms found at the Flower Gardens are in part defined by geography. The fact that this site, at typically subtropical to temperate latitudes, displays so many tropical characteristics is why it is biologically unique and worthy of biological protection by designation as a National Marine Sanctuary.

Some of the species found there, such as spiny lobsters, appear to be there only "by accident" and almost certainly are not capable of sustaining a reproducing population. Lobsters, for instance, have a long-lived, multi-molt phyllosoma planktonic larval stage which may float around the Caribbean and Gulf for up to a year, and perhaps more. Under certain yet unknown circumstances, these larvae settle to the bottom and molt into juvenile lobsters. I have seen very few lobsters at the Flower Gardens; those seen were very large in comparison to those that we (Florida Sea Grant) studied during 1975-1978 in the Florida Keys; those seen at the Flower Gardens were comparable in size to similarly large (and scarce) lobsters which I have previously seen (late '60's, early '70's) at the Florida Middle Grounds (at similar latitude, similar distance from shore, similar depths, but in the eastern Gulf); of the very few lobsters seen at the Flower Gardens none showed signs of reproductive activity. I have personally seen/studied spiny lobsters (Panulirus argus) in the Florida Keys, all around the Caribbean, all around the Bahamas, and in the southwestern (Mexico), northeastern and northwestern Gulf of Mexico, and have never seen a lobster larger than one I saw at the Flower Gardens. It is my considered opinion that if spearfishing were permitted within the Flower Garden Sanctuary, such unique creatures would rapidly be harvested (even though it has long been illegal to capture lobsters using spears). Since they appear to be rare, and since their exceptional size is probably due to great age and lack of competition, I feel sure that once gone, the loss would be permanent. I feel the same about the fate of large fish and turtles now residing at the Flower Gardens if spearfishing is permitted. Such losses may

have unpredictable effects on the overall ecosystem, so should be prevented if possible.

The study of unique ecosystems has helped elucidate generalized mechanisms driving our global ecosystem. Biological protection of the Flower Garden Banks through designation as a National Marine Sanctuary should go far toward assuring the "undisturbed" survival of this unique site. Ongoing biological studies and monitoring programs could assure that this site will continue to serve as a living laboratory which over time can provide baseline data on the biological health of the northwestern Gulf of Mexico, and perhaps the entire Gulf.

It has been my privilege to have had the opportunity to be a part of Tom Bright's Flower Gardens study group, now in the capable hands of Steve Gittings. It is a deep personal pleasure to see Dr. Bright's considerable efforts to attain Sanctuary status for the Flower Gardens apparently paying off. We all greatly appreciate the ongoing efforts toward this end by your offices, and again I thank you for this opportunity to comment on the DEIS/MP.

Sincerely,

Christopher L. Combs
Graduate Research Assistant

cc: Mr. David Cottingham
Dr. Thomas J. Bright

TEXAS A&M UNIVERSITY
COLLEGE OF GEOSCIENCES
Department of Oceanography
College Station, Texas 77843-3146

22 March 1989

Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Ave., N.W.
Washington, D.C. 20235

Dear Mr. Uravitch,

I have recently reviewed the draft environmental impact statement/draft managment plan(DEIS/MP), prepared by your office, on the proposed Flower Garden Banks National Marine Sanctuary (FGBNMS). Below are brief discussions of two concerns I have with policies outlined in the document.

1. • Regulations regarding the taking of lobsters from the banks should by specified in the final EIS/MP. There have been a small number of sitings of lobsters on the banks. They are apparently limited in number, but some are quite large, probably due to limited fishing pressure. The proposed regulations under Section III.B.2(e) (Fishing) do not address this issue. Due to the apparently limited stock of lobsters, my personal recommendation is to prohibit lobster fishing until stock and repopulation rate assessments can be made.

2. • I am concerned with NOAA's decision to allow spearfishing within the Sanctuary. The issue is addressed in several places in the DEIS/MP (e.g. pages 54, 55, 60, 62, 80, and 123, and probably elsewhere). It is made clear that spearfishing will be allowed until managers and/or researchers determine that the fish stocks are being seriously depleted. The first problem with this strategy is that we know very little about the current stocks of commonly speared fish on the Flower Garden Banks. My own observations convince me that stocks of fish of a size suitable to this sport are low and would not support a significant level of spearfishing. The depletion problem could be exacerbated if, as some research suggests, visitation to the reefs increases after sanctuary designation. Increased levels of visitor use may result from new divers patronizing new dive facilities that are expected to emerge in the near future, or simply from concentration of northwestern Gulf divers at the Sanctuary.

The second problem is that repopulation rates of fish stocks on these isolated banks are probably quite low compared to other Western Atlantic reefs. The closest tropical coral reefs are on the Yucatan Peninsula, over 400 miles away. It is likely that fish stocks, once depleted will take a long time to recover. Our research group's observations on the [lack of] recovery of the sea urchin population decimated by a disease-caused mass mortality that occurred in 1983 and 1984 support this.

1. The injury or removal of spotted lobsters or other invertebrates is prohibited by § 943.6 (a) (9) of the sanctuary regulations.

2. See Generic Response H.

There are plenty of diving sites in the northwestern Gulf of Mexico capable of supporting the activities of spearfishing enthusiasts. These include hundreds of oil platforms, a number of infrequently visited banks, and submerged artificial reefs and wrecks. It would be more prudent to allow these alternative sites to support the spearfishing community than to pressure the Flower Gardens to support both increased use by divers and spearfishing. Furthermore, if future research determines that the population levels and the recovery potential of large fish stocks at the Flower Garden Banks can support spearfishing, it seems that it would by easier from an enforcement standpoint to repeal the spearfishing ban than to impose a prohibition at some future date.

Thank you for considering my comments in your review process.

Sincerely,

Dr. Stephen R. Gittings
Dept. of Oceanography
Texas A&M University
College Station, TX 77843-3146

cc: Mr. David Cottingham
Mr. Ralph Lopez
Dr. Thomas J. Bright

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THE UNIVERSITY OF MASSACHUSETTS AT BOSTON
HARBOR CAMPUS
BOSTON, MASSACHUSETTS 02126-3393

April 21, 1989

Joseph A. Uravitch
Chief
Marine and Estuarine
Management Division
Office of Ocean and Coastal
Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, D.C. 20235

Re: Comments on the draft environmental impact statement/management plan for the proposed Flower Garden Banks National Marine Sanctuary

Dear Joe:

I am pleased to see that you and NOAA are moving ahead with the designation of Flower Gardens, after much delay it needs to be said. I also appreciate your staff soliciting my comments before the close of the comment period -- otherwise I might have missed the opportunity of submitting them.

My comments on the draft environmental impact statement/management plan (DEIS) will be limited to two issues. The first concerns the necessity under the Marine Sanctuaries Act (primarily sections 303(a)(2), 304 and 305), and under the National Environmental Policy Act, to consider and identify in the DEIS the legal authority according to which NOAA and the United States will regulate the navigational rights (such as the right to anchor) of foreign vessels within the United States Exclusive Economic Zone and on its Continental Shelf. The second concerns the necessity under the same Acts to examine the potential effects of hydrocarbon activities taking place near the proposed sanctuary upon its resources.

Regulating Anchoring by Foreign Vessels

NOAA has stated upon several occasions, and in notices published in the Federal Register (e.g., see 49 Federal Register 30990 (1984)), that the primary threat to the coral resources of the Flower Gardens arises because of

anchoring of vessels on the Banks. The DEIS itself reiterates the Agency's position on this matter. Curiously, however, there is almost no discussion in the DEIS of the Agency's view of its authority (and of course the authority of the United States) to regulate anchoring by foreign vessels on Flower Garden Banks. The views of the Department of State are also unexpressed. In this respect, one would have to conclude that the DEIS is seriously defective.

The authority of the United States to protect resources such as the coral resources of the Flower Gardens is crucial to fulfilling the statutory purposes that Congress clearly had in mind in according the status of a national marine sanctuary under the Marine Sanctuaries Act upon the Flower Garden Banks, as a consequence of the 1988 amendments to the Act. These resources cannot be adequately protected unless the United States acts, pursuant to its coastal state and port state authority under international and national law, to regulate (and prohibit) anchoring on the Banks by foreign vessels.

It is not sufficient, in my view, for NOAA merely to assert that it will regulate the activities of foreign vessels consistently with international legal principles with respect to anchoring on the Banks. That is simply a truism. It is necessary, however, for the Agency to state publicly the grounds of its position that regulating or prohibiting the anchoring by foreign vessels on the Banks is consistent with international law. Such grounds exist, in my opinion, and in the opinion of officials of the United States Government, as stated in communications to NOAA and in the Agency's files (e.g., see citation to one such document at 49 Federal Register 30990 (1984)). For informational purposes, I am attaching a copy of a paper entitled "The Proposed Flower Garden Banks Marine Sanctuary," 31 Oceanus 54-58 (1988), treating many of these issues.

I also call to your attention that the Congress has adopted the view that sufficient grounds exist for prohibiting the harmful anchoring of foreign vessels on Flower Garden Banks, pursuant to the Marine Sanctuaries Act and international law:

> With respect to the Flower Garden Banks National Marine Sanctuary . . . , [t]he Committee is pleased to learn that NOAA and the State Department have now reached an understanding with respect to NOAA's authority to prohibit harmful anchoring of foreign flag vessels within the proposed Flower Garden Banks National Marine Sanctuary. This Committee believes that NOAA's exercise of this authority is fully consistent with conventional and customary international law, including the 1958 Geneva Convention on the Continental Shelf, the Exclusive Economic Zone (EEZ) provisions of the 1982 United Nations Convention on the Law of the Sea, and this nation's traditional port state authority. Therefore, the

1. One purpose of the regulatory provisions that the sanctuary regulations shall be applied in accordance with international legal principles is to preserve NOAA's ability to apply the MPRSA regulations consistently with international law principles as they evolve, since international law is not a static body of law. As to the anchoring provisions, NOAA considers that it has the authority under existing international law, and NOAA intends, to apply the anchoring regulations, including prohibitions, to foreign flag vessels. This view is shared by the Department of State and Congress. NOAA consulted with the Department of State as the regulations were being drafted. NOAA has not found any provisions of the MPRSA or of the NEPA that requires the EIS to discuss the specific legal theory or theories underpinning its position. A paragraph has been added under the description of Regulatory/Boundary Alternative 1 in the FEIS/MP.

Committee believes that the deadline of March 31, 1989, for the final designation for Flower Garden Banks National Marine Sanctuary is reasonable and achievable.

H.R. Rep. 100-739, 100th Cong., 2d Sess., pt. 1, at 25-26 (1988).

It is also the case that, by virtue of the approval of the 1988 amendments to the Marine Sanctuaries Act by the President (Pub. L. 100-627, approved November 7, 1988), this view of the authority of the United States as a coastal and port state, under international law, to prohibit anchoring by foreign vessels on Flower Garden Banks, pursuant to the Marine Sanctuaries Act, is now the law of the United States.

I very strongly suggest that these matters not be swept under the rug, and that they be discussed clearly and fully in the NEPA documents, as required by law, in order to dispel any doubt that NOAA will apply the law of the United States to protect the resources of the Flower Garden Banks. Such doubt arises necessarily when the Agency ignores in the DEIS the single most significant issue involved in the designation of the Flower Garden Banks, and one explicitly identified by the Congress in legislatively mandating the designation of this site as a national marine sanctuary.

2. Finally, I recommend that the DEIS specifically discuss the advantages of securing additional protection of the resources of the Flower Garden Banks by applying to the International Maritime Organization for recognition of the Banks as a protected ocean area to be avoided by vessels. The cooperation of the Department of State and the Coast Guard will be necessary to achieve such status, and should be sought by NOAA.

2. See Generic Response F.

Hydrocarbon Activities

This issue can be treated briefly. I assume that there is no doubt that the Marine Sanctuaries Act provides sufficient authority to regulate and to prohibit oil and gas activities within a sanctuary, despite the views of the industry or the Department of the Interior, if any, to the contrary.

Hydrocarbon activities were identified by NOAA, in the draft environmental impact statement prepared and published by the Agency in 1979 for Flower Garden Banks, as a source of major impacts on sanctuary resources to be addressed in managing the Banks as a national marine sanctuary. Responding to pressure from the Department of the Interior and the oil and gas industry, NOAA abandoned its intention to regulate such activities within the proposed sanctuary, citing the oil and gas stipulations issued by Interior as sufficient to protect the resources of the sanctuary. At or near the same time, NOAA issued management plans and regulations applicable to sanctuaries offshore California that prohibited new hydrocarbon activities.

The resources of the "California" sanctuaries were arguably subject to the same degree of protection, under rules issued and actions then taken by the Department of the Interior, as the coral resources of the Flower Garden Banks are today. Yet, in 1979, these same "protective measures" taken by the Department of the Interior were judged to be inadequate to preserve the resources of the California sanctuaries.

What has changed since 1979? The DEIS fails completely to treat this very significant issue, and merely defers to the Minerals Management Service to protect the resources of the proposed sanctuary from adverse effects of oil and gas exploration and development activities. At the least, a full enquiry into the record of such stipulations and rules in protecting sanctuary resources, and into the record of actions taken by Department of the Interior officials from 1979 until the present, particularly with respect to the California sanctuaries, should be undertaken before NOAA decides, pursuant to its own, independent authority, to rely upon the authority of another agency to protect sanctuary resources. Such an enquiry, at a minimum, must consider the adequacy of such other authority (the Outer Continental Shelf Lands Act Amendments) to provide the same degree of protection of sanctuary resources as that which is required by the Marine Sanctuaries Act. The DEIS is totally without any analysis of these matters, and, in my opinion, must be considered inadequate.

I want to thank you and your staff again for making a special effort to secure these comments on the Flower Garden Banks DEIS. Such solicitude for informed public participation in the sanctuary designation process should not pass without comment.

Sincerely,

Jack H. Archer

Jack H. Archer, Esq.
Associate Professor
Environmental Sciences Program &
Urban Harbors Institute

3. NOAA intends to protect the resources of the sanctuary from adverse effects of oil and gas exploration and development activities through, e.g., the enforcement of § 943.5 (a) (1 - 4) and § 943.6 of the sanctuary regulations. See also Generic Responses A and B.

4. See Generic Responses A and B.

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The Proposed Flower Garden Banks Marine Sanctuary

Protecting Marine Resources Under International Law

by Jack H. Archer

The Proposed Flower Garden Banks Marine Sanctuary

Protecting Marine Resources Under International Law

by Jack H. Archer

The Flower Garden Banks in the Gulf of Mexico were first proposed as a marine sanctuary in 1977 to protect some geographically-unique coral reefs and related resources. Vessels anchoring and discharging wastes and pollutants in or near the Banks were thought to be major threats. Oil and gas exploration and development activities, which were beginning in this part of the Gulf, also were considered significant risks to these resources. To date, no final action has been taken to designate the Banks as a sanctuary, although it is still under "active" consideration.

In the 10 years since the original proposal, concern has focused on anchoring by foreign and domestic vessels as the primary source of injury to the Flower Garden Banks. The coral resources of the Banks may be protected under U.S. law. But, prohibiting anchoring by foreign vessels in the Banks interferes with freedom of navigation, which includes the right for all to anchor on the high seas. There are, however, several possible legal bases for exercising authority over anchoring by foreign vessels within the boundaries of the proposed Flower Garden Banks marine sanctuary. Thus, authority over anchoring in this area would appear to be consistent with principles of international law.

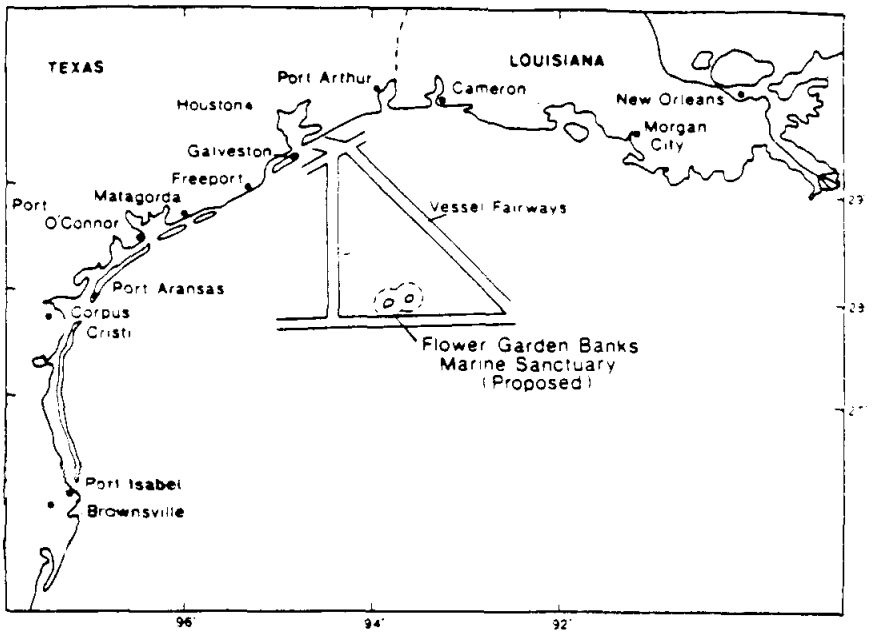
Background

The Flower Garden Banks, located approximately 110 nautical miles southeast of Galveston, Texas, (Figure 1) are the northwestern-most living coral reefs on the continental shelf of the Gulf of Mexico. They are the only truly tropical coral reefs in this area of the Gulf. They contain at least 18 coral species, more than 100 species of Caribbean reef fish, and more than 200 invertebrate species. Scientific interest in the Banks is relatively high; the Banks also are valued by recreational divers and other visitors. Because the proposed sanctuary is located near shipping lanes leading to U.S. ports in Texas and Louisiana, concern has arisen over the potentially destructive activities of vessels passing through or near the Banks. Vessels dropping and dragging anchors on the shallow coral reef have been identified by the National Oceanic and Atmospheric Administration (NOAA) as a major threat to the unique resources of the Flower Garden Banks. Because of the massive size and weight of ship anchors, even infrequent occurrences may have devastating effects.

Shortly after passage of the Marine Sanctuaries Act (MSA) in 1972, interest developed in establishing the Banks as a national marine sanctuary, with controls on the activities of both domestic and foreign vessels traveling in or near the Banks to protect their coral and associated resources. In 1977, the Flower Garden Banks were formally proposed for designation as a sanctuary under the MSA.

Since the original proposal in 1977, NOAA has pursued a shifting course in considering the status of the Flower Garden Banks area. In 1979, NOAA published a Draft Environmental Impact Statement (DEIS) and proposed regulations applicable to oil and gas, marine pollution, and recreational activities, as well as anchoring within the proposed sanctuary—a relatively small area of approximately 175 square nautical miles. Revised proposed regulations were issued in 1980 that relaxed previously proposed sanctuary restrictions on hydrocarbon activities, and relied on the oil and gas lease stipulations developed by the Department of the Interior under the Outer Continental Shelf Lands Act Amendments of 1978 to protect sanctuary resources. But no final action to establish the sanctuary was taken, primarily because of continuing opposition by the oil and gas industry, which viewed any proposed regulations potentially affecting the industry under the authority of the Secretary of Commerce (rather than the Secretary of the Interior) as an obstacle to offshore energy development and bad precedent.

In 1982, NOAA removed the Banks from its list of sites under consideration for sanctuary



The proposed Flower Garden Banks Marine Sanctuary, nearby Gulf ports, and vessel traffic lanes.

designation, in part because a proposed Gulf of Mexico Coral Fishery Management Plan prepared under the U.S. Fishery Conservation and Management Act would regulate vessel anchoring in the Flower Garden Banks—"the one remaining unresolved issue identified in the DEIS," according to NOAA. The final Coral Fishery Management Plan, however, did not include regulations applicable to anchoring.

In response, in 1984, NOAA revived its proposal to establish the Banks as a national marine sanctuary, and announced the preparation of a draft management plan and environmental impact statement. Since 1984, NOAA has taken no further action on the designation of the sanctuary. Thus, more than 10 years after the original nomination, NOAA has not yet created a national marine sanctuary on the Banks—despite considering the resources of the area to be of substantial significance.

Protection Under International Law

Because the Flower Garden Banks lie outside the boundaries of the U.S. territorial sea (3 nautical miles), where national sovereignty and jurisdiction is certain, and within the 200-nautical-mile Exclusive Economic Zone (EEZ), where there is a blending of national jurisdiction and international rights, protecting the resources within the proposed sanctuary involves a balancing of both national and international interests.

The Marine Sanctuaries Act authorizes the Secretary of Commerce to regulate activities within a marine sanctuary to protect nationally significant "resource or human-use values." It is in the exercising of this authority where legal nuances are encountered. Jurisdiction over both persons and vessels is involved. While the authority over U.S. citizens and U.S.-flagged vessels is clear, it is when the authority is extended to foreign citizens and foreign vessels that legal questions arise.

The Marine Sanctuaries Act regulations are applicable to a person who is not a citizen of the United States if they are in accord with either generally recognized principles of international law or agreements between the United States and the foreign state of which the person is a citizen, or, if the person is a crewmember of a vessel, between the United States and the flag state of the vessel. In the case of the Flower Garden Banks, the activities of foreign vessels have received primary attention.

In 1984, before publishing its intention to proceed with designating the Flower Garden Banks as a marine sanctuary, NOAA obtained the opinion of the State Department on whether the United States could regulate anchoring on the Banks by foreign vessels in accordance with recognized principles of international law. The response asserted in part:

> *The Department believes that the United States does have jurisdiction to prohibit anchoring [by foreign vessels] in the [FGB], except for anchoring by force majeure [unanticipated or uncontrollable events].*
> Communication from the Deputy Assistant Secretary for Oceans and Fisheries Affairs to Chief, Sanctuary Programs Division, NOAA (April 19, 1984), cited at 49 Federal Register 30990 (1984).

This position, however, impairs the traditional freedom to navigate the high seas, codified in Article 2 of the 1958 Convention on the High Seas:

> *The high seas being open to all nations, no State may validly purport to subject any part of them to its sovereignty. Freedom of the high*

seas is exercised under the conditions laid down by these articles and by the other rules of international law. It comprises [among other things] both for coastal and non-coastal states: 1) Freedom of navigation . . .

Moreover, Article 6 of the 1958 Convention provides that flag state jurisdiction is "exclusive" on the high seas. That is, authority over a vessel on the high seas rests solely with the nation in which the ship is registered.

Like the State Department, NOAA asserted in principle jurisdiction by the United States to prohibit anchoring by foreign vessels in ocean areas outside U.S. territorial waters. The 1984 announcement reviving NOAA's proposal to designate the Flower Garden Banks as a sanctuary, however, did not indicate any basis for this assertion.

Clearly, the right to anchor on the high seas is an essential part of freedom of navigation. Thus, any abridgment of the right of foreign vessels to anchor in the Flower Garden Banks must find its justification in other, countervailing principles. Two relevant principles examined in this article focus on the authority of coastal states to protect marine resources beyond national territory but subject to coastal state resource jurisdiction, and/or to condition entry to ports upon compliance with regulations applicable to such resources.

Sources of International Law

The Marine Sanctuaries Act applies sanctuary regulations to persons who are not citizens of the United States only if such regulations are in accord with either 1) the body of international law referred to as "customary international law" or "generally accepted rules of international law" that has developed from the practice of the states of the world, or 2) international agreements, treaties, and conventions binding on the contracting states and permitting such regulation. In certain circumstances, and often subject to controversy, international agreements, whether or not they have come into force between the contracting parties, may be regarded as sources of, or indicative of emerging trends in, customary international law. Indeed, the United States, although not a signatory to the 1982 United Nations Convention on the Law of the Sea (UNCLOS), considers that this agreement, except for the provisions pertaining to deep seabed mining:

> *. . . contains provisions with respect to traditional uses of the oceans which generally confirm existing maritime law and practice and fairly balance the interests of all States.* Statement by the President on the Exclusive Economic Zone of the United States (March 10, 1983).

There are, however, sources of authority other than UNCLOS that justify U.S. jurisdiction to prohibit anchoring in the Flower Garden Banks.

The 1958 Continental Shelf Convention

Under Article 2 of the 1958 Convention on the Continental Shelf, the United States has "sovereig rights [over the continental shelf] for the purpose of exploring it and exploiting its natural resources Moreover, such sovereign rights are "exclusive," and do not depend on occupation or any express proclamation with respect to the shelf. These conventional rights over the resources of the continental shelf also are recognized generally to be customary rights in international law, and are replicated in Article 77 of UNCLOS.

There is no doubt that the coral reefs of the Banks are natural resources of the continental she and that the sovereign rights of the United States under the 1958 Convention are sufficient to prohibit any activity harmful to them. A U.S. court has held that, under the terms of the 1958 Convention, activities on the continental shelf damaging to coral (for example, dredging or and the construction of facilities on a coral formation) may be prohibited (*United States v. Ray*, [1970]). While Ray was a U.S. citizen, the matter of interest is that the court found that coral is a resource protectable under the 1958 Convention. Further, Article 5 of the 1958 Convention, which provides that the exploration and exploitation of the resources of the continental shelf must not result in "any unjustifiable interference with navigation," implicitly recognizes that the coastal state's sovereign rights over the resources of the continental shelf include the authority to impose "justifiable" limits on navigation. Article 78 of UNCLOS employs language similar to Article 5 of the 1958 Convention. Thus, a prohibition on anchoring within the relatively small area (175 square nautical miles) included within the boundaries of the proposed marine sanctuary, for the purpose of preventing damage to its unique coral resources, would appear to be justifiable under international law. That is, the principle of freedom of navigation (and anchoring) on the high seas can be superseded if the United States acts narrowly (defining a relatively small area) and responsibly (protecting a valuable resource).

Port State Authority

There is a second legal principle that may be called on. Although it has been argued that there is a general rule of international law allowing entry by foreign vessels to a state's ports, the prevailing view is that states may deny entry subject to relatively few restrictions. William T. Burke, Professor of Law, University of Washington, Seattle, Washington, and co-authors have stated:

> *There is no doubt that a state may condition entry into its ports as it wishes and that such conditions may effectively regulate acts outside national territory. The limits on these broad competences are to be found in the reciprocity and retaliations that maintain effective international exchange of goods by vessels.* National and International Law Enforcement in the Ocean (1975), page 47.

In accordance with this rule of international law, the United States has enacted legislation denying entry by foreign vessels to U.S. ports if such vessels have a history of incidents indicating that they are unsafe, "create a threat to the marine environment," or fail to comply with applicable U.S. law (1972 Ports and Waterways Safety Act). The Act defines "marine environment" to include the "seabed and subsoil of the Outer Continental Shelf of the United States, the resources thereof and the waters superjacent thereto." Certainly the Marine Sanctuaries Act seeks to protect the resources of the "marine environment," a term employed and defined similarly in the Act. Thus, regulations issued under the Marine Sanctuaries Act would appear to be "applicable" and enforceable under the Ports and Waterways Safety Act. Therefore, in cooperation with the Coast Guard, which administers the Ports and Waterways Safety Act, the Department of Commerce may issue regulations under the Marine Sanctuaries Act prohibiting anchoring by any foreign vessels on the Flower Garden Banks, and advising that any violation of such regulations may result in the denial of entry to U.S. ports. Enforcement actions, of course, would be the responsibility of the Coast Guard. Because a majority of foreign vessels passing over or near the Banks are transiting to or from U.S. ports, use of this authority as an enforcement mechanism to ensure compliance with sanctuary regulations would likely prove effective.

Exclusive Economic Zone Authority

The United States is one among 72 states that have declared an Exclusive Economic Zone extending 200 nautical miles from their shores. Using language closely paralleling Article 56 of UNCLOS, the United States asserts "sovereign rights for the purpose of exploring, exploiting, conserving, and managing natural resources, both living and non-living, of the seabed and subsoil and the superjacent waters" of the zone (A Proclamation by the President: Exclusive Economic Zone of the United States (March 10, 1983)—see *Oceanus* Vol. 27, No. 4, pages 3-6).Thus, as a matter of state practice, the establishment of exclusive economic zones and the broad principles of coastal state jurisdiction over the living and non-living resources of such zones are generally recognized under customary international law. However, whether the detailed provisions of Part V of UNCLOS setting forth the legal regime of the Exclusive Economic Zone also are to be viewed as customary law is not certain. Surely they may be regarded as indicating developing international practice.

Considered in this light, several articles should be noted. In exercising rights and duties respecting the Exclusive Economic Zone, coastal states are required to have "due regard to the rights and duties of other States and shall act in a manner compatible with the provisions of [UNCLOS]" (Article 56.2.). Reciprocally, other states must extend the same regard to the rights of the coastal state, and must comply with the laws and

A tanker at anchor on the East Flower Garden Bank in April 1979. (Courtesy Dept. of Oceanography, Texas A&M University)

Coral head fractured by the anchor of a commercial vessel on the East Flower Garden Bank in 1983. (Courtesy Continental Shelf Associates, Inc., Tequesta, Florida)

regulations adopted by the coastal state in accordance with international law (Article 58.3.).

In cases of conflict where UNCLOS does not attribute rights or jurisdiction in the Exclusive Economic Zone to the coastal state or to other states, the conflict should be resolved on the basis of "equity and in the light of all the relevant circumstances, taking into account the respective importance of the interests involved to the parties as well as to the international community as a whole" (Article 59).

As argued under the language of the 1958 Convention on the Continental Shelf, the rights of the United States to protect the coral resources of the Flower Garden Banks are in accord with both conventional and customary international law. Therefore, Article 58.3. requiring that other states comply with coastal state law would be pertinent to resolving conflicts arising from U.S. regulation of anchoring by foreign vessels on the Banks. Where the attribution of rights among coastal and other states is not evident, Article 59 indicates principles to follow in settling disputes.

Enforcement Under the MSA

If we accept that domestic law is consistent with international law, then there are grounds for extending U.S. law and policy to foreign persons or vessels. If an incident occurs within a marine sanctuary, the MSA authorizes civil penalties for violating sanctuary regulations. As noted previously, a majority of foreign vessels passing through the Flower Garden Banks are bound to or from U.S. ports; therefore, denial of entry for violating sanctuary regulations would probably ensure compliance.

For most practical purposes, however, enforcing the civil law under other circumstances depends on the person or vessel being physically within U.S. jurisdiction—that is, within U.S. territorial waters. Therefore, if an offending vessel voluntarily enters a U.S. port, the United States may assert jurisdiction to assess civil penalties for violations of regulations issued under the Marine Sanctuaries Act. In cases of actual physical harm to the coral resources of the Flower Garden Banks, the United States, by virtue of its "protectable sovereign interest" in the resources of its continental shelf and Exclusive Economic Zone, may seek damages (see page 44).

Regulating Vessels Under International Law

In addition to application of appropriate civil law, there also are opportunities to pursue direct international agreements. The Marine Sanctuaries Act authorizes the Secretary of State to negotiate "necessary arrangements for the protection of any national marine sanctuary." Keeping in mind the effective limitation ("reciprocity and retaliations") upon the exercise of port state authority to deny entry to foreign vessels violating sanctuary regulations, the United States may choose to ensure compliance through the offices of the International Maritime Organization (IMO). Member states may propose, and IMO may adopt, vessel routing systems that avoid environmental conservation areas such as the Flower Garden Banks. Designation of the Banks as a national marine sanctuary under the Act would obviously assist in achieving international recognition of the Banks as a protected area.

This article has addressed only the issue of protecting the coral resources of the Flower Garden Banks under international law, from harm caused by vessels anchoring on them. If the United States seeks to restrict other activities of foreign vessels (for example, polluting the waters of the Banks and damaging its resources), then other authority must be considered. However, actions by coastal and port states to protect marine resources under their jurisdiction from such harmful activities also would be justified by the described principles.

Careful Decisions Are Required

Because protecting important marine resources outside the territory of a coastal state may affect the navigation rights of other states, it is prudent to conclude on a note of caution. The U.S. Congress has already declared a policy of protecting such resources in the Marine Sanctuaries Act. Yet, the execution of that policy allows considerable discretion to program managers, and requires close consultation with the State Department when issues such as those raised by the proposed Flower Garden Banks sanctuary must be resolved.

Decisions to protect these resources can be carefully framed to have minimum impact on the rights of other states. Some impact, however, is unavoidable. But if no action is taken to protect the resources of the Flower Garden Banks and similar areas, however justified and well-considered, because of its effect on the principle of free navigation, however slight, then the national policy to protect unique marine resources under U.S. jurisdiction is effectively checked. The oversight and reauthorization hearing on the Marine Sanctuaries Act to be held 30 March 1988 provides an opportunity for the Congress to consider this matter afresh.

Jack H. Archer is a Senior Fellow, Marine Policy and Ocean Management Center, Woods Hole Oceanographic Institution. He is a former Counsel to the U.S. House Subcommittee on Oceanography, and a former Senior Attorney, NOAA.

TEXAS MEMORIAL MUSEUM
THE UNIVERSITY OF TEXAS AT AUSTIN
2400 Trinity · Austin, Texas 78705 · (512) 471-1604

March 16, 1989

Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Ave., N.W.
Washington, D.C. 20235.

Dear Chief Uravitch,

I am delighted to hear that the ecologically-distinct and unique reefs and brine seeps on the Flower Gardens Banks finally are going to be included in the National Marine Sanctuaries Program. As you know, the reef coral communities on the summits of these banks currently are especially vulnerable to destruction by the anchors and chains of large vessels. Given the limited resources directly available to your agency for surveillance and enforcement, may I wish you useful collaborations with the USGS, MMS and the private oil companies working in this area.

No response necessary.

Yours sincerely,

Judith C. Lang

Judith C. Lang, Ph.D.
Curator of Invertebrate Zoology

cc: David Cottingham, Office of Ecology & Conservation
Terrance Leary, Gulf of Mexico Fishery Management Council
Thomas Bright, Texas A&M University

Unocal Oil & Gas Division
Unocal Corporation
4535 Southwest Freeway
900 Executive Plaza West
Houston, Texas 77027
Telephone (713) 623-8000

UNOCAL 76

April 21, 1989

Mr. Joseph A. Uravitch, Chief
Marine and Estaurine Mgmt Division
Nat'l Oceanic and Atmospheric Admin.
1825 Connecticut Ave NW
Washington, D.C. 20235

SUBJECT
Comments on Flower Garden Banks
National Marine Sanctuary Regulations
15 CFR Part 943
(Docket No. 80851-8151)

Dear Mr. Uravitch:

Union Exploration Partners, Ltd., is operator of three leases at the West Flower Garden Banks portions of which are included in the proposed marine sanctuary. These leases are High Island Block A-384 (OCS-G-3316), High Island 385 (OCS-G 10311), and High Island 397 (OCS-G 8575). Union agrees it is desirable to establish the marine sanctuary, however certain provisions of the rule limit operating flexibility, reduce acreage which may be used, increase cost of operation and reduce the potential value of leases.

In the preamble of the Flower Garden Banks National Marine Sanctuary Regulations rule (Fed Reg Vol 54 No. 36 Feb. 24, 1989 p. 7956) the following statement appears: "The third activity prohibited would be dredging, constructing structures or otherwise altering the seabed or attempting to do so, for any purpose other than the authorized installation of navigational aids or incidental to hydrocarbon exploration and development in areas of the Sanctuary lying outside of the no-activity zones established by the Department of the Interior and defined by the topographical lease sale 112."

The Minerals Management Service (MMS) no-activity boundary utilizes the 1/4, 1/4, 1/4 of lease blocks system for definition of areas of biological concern. The MMS boundary is designed to provide a buffer zone around the truly sensitive area which is contained within the contiguous 100 meter isobath. The results of the 1980 public hearings and resultant settlement agreement regarding the Environmental Protection Agency National Pollution Discharge Elimination System permit for the Flower Garden Banks indicate a recognition that the area of biological concern was actually described within the 100 meter contiguous isobath containing the shallower water reefs

1. at the East and West Flower Gardens. Therefore the logical boundary for the Sanctuary and restrictions on anchoring should be based on the contiguous 100 meter isobath containing the reef rather than the MMS no-activity boundary which is outside the 100 meter contiguous isobath in all instances and provides a buffer zone for the biologically sensitive area.

2. The lease stipulations for sale 112 provide for no anchoring inside the no-activity area but anchoring may be approved by the MMS subject to close on site supervision by the MMS. The proposed rule requires additional approval of NOAA. This would be time consuming and an additional regulation which is felt to be unwarranted.

3. The no-activity boundaries extend further than those for sale 112 and thus further restrict oil and gas operations and may require more complex and expensive directional drilling to develop the leases. A map is attached which shows the sale 112 boundary and that of the proposed rule by the West Flower Garden Banks. Usable property under lease at the West Flower Garden Banks will be diminished by the proposed rule.

In summary, the rule should provide for regulation of Oil and Gas operations to rest solely with the MMS and not require additional NOAA permitting requirements or more stringent requirements. Also the marine sanctuary boundary should be limited to the 100 meter contiguous isobath for Flower Garden Banks.

Yours very truly,
Union Exploration Partners, Ltd.,
Limited Partnership
By: Union Oil Company of California,
Managing General Partner

R.A. Oliver

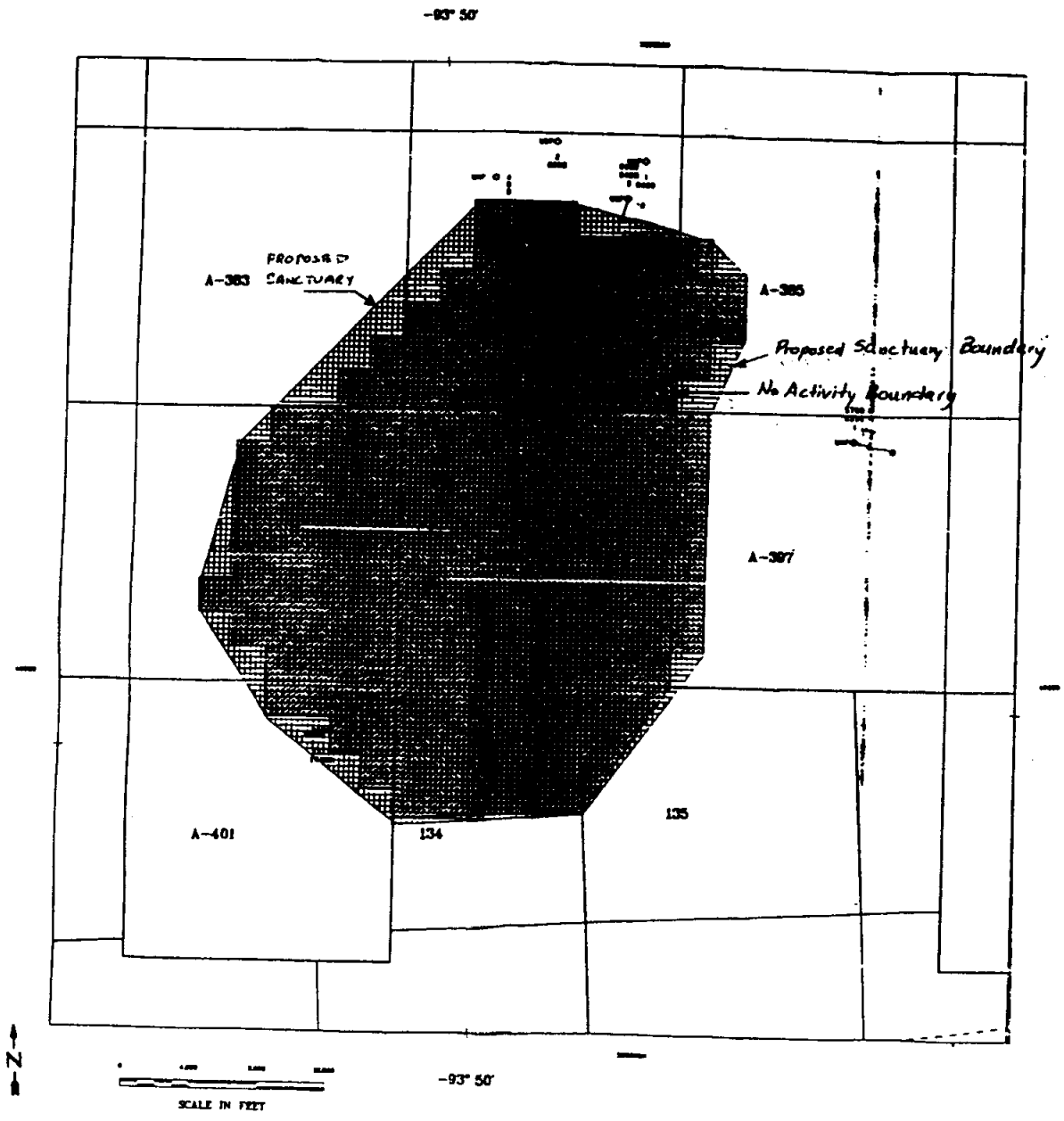
R. A. Oliver
Regional Engineer

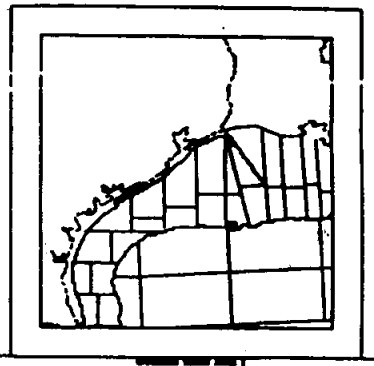
RAO:ta
Attachment

1. Alternative 2 provides for a boundary that follows the 100 meter isobaths around the Banks. This alternative was not selected because the 100 meter isobaths are so irregular that they can not be plotted by geographic coordinates for enforcement purposes.

2. NOAA disagrees. Vessels of less than or equal to 100 feet will be permitted to anchor, using specified anchoring gear, in areas of the sanctuary where no mooring buoys are available. The prohibition on anchoring or otherwise mooring applies only to vessels greater than 100 feet. All vessels, however, will be permitted to anchor under emergency conditions. NOAA believes that these restrictions are warranted by the history of anchor damage to the reefs.

3. See Generic Response C.





Legend

Map Projection

PROJECTION: LAMBERT
UNITS: FEET
ZONE: TEXAS

Union
OIL AND GAS DIVISION
GULF REGION
TEXAS OFFSHORE DISTRICT

WEST FLOWER GARDEN BANK

HIGH ISLAND AREA- OFFSHORE TEXAS

	MAR 22, 1989	1" = 4000 FEET	SEA LEVEL
		RMAPDATA	TEXMY

UNITED STATES
DEPARTMENT OF
AGRICULTURE

Soil
Conservation
Service

101 South Main
Temple, Texas
76501-7682

March 13, 1989

Mr. Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, DC 20235

Mr. Uravitch:

We have reviewed the Draft Environmental Impact Statement and Management Plan for Flower Garden Banks National Marine Sanctuary. At this time, we have no comments to make on this project.

Thank you for allowing us to review this document.

Sincerely,

HARRY W. ONETH
State Conservationist

cc:
David Cottingham, Director, Office of Ecology and Conservation
Pete Wright, AC, SCS, Alice, Texas

No response necessary.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Fisheries Center
Galveston Laboratory
4700 Avenue U
Galveston, TX 77551-5997

March 10, 1989 F/SEC6:RE:EFK:re

Mr. Joseph A. Uravitch, Chief
Marine and Estuarine Management
Division
Office of Ocean and Coastal
Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, DC 20235

Dear Mr. Uravitch:

Thank you for the opportunity to review the draft environmental impact statement/draft management plan on the proposed Flower Garden Banks National Marine Sanctuary. There were some minor corrections on pages 10 and 18 (see attached), otherwise, it looks good. 1.

Sincerely,

Edward F. Klima, Ph.D.
Laboratory Director

Enclosure
cc: FX1 - David Cottingham
F/SEC6 - Gregg Gitschlag

1. Comment accepted. The FEIS/MP has been corrected accordingly.

R.L.

MAR 1989
RECEIVED

coordination among all the agencies participating in sanctuary management;

- Develop an effective and coordinated program for the enforcement of sanctuary regulations;
- Promote public awareness of and voluntary user compliance with regulations through an interpretation program stressing resource sensitivity and wise use; and
- Reduce threats to sanctuary resources raised by major emergencies through contingency and emergency-response planning.

2. Research

Substantial, site-specific research has been conducted at the Flower Garden Banks, particularly over the ~~even~~ the past 15 years. This work is discussed in section II.C. Sanctuary research will build upon this foundat to improve understanding of the Flower Garden Banks' environment and resour and to resolve specific management problems. Research results will be used interpretation programs for visitors and others interested in the sanctuary

removal of salt by dissolution is more advanced at the West Bank. Consequently, it possess a larger and more conspicuous central graben (dow faulted depression) than does the East Bank.

The salt plugs beneath both Banks are quite near the sea floor. High salinity brine seepage has been detected on the East Flower Garden at 45 m depth, indicating that the top of the salt may lie directly beneath the central reef. A larger brine seep on the southeastern edge of the Bank at depth of 233 ft (71 m) flows at a rate of 400-700 cubic meters (14,125- 24 cubic ft) per day. This discharge of 200 parts per trillion (ppt) brine i thought to represent the removal of 10,000 to 22,000 cubic meters (353,300 776,900 cubic ft) of solid salt per year from beneath the East Flower Gard Stratigraphic traps formed on the flanks of the salt plugs are known to

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Habitat Conservation Division
4700 Avenue U
Galveston, TX 77551-5997

April 21, 1989 F/SER112/DM:sp
409/766-3699

MEMORANDUM FOR: N/ORM2 - Joseph A. Uravitch

FROM: F/SER112 - Donald Moore

SUBJECT: Flower Garden Banks National Marine Sanctuary Draft Environmental Impact Statement/Management Plan (DEIS/MP)

We are pleased that the above DEIS/MP was issued in February 1989 along with the Proposed Rules issued in the Federal Register on February 24, 1989 (52 FR 7953-7960). Implementation of the proposed regulations should improve the conservation of this sensitive habitat.

The likelihood of the proposed sanctuary providing sufficient protection to maintain these coral reef habitats would be greatly enhanced by eliminating all vessel anchoring on them. Along with this, continued access to the reefs could be provided by installing sufficient mooring buoys, like those at the Key Largo National Marine Sanctuary, to eliminate any need for future anchoring on the banks. 1.

1. See Generic Response E. See also Generic Response F.

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO ATTENTION OF

April 26, 1989

Environmental Resources
Branch

Mr. Joseph A. Uravitch
Chief, Marine and Estuarine
Management Division
Office of Ocean and Coastal
Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, NW.
Washington, DC 20235

Dear Mr. Uravitch:

Thank you for submitting the Draft Environment Impact Statement (DEIS)/Management Plan for the Flower Garden Banks National Marine Sanctuary for our review and comments. We have the following comment: Designating a site as a marine sanctuary is not subject to permit requirements. However, we still have regulatory authority over the Flower Garden Banks under Section 10 of the Rivers and Harbors Act and Section 103 of the Marine Protection, Research and Sanctuaries Act.

No response necessary.

We appreciate the opportunity to review the DEIS. If you have questions concerning our comment, please contact Mr. Jim Barrows, Environmental Resources Branch, at 409/766-3068.

Sincerely,

Sidney H. Tanner
Acting Chief, Planning Division

Copy Furnished:

Mr. David Cottingham
Director, Office of Ecology and Conservation
U.S. Department of Commerce
1825 Connecticut Avenue, NW., Room 6222
Washington, DC 20235

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202

APR 12 1989

Joseph A. Uravitch
Chief, Marine and Estuarine
Management Division
Office of Ocean and Coastal
Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, D.C. 20235

Dear Mr. Uravitch:

In accordance with responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the Region 6 office of the U.S. Environmental Protection Agency (EPA) has reviewed your Draft Environmental Impact Statement (EIS) for the proposed designation of the East and West Flower Garden Banks within the Gulf of Mexico as a national marine sanctuary pursuant to the provisions of Title III of the Marine Protection, Research and Sanctuaries Act of 1972, as amended. Through the proposed sanctuary management plan and the implementing regulations, this proposed action will facilitate the long-term management and protection of this valued marine resource, offers research opportunities, and provides an interpretation program to enhance public awareness of the Flower Gardens.

The East and West Flower Garden Banks are located approximately 120 nautical miles due south of the Texas-Louisiana border at the edge of the continental shelf and encompasses an area of 41.70 square nautical miles. The Flower Garden Banks are unique among the banks of the northwestern Gulf of Mexico in that they bear the northernmost tropical Atlantic coral reefs on the continental shelf and support the most highly developed offshore hard bank communities in the region.

We classify your Draft EIS as Lack of Objection (LO). Specifically, we have no objection and fully support the proposed designation of the East and West Flower Garden Banks as a national marine sanctuary. Our classification will be published in the Federal Register according to our responsibilities to inform the public of our views on proposed Federal actions, under Section 309 of the Clean Air Act.

No response necessary.

We appreciate the opportunity to review your Draft EIS. Please send our office one (1) copy of the Final EIS at the same time it is sent to the Office of Federal Activities, U.S. Environmental Protection Agency, Washington, D.C.

Sincerely yours,

Robert E. Layton Jr., P.E.
Regional Administrator

RL.

Federal Emergency Management Agency

Region VI, Federal Center, 800 North Loop 288
Denton, Texas 76201-3698

NTH

March 13, 1989

Joseph A. Uravitch, Chief
Marine and Estuarine
Management Division
1825 Connecticut Ave., N.W.
Washington, D.C. 20235

Dear Mr. Uravitch:

Thank you for your letter of February 16, 1989, and the copy of Flower Garden Banks National Marine Sanctuary, Draft EIS Management Plan.

Since this project is proposed in open water of the Gulf of Mexico and will not involve coastal high hazard area, identified floodplains or wetlands, the Federal Emergency Management Agency (FEMA) has no comments.

Thank you again for providing our office with an opportunity to comment.

Sincerely,

Bill Kuno

for Jim LaGrotte
Natural Hazards Program
Specialist
Natural & Technological
Hazards Division

cc: Mr. David Cottingham

No response necessary.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
Atlanta GA 30333

April 25, 1989

Mr. Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal
Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, DC 20235

Dear Mr. Uravitch:

We have reviewed the Draft Environmental Impact Statement (DEIS) for the proposed Flower Garden Banks National Marine Sanctuary. We are responding on behalf of the U.S. Public Health Service. We concur with the preferred alternative to designate the Flower Garden Banks as a national marine sanctuary. This designation will insure the optimal management and protection of this ecologically sensitive area.

In our review, we concentrated on proposed human activities in the sanctuary area, particularly recreation. The DEIS suggests a much higher recreation usage of this area in the future (page 41) with a concurrent increase in underwater recreational activities. Due to the predictable hazards of underwater recreational activity (e.g. diving), we recommend that Final Environmental Impact Statement (FEIS) include some proposed guidelines for limiting the potential for accidents and injury.

Thank you for sending this document for our review. Please insure that we are included on your mailing list for the FEIS for this project as well as future documents with potential public health impacts which are developed under the National Environmental Policy Act (NEPA).

Sincerely yours,

David E. Clapp, Ph.D.,P.E.,CIH
Environmental Health Scientist
Center for Environmental Health
and Injury Control

NOAA will encourage and promote diver safety at the sanctuary.

U.S. Department of Housing and Urban Development
Fort Worth Regional Office, Region VI
1600 Throckmorton
P.O. Box 2905
Fort Worth, Texas 76113-2905

March 3, 1989

Mr. Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue N.W.
Washington, D. C. 20235

Dear Mr. Uravitch:

This office has reviewed the Draft Environmental Impact Statement/Management Plan for the Flower Garden Banks National Marine Sanctuary in accordance with Section 1503.2 of the Council on Environmental Quality (CEQ) regulations for the implementation of the National Environmental Policy Act (NEPA).

Inasmuch as the Department of Housing and Urban Development has no jurisdiction by law or special expertise in the area of marine biology, we submit a "no comment" response.

Sincerely,

I. J. Ramsbotton
Regional Environmental Officer

MAR 1989
RECEIVED

No response necessary.

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In Reply Refer To:
ER-89/158

Joseph A. Uravitch
Chief, Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Oceanic and Atmospheric Administration
1825 Connecticut Avenue, N.W.
Washington, D.C. 20235

Dear Mr. Uravitch:

The Department has reviewed and provides the enclosed comments on the National Oceanic and Atmospheric Administration proposed regulations and draft environmental impact statement for designating two marine areas in the Gulf of Mexico known as the Flower Garden Banks as a national marine sanctuary (54FR7953; February 24, 1989). If you have any questions about these comments, please contact Dr. John H. Farrell, Acting Director, Office of Environmental Project Review.

We appreciate the opportunity to comment on this proposal.

Sincerely,

Michael McElwarth
Deputy Assistant Secretary
Policy and Analysis

Enclosure

United States Department of the Interior

OFFICE OF ENVIRONMENTAL PROJECT REVIEW
WASHINGTON, D.C 20240

APR 2 1 1989

MEMORANDUM

TO: Deputy Assistant Secretary - Policy and Analysis

FROM: Office of Environmental Project Review

SUBJECT: Comments on National Oceanic and Atmospheric Administration Proposal to Designate a National Marine Sanctuary at the Flower Garden Banks in the Gulf of Mexico (ER-89/158)

The Department has reviewed and we have prepared the following comments on the National Oceanic and Atmospheric Administration's (NOAA's) regulations (15CFR943) published on February 24, 1989 (54 FR 7953). The proposed rule would designate two areas in marine waters of the Gulf of Mexico known as the Flower Garden Banks as a national marine sanctuary. We have also prepared comments on the draft environmental impact statement (EIS) supporting that proposal. General comments on both the proposed rules and the draft EIS follow, and specific comments are attached.

No objection has been raised within Interior regarding the proposed designation of the Flower Garden Banks as a national marine sanctuary. The "Regulatory/Boundary Alternative 1" (the "preferred alternative" described in the EIS) establishes an appropriate sanctuary boundary and management scheme for protecting the Bank's resources without inhibiting Interior's OCS hydrocarbon development program. Under this alternative, hydrocarbon activities would be permitted to continue outside the already established "no activity zone." Further, hydrocarbon development activities would continue to be regulated by Interior and would be exempt from future sanctuary regulations.

1.

With respect to the proposed sanctuary regulations, it will be necessary for NOAA to clarify that the prohibition on using explosives or electrical charges within the sanctuary does not apply to uses associated with hydrocarbon development activities regulated by Interior. Under its existing regulations, the Department's Minerals Management Service (MMS) requires that platforms be removed when they are no longer needed to support hydrocarbon development activities. These platforms may be removed using either mechanical or explosive methods to free them from the sea floor. The sanctuary regulations should explicitly state that platform removals undertaken in accordance with MMS regulations will be exempt from sanctuary regulation.

1.

With respect to the overall objective of protecting the Flower Garden Banks from unacceptable harm, we note that anchor damage from small recreational boats is widely held as the single largest cause of environmental damage to Flower Garden corals. In view of this, we urge that anchor buoys be placed in the sanctuary at the time of designation, rather than awaiting a formal determination of need.

3.

John H. Farrell
Acting Director

Attachment

1. See Generic Responses A, B and C.

2. See Generic Response C.

3. See Generic Response E.

Attachment

Department of the Interior Specific Comments on the Proposed Regulations for the Flower Garden Banks National Marine Sanctuary

4. o Page 7954, under "I. Background" It may be useful to describe briefly the 1988 amendments to Title III of the Marine Protection Research and Sanctuaries Act as relevant to the Flower Garden Banks.

5. o Page 7954, second column, last paragraph - In the sixth line from the end of the paragraph, it appears that "Atlantic Ocean" should be "Gulf of Mexico." If "Atlantic Ocean" is correct, an explanation should be provided since the Flower Garden Banks are clearly located in the Gulf of Mexico. Same comment applies for page 7955.

6. o Page 7955, third column, Article 4, section 1, f - Should add "except activities regulated by the Department of Defense and the Minerals Management Service as provided below under Article 5, Section 2." at the end of this section.

7. o Page 7956, first column, Article 5, Section 2 - Should add "and platform removals regulated by the Minerals Managemenmt Service." at the end of the first sentence.

8. o Page 7958, third column, under "(2) Depositing or Discharging Materials and Substances" - Should add a new subsection "(C) Any discharges authorized by the U.S. Environmental Protection Agency under a National Pollutant Discharge Elimination System (NPDES) permit."

9. o Page 7958, third column, under "(3) Altering the Seabed" - Last two lines should be replaced with "Interior through officially adopted topographic features stipulations that include the Flower Garden Banks."

10. o Page 7959, first column, second paragraph, under item (6) - Should add "except for activities regulated by the Department of Defense and the Minerals Management Service." at the end of the paragraph.

Department of the Interior Comments on the Draft EIS for the Proposed Flower Garden Banks National Marine Sanctuary

11. o General Comment - The Minerals Management Service has funded many studies on the biology of the Flower Garden Banks and other areas of the Gulf of Mexico. MMS would be happy to provide relevant information from these studies to NOAA for use in developing the final EIS.

12. o Page 18, first full paragraph, third sentence. The brine seep discharge rate "ppt" should be parts per thousand, not parts per trillion.

13. o Page 37, Figure 12 - The "Mobile Oil Platform" shown in the figure is incorrect and misleading as it might be thought of as a mobile offshore drilling unit. It is actually a permanent platform operated by the Mobil Oil Corporation and should be labeled as such.

14. o Page 39, Table 2 - This table should be amended to show that blocks A-97, A-352, A-354, A-387, A-390, A-361, A-363, and A-396, are now under oil and gas leases. Also,

4. Comment accepted.

5. Comment accepted.

6 & 7. Provisions regarding the Department of Defense and regarding oil and gas activities in areas of the Sanctuary outside the no-activity zones have been added to the regulations. See Generic Responses C and K.

8. 15 C.F.R. §§ 943.10 and 943.11 address treatment of authorization from other authorities.

9. NOAA disagrees. The MMS stipulations may be sufficient to protect sanctuary resources, but these stipulations are applied on a lease by lease basis and may be discontinued at any time. Those stipulations that are incorporated into sanctuary regulations, however, are made permanent. NOAA believes that it must be able to regulate activities affecting the Sanctuary in order to protect Flower Garden resources. If NOAA can not control the size of the no-activity zones, NOAA regulations lose effectiveness, and NOAA's ability to provide protection to Flower Garden resources is diminished. NOAA therefore reaffirms its intention to fix the boundaries of the no-activity zones as they were defined by the topographic lease stipulation for OCS oil and gas lease sale 112.

10. See response to 6 & 7 above.

11. No response necessary.

12. Comment accepted. The FEIS/MP has been corrected accordingly.

13. Comment accepted. The FEIS/MP has been corrected accordingly.

14. Comment accepted. The FEIS/MP has been corrected accordingly.

block A-403 was not included on the list for east Flower Garden. This block is not under lease but should be listed. The MMS records also indicate that the following blocks are no longer under lease: A-388, A-135, A-173, A-177, A-178, A-383, A-402, A-364, A-377.

15. o Page 74, first paragraph - The reference to the "quarter, quarter, quarter" system is confusing and unnecessary. This reference should either be further explained or eliminated (see also comments for page 75 below).

16. o Page 75, Table 4 - There are several mistakes in this table which, on the whole, does not seem very useful. Maps prepared and available from MMS fully describe the "no activity zone" of the Flower Garden Banks, and the "quarter, quarter, quarter" system is no longer used. The table should either be corrected or eliminated.

17. o Page 80, last paragraph - The second sentence should read: "The no activity zone boundaries enclose the 100 m (328 ft) isobaths around each Bank, thus including some areas outside of the 100 m isobath."

18. o Page 89, first full paragraph - The spill data in this paragraph should be supplemented to show that, from 1974 to 1981, there were only four spills of crude oil greater than 1000 barrels from OCS oil and gas facilities (including pipelines).

19. o Page 117, Article 4, section 1, c, would in effect incorporate MMS's topographic features stipulation for Sale 112 as part of future sanctuary regulations. While MMS may, in fact, adopt similar stipulations for future sales affecting the Flower Garden Banks, the proposed incorporation of the stipulation into sanctuary regulations would tend to deprive MMS of the flexibility of changing the stipulation in the future when better technologies and procedures become available. In addition, the future sanctuary regulations which incorporate the Sale 112 stipulations may conflict with existing stipulations applicable to leases issued under other sales which contain somewhat different requirements than those of Sale 112. Therefore, it would be preferable to spell out the "no activity zone" rather than citing an MMS lease stipulation as part of future sanctuary regulations.

20. o Page 136, second paragraph - The reference to "Secretarial Order 2974" should be clarified to indicate that it was replaced several years ago by a section of the Department of the Interior Manual (i.e., 516 DM 300).

15. Comment accepted. The FEIS/MP has been corrected accordingly.

16. Comment accepted. The FEIS/MP has been corrected accordingly.

17. Comment accepted. The FEIS/MP has been corrected accordingly.

18. Comment accepted. The FEIS/MP has been corrected accordingly.

19. NOAA disagrees. The application of NOAA regulations for the protection of Flower Garden Bank resources can not be subject to being changed by other federal agencies with entirely different missions.

20. Comment accepted. The paragraph has been deleted in the FEIS/MP.

United States Department of the Interior
NATIONAL PARK SERVICE
PADRE ISLAND NATIONAL SEASHORE
9405 SOUTH PADRE ISLAND DRIVE
CORPUS CHRISTI, TEXAS 78418

IN REPLY REFER TO

N16

April 14, 1989

Joseph A. Uravitch, Chief
Marine & Estuarine Management Division
Office of Ocean & Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington D.C. 20235

Dear Mr. Uravitch:

Padre Island National Seashore supports the proposed designation of the Flower Garden Banks as a national marine sanctuary. These coral reefs are complex, biologically productive systems deserving protection including regulations covering the following:

a) anchoring of vessels prohibited within the sanctuary
b) depositing/discharging materials or substances
c) seabed alteration
d) removal or injuring coral or other resources
e) use of fishing gear other than conventional hook and line
f) detonating explosives or releasing electrical charges.

Padre Island supports NOAA preferred Regulatory/Boundary Alternative 1 establishing a sanctuary of 41.7 nautical miles concentrated in two rings (100 meter isobaths) surrounding the two coral banks. This provides additional protection specifically to the discrete areas of special national significance. We also support NOAA preferred Management Alternative 2, provision of site-specific management in an appropriate location in the Texas/ Louisiana coastal region.

Sincerely,

John D. Hunter
Superintendent

No response necessary.

US Department of Transportation
United States Coast Guard

Commandant
United States Coast Guard

Washington DC 20593-0001
Staff Symbol G-MPS-1
Phone (202) 267-0504

5000

APR -

Mr. Joseph A. Uravitch
Chief
Marine and Estuarine
Management Division
Office of Ocean and Coastal
Resource Management
National Ocean Service/NOAA
1825 Connecticut Ave. NW
Washington, D.C. 20235

Dear Mr. Uravitch:

We have reviewed the draft environmental impact statement/draft management plan on the proposed Flower Garden Banks National Marine Sanctuary. We have no objection to the EIS or draft plan.

Thank you for providing us the opportunity to review this project.

Sincerely,

S. [illegible]
Commander, U.S. Coast Guard
Chief, Pers Operations Branch
By direction of the Commandant

Copy: Director, Office of Ecology
and Conservation

No response necessary.

APR 1989
RECEIVED

Buddy Roemer
Governor

Paul Hardy
Lieutenant Governor
and Commissioner

State of Louisiana
Department of Culture, Recreation and Tourism
OFFICE OF TOURISM

Henry Trujillo
Secretary

Bob LeBlanc
Assistant Secretary

March 9, 1989

Mr. Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, D. C. 20235

RE: Comments relative to proposed Marine Sanctuary status for the Flower Garden Banks areas off the coasts of Louisiana and Texas

Dear Mr. Uravitch:

We have received our copy of the 139-page draft environmental impact statement and management plan regarding the proposed marine sanctuary designation.

Obviously, we cannot comment on the actual environmental impact or ecological needs for this protection, but wish to offer our support to the plan in the sense of its positive contribution to our marine fisheries resources.

Such a designation can only help preserve the reef area and thus the fishing and diving opportunities tied to those resources. Ultimately, we see a positive contribution to our tourism industry by offering another attraction and resource to that element of the interested population. Charter fishing, skin diving and other recreational interests will have yet another area to visit, thus enhancing the economy of the port(s) from which they sail.

We hope that the Flower Garden Banks do indeed obtain the marine sanctuary designation which will enhance its preservation.

Sincerely,

Robert A. Dudden, CPM
Deputy Assistant Secretary

RAD:EAN/lam

MAR 1989
RECEIVED

P.O. Box 94291 (900 Riverside North)
Baton Rouge, LA 70804-9291
(504) 342-8100

No response necessary.

DEPARTMENT OF NATURAL RESOURCES
LOUISIANA GEOLOGICAL SURVEY
University Station, Box G · Baton Rouge, Louisiana 70893-4107 · (504) 388-5320

April 5, 1989

Joseph A. Uravitch, Chief
Marine and Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Ave., N.W.
Washington, DC 20235

RE: Flower Garden Banks DEIS/MP

Dear Mr. Uravitch:

We support the designation of the Flower Garden Banks as a marine sanctuary and the recommended regulatory/boundary and management alternatives presented in the Draft Environmental Impact Statement and Management Plan. It is important to protect the natural resources in this unique area from anchoring, harmful discharges, alterations of the seabed, removal and injury of coral, destructive fishing gear, and explosives. In addition, provisions for flexibility in the plan are also important since new issues may emerge and additional factors may become important to provide protection to the Banks.

1. Informing the public about this unique resource is also extremely important. In the document approximately nine areas for Information Centers in Texas are identified and none in Louisiana. While providing for Information Center and Outreach Programs in Louisiana is mentioned, no specific sites are listed. The following are suggestions that NOAA should consider for location in Louisiana: McNeese University in Lake Charles; Louisiana Universities Marine Consortium (LUMCON) in Cocodrie; Louisiana Nature and Science Center and the upcoming New Orleans Aquarium in New Orleans; and Louisiana Department of Wildlife and Fisheries' Natural Heritage Program, Department of Natural Resources' Coastal Management Division, and LSU's Sea Grant Program in Baton Rouge.

2. Finally, on page 18 there seems to be an error in the description of the salinity of the brine seeps of approximately 200 ppt. The text identifies this acronym as parts per trillion, it should be parts per thousand.

Sincerely,

C. G. Groat
Director and
State Geologist

cc: David Cottingham
Room 6222
U.S. Department of Commerce
Washington, DC 20230

An Equal Opportunity Employer

1. Comment accepted. These sites have been added to the list of sites to be considered as information centers in the FEIS/MP.

2. Comment accepted. The FEIS/MP has been corrected accordingly.

Senate
State of Louisiana

P O Box 94183
Baton Rouge, Louisiana 70804
(504) 342-2040

April 12, 1989

Mr. Joseph A. Uravitch, Chief
Marine & Estuarine Management Div.
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, D.C. 20235

RE: Draft EIS/Flower Garden Banks National Marine Sanctuary

Dear Mr. Uravitch:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement/Management Plan for the Flower Garden Banks National Marine Sanctuary.

The proposal to establish a national marine sanctuary in the waters offshore Texas-Louisiana appears to have merit in that additional protection would be extended to the coral reefs and associated resources of the Flower Garden Banks. Adequate safeguards appear to be built into the management scheme for the sanctuary and I understand that the Coastal Management Division, Louisiana Department of Natural Resources, has found no consistency problems with the proposed sanctuary.

Sincerely,

Samuel B. Nunez, Jr.
President Pro Tempore

SB/bj

cc: David Cottingham, Director
Office of Ecology and Conservation

No response necessary.

STATE OF TEXAS
OFFICE OF THE GOVERNOR
AUSTIN, TEXAS 78711

WILLIAM P. CLEMENTS, JR.
GOVERNOR

April 20, 1988

Mr. Joseph A. Uravitch, Chief
National Ocean Service/(NOAA)
1825 Connecticut Avenue, N.W.
Washington, D.C. 20235

RE: TX-R-89-03-07-0002-50
Flower Garden Banks National Marine Sanctuary

Dear Mr. Uravitch:

Attached are subsequent comments received on the above captioned proposal.

If we can be of further assistance, please let me know.

Sincerely,

T. C. Adams
State Single Point of Contact

TCA/pon

Enclosure

No response necessary.

TEXAS REVIEW AND COMMENT SYSTEM

REVIEW NOTIFICATION

Applicant/Originating Agency: National Ocean Service/(NOAA)

Project Title: FLOWER GARDEN BANKS NATIONAL MARINE SANCTURARY

SAI/EIS#: TX-R-89-03-07-0002-50-00

Date Received: March 1, 1989 Date Comments Due BPO: 03/30/89

---------- REVIEW PARTICIPANTS ----------

Texas Attorney General's Office
General Land Office
Texas Parks and Wildlife Department

Special Notes/Comments: NOAA provided copies under separate mail. We have provided additional copies to Bureau of Economic Geology and Texas Water Commission.

[] No Comment.

Review Agency Signature

Return Comments to:

for L. Adams, State Single Point of Contact
Governor's Office of Budget and Planning
P.O. Box 12428
Austin, Texas 78711
(512) 463-1778

Texas General Land Office

Sally S. Davenport
Director
Coastal Division

Garry Mauro
Commissioner

March 29, 1989

Mr. T. C. Adams, State Single Point of Contact
Governor's Office of Budget and Planning
P.O. Box 2428
Austin, Texas 78711

RE: Flower Garden Banks National Marine Sanctuary
SAI/EIS No. TX-R-89-03-07-0002-50-00

Dear Mr. Adams:

My staff has reviewed the referenced document and we make the following comments. East and West Flower Garden Banks have been under consideration as a national marine sanctuary for at least a decade. Both before and during this period a great deal has been learned of the values of these two complex marine structures. Also, a great deal has been learned of their vulnerability to man's activities. We support the designation of these areas as the newest unit of the National Marine Sanctuary System.

We agree that anchoring of ships presents the most probable significant reef damaging activity, at least near-term. And we encourage close monitoring to evaluate the effects of smaller vessels anchoring on the reefs, even with their anchor line proscriptions.

Thank you for this opportunity to comment on this document of such importance to Texas and the nation.

Sincerely,

Sally S. Davenport

Sally S. Davenport
Director
Coastal Division

SSD/HI/jlw

No response necessary.

Stephen F. Austin Building
1700 N. Congress Avenue
Austin, Texas 78701
(512) 463-5059

STAFF COMMENTS

1. Although, staff supports Boundary Alternative I, Alternative III is preferred. While Alternative I provides a protective umbrella to the physical area of the Flower Gardens, it does not provide a coordinating protective umbrella to the surrounding area. Obviously, the Flower Gardens are directly dependent on surrounding water quality and any development activity (especially resulting in increased turbidity) in their vicinity may adversely affect the coral's growth. However, the potential threat from

2. development close to the Flower Gardens is mitigated by the Minerals Management Service rule requiring all drilling cuttings and fluids to be shunted to no more than 10m from the bottom.

Also, staff would prefer a different management approach than that offered by Management Alternative I (pg. 83-84) or Alternative II (pg. 84). Under management Alternative I the sanctuary manager is in Washington, D.C. and is too far removed from developing the personal knowledge about the reefs required to make timely recommendations and

3. decisions. Under Alternative II the hiring of a sanctuary manager and assistant manager requires a substantial cost to the tax payer ($90,000/year). Instead one of the existing staff at the National Marine Fisheries Service, Galveston Laboratory, could function as sanctuary manager. This approach would place the manager in an area where he has access to the resource and would keep the cost of the program to that required to promote a staff member and possibly hiring one person to maintain the program. Should this approach not be possible, Alternative II is acceptable.

4. Also Article 4. Section 1.E should be worded so that any fishing activity could be restricted by a rule change instead of categorically permitting hook and line fishing. The current wording assumes hook and line fishing cannot be a threat to the reef, however, recent studies are showing intensive hook and line gear can threaten fish populations. Rewording this section would ease the regulation procedures for the U.S. Secretary of Commerce.

1. See Generic Response A.

2. See Generic Response D.

3. This and similar approaches have been considered, but they have been rejected as inadequate to provide the staff capabilities needed to carry out sanctuary management responsibilities.

4. Comment accepted. See also Generic Response G.

TEXAS
PARKS AND WILDLIFE DEPARTMENT
4200 South Lamar Road Austin, Texas 78744

CHARLES D TRAVIS
Executive Director

April 18, 1989

Mr. T. C. Adams
State Single Point of Contact
Governor's Office of
Budget and Planning
Post Office Box 12428
Austin, Texas 78711

Re: Draft Environmental Impact Statement/Management Plan
Flower Garden Banks National Marine Sanctuary

Dear Mr. Adams:

The document entitled Flower Garden Banks National Marine Sanctuary: Draft Environmental Impact Statement/ Management Plan has been reviewed by Department staff. The staff recommends the Governor's Office support the U.S. Secretary of Commerce in designating the valuable and unique coral reef Flower Gardens a National Marine Sanctuary. Although several other U.S. regulatory agencies have passed rules to protect this resource, the anchoring of large ships on this beautiful underwater reef remains unregulated and this poses a serious physical threat to the slow growing corals which make up and maintain the reef. In addition, the designation of the Flower Gardens as a National Marine Sanctuary will provide a coordinating focus for future management practices of the U.S. Department of the Interior, the U.S. Department of Commerce, and the U.S. Department of Transportation.

This plan is needed to provide protection to the Flower Garden which is not currently available. Therefore this agency supports the plan and the attached staff comments are provided for consideration to the final plan.

I appreciate the opportunity to provide these comments.

Sincerely,

Charles D. Travis
Executive Director

CDT:AWG:bls

Attachment

No response necessary.

March 6, 1989

1. I am concerned about item "c" regarding the altering of the seabed except for hydrocarbon exploration. The seabed of the Flower Gardens should not be disturbed for the exploration of oil and gas or any other thing. Protected should be protected.

Mary Ellender
1521 Cypress St.
Sulphur, LA 70663

1. **The DEIS exemption from the regulation prohibiting altering the seabed applied only outside of the no-activity zones, the boundaries of which are well beyond the reefs. The prohibition on oil and gas development activities within the no-activity zones has been strengthened (see Generic Response A).**

Existing regulatory authorities in the proposed sanctuary (Appendix II) will be unaffected by sanctuary designation. However, the following activities may be regulated by NOAA under the terms of designation:

a. Anchoring by vessels (initially, only vessels greater than 100 feet in registered length would be prohibited from anchoring in the sanctuary);
b. Depositing or discharging of materials or substances;
c. Altering the seabed except in the conduct of hydrocarbon exploration and development in sanctuary areas lying outside of the no-activity zones established by the Department of the Interior;
d. Removing or injuring coral or other resources;
e. Using fishing gear other than conventional hook and line gear; and
f. Detonating explosives or releasing electrical charges.

The proposed sanctuary regulations are contained in the Designation Document, which appears in Appendix I.

The administrative framework for managing the proposed sanctuary (Part II, Section IV) recognizes the need for cooperation and coordination among all participants in sanctuary management and delineates the roles of the National Oceanic and Atmospheric Administration's Marine and Estuarine Management Division, the U.S. Coast Guard, the Minerals Management Service, and the Department of State in resource protection, research, interpretation, and general administration.

NOAA considered a number of alternatives in developing the proposal to designate a national marine sanctuary at the Flower Garden Banks. These alternatives, described in Part III, were considered in terms of achieving optimum protection for the ecosystem, improving scientific knowledge of the area, and promoting public understanding of the value of Flower Garden Bank resources. The alternative of sanctuary designation was selected as preferable to no action, and the preferred boundary, management, and regulatory alternatives were selected. The environmental consequences of the alternatives are described in Part IV.

The emergence of new issues or other unforeseeable factors may affect specific aspects of sanctuary management as described in this plan. The plan may therefore be adjusted to changing circumstances in light of the experience gained in actual management. However, the overall goals, management objectives and general guidelines governing the plan's development will continue to be relevant.

GULF OF MEXICO FISHERY MANAGEMENT COUNCIL
Lincoln Center, Suite 881 • 5401 W. Kennedy Blvd
Tampa, Florida 33609-2486 • 813-228-2815

March 16, 1989

Mr. Joseph A. Uravitch, Chief
Marine and Estuarine
Management Division
Office of Ocean and Coastal
Resource Management
National Ocean Service/NOAA
1825 Connecticut Avenue, N.W.
Washington, DC 20235

Dear Mr. Uravitch:

Reference is made to the draft environmental impact statement/draft management plan on the proposed Flower Garden Banks National Marine Sanctuary.

We have reviewed the document and find it to be in accord with our fishery management plan for corals in which we identified the Flower Garden Banks as habitat areas of particular concern. We continue to endorse the candidacy of the banks as a National Marine Sanctuary and urge the adoption of the management measures proposed in your DEIS/DMP to protect the corals. Particularly important is the proposal to limit anchoring on the banks to vessels under 100 feet in length.

We appreciate the opportunity to comment and continue to offer our support in achieving sanctuary designation.

Sincerely,

William D. Chauvin
Chairman

WDC:TRL:bab

cc: David Cottingham
Gulf Council
Staff

No response necessary.

Scuba Divers Anonymous

MARINE & ESTUARINE MANAGEMENT DIVISION
NATIONAL OCEAN SERVICE, NOAA
1825 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20235

TO WHOM IT MAY CONCERN:

WE WHOLEHEARTEDLY APPRECIATE YOUR EFFORTS TO ESTABLISH THE FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY LOCATED IN THE GULF OF MEXICO OFF TEXAS AND LOUISIANA.

WE COMMEND YOU FOR YOUR WORK ON THIS PROJECT WHICH WILL ENABLE SPORT DIVERS TO ENJOY THE BEAUTY OF THAT WHICH LIES BENEATH THE SURFACE. THE ESTABLISHMENT OF A NATIONAL SANCTUARY RIGHT IN "OUR BACKYARD" WILL BE CHERISHED FOR FUTURE GENERATIONS OF SPORT DIVERS.

TO PRESERVE THIS NATURAL BEAUTY ACTIVITIES TO CONTROL/PREVENT 1 WASTE DISPOSAL, 2 SPEARFISHING, 3 ANCHORING, 4 SOUVENIR COLLECTION, AND 5 HYDROCARBON EXPLORATION AND DEVELOPMENT, WHICH ADVERSELY AFFECT THE NATURAL RESOURCES OF THE AREA, MUST BE ESTABLISHED

TO ESTABLISH SUCH A SANCTUARY AND THEN LET IT BE STRIPPED OF ITS NATURAL BEAUTY, RESOURCES, AND INHABITANTS IS SUCH A WASTE!

WE THANK YOU FOR YOUR CONCERN IN THE ESTABLISHMENT OF THE FLOWER GARDENS AS A NATIONAL SANCTUARY BUT IN ORDER FOR THIS TO BECOME A TRUE "SAFE HAVEN" FOR ITS INHABITANTS MEASURES MUST BE TAKEN TO PROTECT OUR MARINE LIFE.

SINCERELY, 4/14/89

R.T. Bennington
11002 Sniders Ct.
Houston, Tx 77086

1. See Generic Response A.
2. See Generic Response H.
3. See Generic Response E.
4. See Generic Response I.
5. See Generic Response A.

533 Tenth Street
Santa Monica, CA 90402

March 9, 1989

Flower Garden Banks Request
Marine and Estuarine Mgmnt. Div.
Office of Ocean and Coastal Resource Mgmnt.
National Ocean Service
National Oceanic and Atmospheric Administration
1825 Connecticut Avenue, NW, #714
Washington, DC 20235

Gentlemen:

I shall be pleased to receive a copy of the DEIS/MP and any follow-up information on the Flower Garden Banks National Marine Sanctuary.

I wish to express my approval of the Executive Summary from the DEIS/MP for this proposed marine sanctuary.

Sincerely yours,

Alex Castelli

No response necessary.

Scuba
Divers
Anonymous

MARINE & ESTUARINE MANAGEMENT DIVISION
NATIONAL OCEAN SERVICE, NOAA
1825 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20235

TO WHOM IT MAY CONCERN:

WE WHOLEHEARTEDLY APPRECIATE YOUR EFFORTS TO ESTABLISH THE FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY LOCATED IN THE GULF OF MEXICO OFF TEXAS AND LOUISIANA.

WE COMMEND YOU FOR YOUR WORK ON THIS PROJECT WHICH WILL ENABLE SPORT DIVERS TO ENJOY THE BEAUTY OF THAT WHICH LIES BENEATH THE SURFACE. THE ESTABLISHMENT OF A NATIONAL SANCTUARY RIGHT IN "OUR BACKYARD" WILL BE CHERISHED FOR FUTURE GENERATIONS OF SPORT DIVERS.

TO PRESERVE THIS NATURAL BEAUTY ACTIVITIES TO CONTROL/PREVENT 1 WASTE DISPOSAL, 2 SPEARFISHING, 3 ANCHORING, 4 SOUVENIR COLLECTION, AND 5 HYDROCARBON EXPLORATION AND DEVELOPMENT, WHICH ADVERSELY AFFECT THE NATURAL RESOURCES OF THE ARE MUST BE ESTABLISHED

TO ESTABLISH SUCH A SANCTUARY AND THEN LET IT BE STRIPPED OF ITS NATURAL BEAUTY, RESOURCES, AND INHABITANTS IS SUCH A WASTE!

WE THANK YOU FOR YOUR CONCERN IN THE ESTABLISHMENT OF THE FLOWER GARDENS AS A NATIONAL SANCTUARY BUT IN ORDER FOR THIS TO BECOME A TRUE "SAFE HAVEN" FOR ITS INHABITANTS MEASURES MUST BE TAKEN TO PROTECT OUR MARINE LIFE

4/14/89

SINCERELY,

1. See Generic Response A.
2. See Generic Response H.
3. See Generic Response E.
4. See Generic Response I.
5. See Generic Response A.

MARINE & ESTUARINE MANAGEMENT DIVISION
NATIONAL OCEAN SERVICE, NOAA
1825 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20235

TO WHOM IT MAY CONCERN:

WE WHOLEHEARTEDLY APPRECIATE YOUR EFFORTS TO ESTABLISH THE FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY LOCATED IN THE GULF OF MEXICO OFF TEXAS AND LOUISIANA.

WE COMMEND YOU FOR YOUR WORK ON THIS PROJECT WHICH WILL ENABLE SPORT DIVERS TO ENJOY THE BEAUTY OF THAT WHICH LIES BENEATH THE SURFACE. THE ESTABLISHMENT OF A NATIONAL SANCTUARY RIGHT IN "OUR BACKYARD" WILL BE CHERISHED FOR FUTURE GENERATIONS OF SPORT DIVERS.

TO PRESERVE THIS NATURAL BEAUTY ACTIVITIES TO CONTROL/PREVENT 1 WASTE DISPOSAL, [redacted] 2 ANCHORING, 3 SOUVENIR COLLECTION, AND 4 HYDROCARBON EXPLORATION AND DEVELOPMENT, WHICH ADVERSELY AFFECT THE NATURAL RESOURCES OF THE AREA, MUST BE ESTABLISHED.

TO ESTABLISH SUCH A SANCTUARY AND THEN LET IT BE STRIPPED OF ITS NATURAL BEAUTY, RESOURCES, AND INHABITANTS IS SUCH A WASTE!

WE THANK YOU FOR YOUR CONCERN IN THE ESTABLISHMENT OF THE FLOWER GARDENS AS A NATIONAL SANCTUARY BUT IN ORDER FOR THIS TO BECOME A TRUE "SAFE HAVEN" FOR ITS INHABITANTS MEASURES MUST BE TAKEN TO PROTECT OUR MARINE LIFE.

SINCERELY,

Jane & Jack Kasel
2031 Old Dixie Dr
Richmond, TX 77469

1. See Generic Response A.
2. See Generic Response E.
3. See Generic Response I.
4. See Generic Response A.

MARYE MYERS
[illegible]
SOUTH PASADENA, CALIFORNIA 91030

March 9, 1989

Flower Garden Banks Request
Marine and Estuarine Mgmnt. Div.
Office of Ocean and Coastal Resource Mgmnt.
National Ocean Service
National Oceanic and Atmospheric Administration
1825 Connecticut Avenue, NW, #714

Gentlemen:

I shall be pleased to receive a copy of the DEIS/MP and any follow-up information on the Flower Garden Banks National Marine Sanctuary.

I wish to express my approval of the Executive Summary from the DEIS/MP for this proposed marine sanctuary.

Yours sincerely,

Marye Myers

MM:ct

No response necessary.

31 March, 1989

Joseph Uravitch, Chief
Marine & Estuarine Management Division
Office of Ocean and Coastal Resource Management
National Ocean Service/NOAA
1825 Connecticut Ave., NW
Washington, DC 20235

Dear Mr. Uravitch,

1. I would like to see the East and West Flower Garden Banks designated as a national marine sanctuary. I would prefer the Alternative 3 Regulatory Boundary to establish additional protection, although I can appreciate the difficulties involved with enforcement. I believe Management Alternative 2 is certainly the best one.

Sincerely,

Lyn Rosen Springut

Ms. Lyn Rosen Springut
216 Oxford St.
Rochester, NY 14607

cc. David Cottingham

APR

1. See Generic Response A.

2. NOAA agrees. Management Alternative 2 is the preferred alternative.

21 APRIL 1989

JOSEPH A. URAVITCH, CHIEF
MARINE AND ESTUARINE MANAGEMENT DIVISION
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT
NATIONAL OCEAN SERVICE/NOAA
1825 CONNECTICUT AVE, N.W.
WASHINGTON, DC 20235

DEAR SIR

REF: DRAFT ENVIRONMENTAL IMPACT STATEMENT AND MANAGEMENT PLAN FOR THE PROPOSED FLOWER GRADEN BANKS NATIONAL MARINE SANCTUARY

I AGREE WITH THE MANAGEMENT PLAN AS PRESENTED WITH THE FOLLOWING EXCEPTIONS:

1. ALL EXPLORATION FOR GAS AND OIL SHOULD BE PERMANENTLY BANNED FROM THE AREA BOUNDARIES AS DESIGNATED IN THE FINAL PLAN. THIS
2. WOULD ASSURE PROTECTION TO SOME DEGREE FROM BLOW OUTS, BUT WOULD PROTECT THE AREA FROM DAMAGE BY SEISMIC EXPLOSIONS.

3. REGULATORY/BOUNDARY ALTERNATIVE 3 SHOULD BE CHOSEN AS THE PREFERRED CHOICE. THE TWO REGULATORY ZONES SHOULD BE BE CONSIDERED AS NO-ACTIVITY ZONES BY THE MINERAL MANAGEMENT SERVICE. ALTERNATIVE 3 WOULD GUARANTEE THE LONG TERM COMPREHENSIVE PROTECTION OF THE FLOWER GARDEN BANKS ECOSYSTEM.

I STRONGLY SUPPORT THE DECISION TO DESIGNATE FLOWER GARDEN BANKS AS A NATIONAL MARINE SANCTUARY. THE RICHNESS AND DIVERSITY OF THE AREA CERTAINLY MERIT THE COMPREHENSIVE MANAGEMENT AND INCREASED PROTECTION THAT DESIGNATION WILL BRING.

SINCERELY

Harry E Wilson

HARRY E WILSON
2120 N CALLOW AVE
BREMERTON, WA 98312-2908

COPY TO: DAVID COTTINGHAM, DIRECTOR
OFFICE OF ECOLOGY & CONSERVATION
ROOM 6222
DEPARTMENT OF COMMERCE
WASHINGTON, DC 20230

Darlene

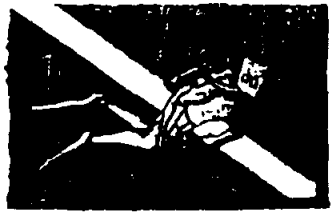
APR 1989

RECEIVED

1. See Generic Response A.

2. This activity has been listed for regulation so that if the use of air guns is later demonstrated to have an adverse impact on sanctuary resources, additional regulations can be proposed.

3. See Generic Response A.



MARINE & ESTUARINE MANAGEMENT DIVISION
NATIONAL OCEAN SERVICE, NOAA
1825 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20235

TO WHOM IT MAY CONCERN:

WE WHOLEHEARTEDLY APPRECIATE YOUR EFFORTS TO ESTABLISH THE FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY LOCATED IN THE GULF OF MEXICO OFF TEXAS AND LOUISIANA.

WE COMMEND YOU FOR YOUR WORK ON THIS PROJECT WHICH WILL ENABLE SPORT DIVERS TO ENJOY THE BEAUTY OF THAT WHICH LIES BENEATH THE SURFACE. THE ESTABLISHMENT OF A NATIONAL SANCTUARY RIGHT IN "OUR BACKYARD" WILL BE CHERISHED FOR FUTURE GENERATIONS OF SPORT DIVERS.

TO PRESERVE THIS NATURAL BEAUTY ACTIVITIES TO CONTROL/PREVENT 1 WASTE DISPOSAL, [redacted] 2 ANCHORING, 3 SOUVENIR COLLECTION, AND 4 HYDROCARBON EXPLORATION AND DEVELOPMENT, WHICH ADVERSELY AFFECT THE NATURAL RESOURCES OF THE AREA, MUST BE ESTABLISHED.

TO ESTABLISH SUCH A SANCTUARY AND THEN LET IT BE STRIPPED OF ITS NATURAL BEAUTY, RESOURCES, AND INHABITANTS IS SUCH A WASTE!

WE THANK YOU FOR YOUR CONCERN IN THE ESTABLISHMENT OF THE FLOWER GARDENS AS A NATIONAL SANCTUARY BUT IN ORDER FOR THIS TO BECOME A TRUE "SAFE HAVEN" FOR ITS INHABITANTS MEASURES MUST BE TAKEN TO PROTECT OUR MARINE LIFE.

SINCERELY,

[redacted]
2022 Old Orchard Drive
Richmond, Tx 77469

1. See Generic Response A.
2. See Generic Response E.
3. See Generic Response I.
4. See Generic Response A.

MARINE & ESTUARINE MANAGEMENT DIVISION
NATIONAL OCEAN SERVICE, NOAA
1825 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20235

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SINCERELY,

Darlene

Darlene Yablonitz
2022 Addie Drive
Richmond, Tx 77469

4

APR
RECEIVED

1. See Generic Response A.
2. See Generic Response E.
3. See Generic Response I.
4. See Generic Response A.

ADDITIONAL COMMENTS AT PUBLIC HEARINGS

March 30, 1989

COMMENT SUMMARIES AND RESPONSES

Commentor: Linda Maraniss - Regional Director, Center for Marine Conservation - Morning Session.

Summarized written comments sent by Center for Marine Conservation.

Response:

See responses to written comments from Center for Marine Conservation.

Commentor: Monte Thornton - Manager, Aquaventures Scuba Dive Shop - Morning Session.

1. Collecting should be prohibited.

2. Spearfishing should be prohibited.

3. All fishing, including with hook and line, should be restricted.

4. Restricting the number of divers visiting the reefs should be considered.

Response:

1. See Generic Response I.

2. See Generic Response H.

3. See Generic Response G.

4. NOAA has no evidence that present levels of diving present a threat to Flower Garden Bank resources. However, if diving intensity is later demonstrated to have an adverse impact on sanctuary resources, NOAA has the ability to regulate diving on a temporary basis, during which time more permanent measures for resolving the problem can be decided upon.

Commentor: Dean Lewis - Dive Shop Operator - Morning Session.

1. Spearfishing should be prohibited.

2. Collecting should be prohibited.

3. Mooring systems should be installed to protect the reefs from anchoring.

4. Hook and line bottom fishing can pull up coral.

Response:

1. See Generic Response H.

2. See Generic Response I.

3. See Generic Response E.

4. See Generic Response G.

Commentor: Page Williams - Environmental Chairperson, Houston Underwater Club - Morning Session.

1. Spearfishing should be prohibited.

2. Permanent moorings should be emplaced. "Between the clubs and the Council and the dive shops, we could probably work up some sort of matching funds, if you all would consider putting some in."

3. I like the idea of limiting access to the Flower Gardens. The number of divers in diving excursions to the Flower Gardens could be registered ahead of time at the sanctuary office, which could then provide them with clearance to go.

Response:

1. See Generic Response H.

2. NOAA will continue to collaborate with local groups in establishing a mooring buoy system. See Generic Response E.

3. See response to comment #4 (above) by Monte Thornton at hearings.

Commentor: William Jackson - Southwest Regional Liaison Officer, National Marine Fisheries Service - Morning Session.

1. The prohibition on using explosives is unenforceable because of its wording. Its impossible to catch anyone in the act of using explosives. The regulation should therefore be reworded to prohibit the possession of explosives or explosive devices aboard any vessel other than one used for geophysical exploration.

2. Because there seems to be such concern about diving, spearfishing, and the use of explosive devices such as shark repellant sticks, the use of some sort of federal registration and permits for visiting the Flower Gardens should be considered. Some kind of reporting requirement following visits might also be desirable as a means of compiling data for effective management of such remote areas as the Flower Gardens.

Response:

1. Comment accepted. The regulation has been reworded accordingly.

2. Comment accepted in part. NOAA will examine the feasibility of establishing reporting procedures to compile management data. With regard to restricting access to the Flower Gardens, see response to comment #4 (above) by Monte Thornton at hearings.

Commentor: Paul Lankford - Anadarko Petroleum Corporation - Morning Session.

1. The use of explosives to remove platforms is regulated by MMS. Would sanctuary regulations restrict this use of explosives?

2. Would sanctuary regulations restrict discharges under EPA permits by platforms just outside of the no-activity zones?

3. Would sanctuary regulations further restrict MMS shunting requirements?

Reponse:

1. See Generic Response C.

2. See Generic Responses A and C.

3. See Generic Responses A and B.

Commentor: Dick Zingula - Scuba Diver - Evening Session.

1. Spearfishing should be prohibited.

2. Trawling should be prohibited.

3. The transit of large ships over the Flower Garden Reefs should be prohibited.

4. If mooring buoys are to be placed over the Flower Gardens, there should be multiple moorings.

5. Educational material about the Flower Gardens should inform people that not all changes in the ecosystem are man-made. Many such changes are due to natural causes.

Reponse:

1. See Generic Response H.

2. See Generic Response G.

3. See Generic Response F. The emplacement of mooring buoys over the reefs will also discourage transiting by large ships.

4. See Generic Response E. The feasibility of various arrangements for employing multiple moorings is being considered.

5. NOAA agrees and plans to include such information in its education and interpretation program.

Commentor: Chuck Boyd - Bay Area Divers - Evening Session.

1. Mooring systems should be installed to protect the reefs from anchoring.

2. Commercial fishing should be prohibited.

3. Electrically operated reels should be prohibited.

4. Spearfishing should be prohibited.

5. All collecting should be prohibited.

6. The $50,000 penalty allowed for violations of regulations is unrealistic.

Response:

1. See Generic Response E.

2. See Generic Response G.

3. NOAA has no evidence that the use of electrically operated reels threatens Flower Gardens resources. See also Generic Response G.

4. See Generic Response H.

5. See Generic Response I.

6. The $50,000 penalty was established by Congress as the maximum penalty for each violation. The penalties that are actually invoked vary considerably depending on the nature of the offense and mitigating factors involved.

Commentor: Randy Widaman - Diver - Evening Session.

1. Mooring systems should be installed to protect the reefs from anchoring.

2. Spearfishing should be prohibited.

Response:

1. See Generic Response E.

2. See Generic Response H.

Commentor: Gary Rinn - Rinn Boats, Inc. - Evening Session.

1. All live collecting should be prohibited.

2. Spearfishing should be prohibited.

3. Multiple mooring bouys should be installed to protect the reefs from anchoring. "I am in the process of organizing a non-profit organization to fund and maintain permanent mooring buoys."

4. Regarding enforcement "I'll go on record in volunteering our efforts to monitor any possible violations."

Response:

1. See Generic Response I.

2. See Generic Response H.

3. See Generic Response E. NOAA looks forward to cooperating with Mr. Rinn and any other individuals or organizations that wish to provide assistance.

4. Again, NOAA looks forward to cooperating with Mr. Rinn and any other individuals or organizations that wish to provide assistance.

Commentor: Jesse Cancelmo - Evening Session.

1. Spearfishing should be prohibited.

2. How soon after designation will the Flower Garden's national marine sanctuary status appear on nautical charts.

Response:

1. See Generic Response H.

2. Notice that the Flower Garden Banks are a national marine sanctuary will appear after designation on new navigation charts as they are produced.

Commentor: Jesse Cancelmo - Evening Session.

1. Spearfishing should be prohibited.

2. How soon after designation will the Flower Garden's national marine sanctuary status appear on nautical charts.

Response:

1. See Generic Response H.

2. Notice that the Flower Garden Banks are a national marine sanctuary will appear after designation on new navigation charts as they are produced.

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