National Marine Sanctuaries
National Oceanic and Atmospheric Administration

Flower Garden Banks National Marine Sanctuary

Flower Garden Banks
Final Management Plan

April 2012

http://flowergarden.noaa.gov

FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY

FINAL MANAGEMENT PLAN -

APRIL 2012

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About This Document

This document is a result of the Office of National Marine Sanctuaries' (ONMS) periodic review of the strategies and activities detailed in the *1991 Final Environmental Impact Statement and Management Plan* and the emerging resource protection issues for Flower Garden Banks National Marine Sanctuary (FGBNMS or sanctuary).

A sanctuary management plan is a site-specific planning and management document that describes the goals, objectives, policies, management strategies, and activities for a sanctuary.

Changes to management strategies in this plan, as well as to FGBNMS regulations, are considered major federal actions requiring an environmental analysis pursuant to the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et seq.). To this end, NOAA prepared an environmental assessment to analyze the potential impacts to the natural and human environments that may result from revising the 1991 FGBNMS management plan and the FGBNMS regulations.

This document is the revised Final Management Plan (FMP) for Flower Garden Banks National Marine Sanctuary. A summary of the environmental assessment (EA) is included within this document, while the full EA document is available from the sanctuary website at http://flowergarden.noaa.gov.

This plan outlines the program activities for FGBNMS over the next five years and beyond, along with staffing and budget needs, and performance measures.

Comments or questions on this Final Management Plan should be directed to:

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Figure 1: National Marine Sanctuary System

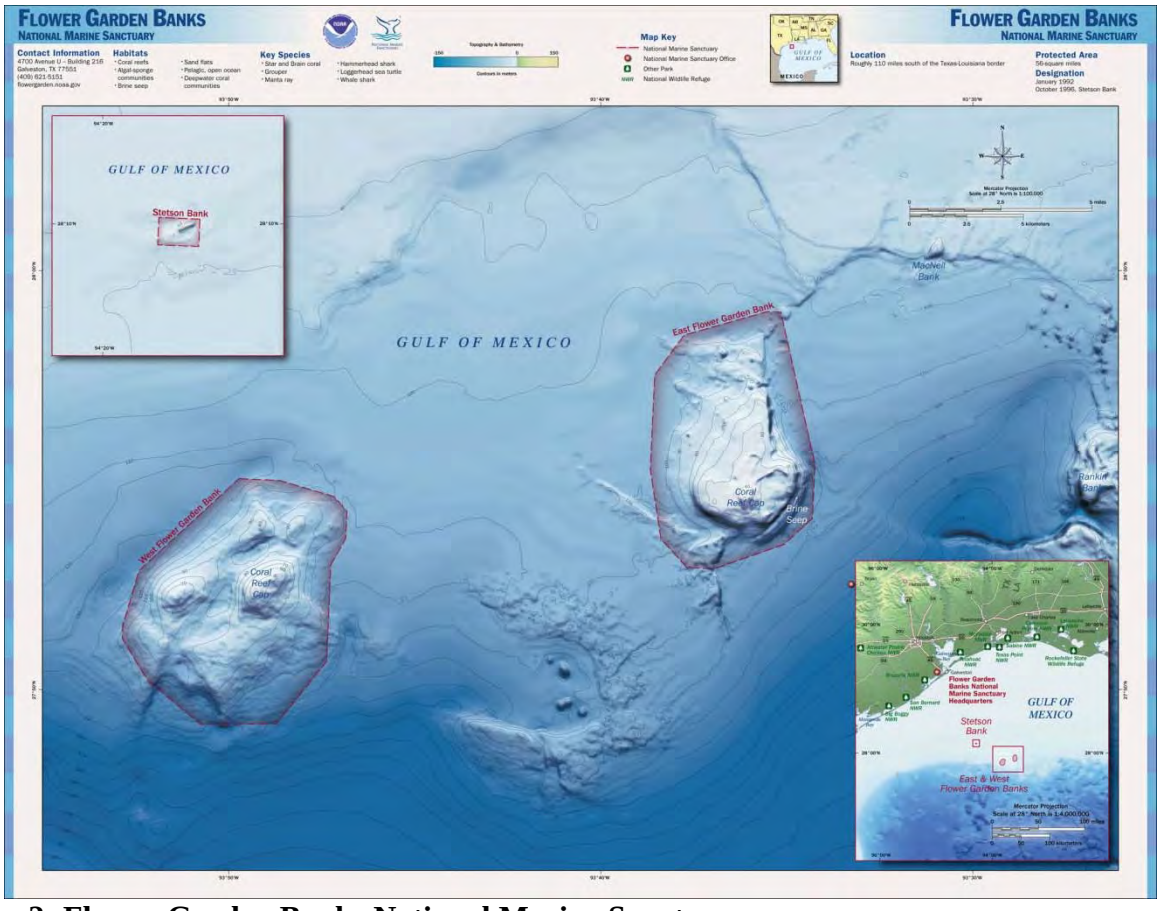

Figure 2: Flower Garden Banks National Marine Sanctuary

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List of Acronyms

ACP	**Area Contingency Plan**
AIS	**Automated Identification System**
ATBA	**Area To Be Avoided**
BOEM	**Bureau of Ocean Energy Management**
BOEMRE	**Bureau of Ocean Energy Management, Regulation and Enforcement**
CEA	**Cooperative Enforcement Agreement**
CFP	**Ciguatera Fish Poisoning**
CWA	**Clean Water Act**
DEIS	**Draft Environmental Impact Statement**

DMP	**Draft Management Plan**
EA	**Environmental Assessment**
EEZ	**Exclusive Economic Zone**
EFH	**Essential Fish Habitat**
EIS	**Environmental Impact Statement**
EOAP	**Education and Outreach Action Plan**
EPA	**Environmental Protection Agency**
ESA	**Endangered Species Act**
FDA	**Food and Drug Administration**
FGBNMS	**Flower Garden Banks National Marine Sanctuary**
FMP	**Fishery Management Plan**
GERG	**Geochemical and Environmental Research Group**
GIS	**Geographic Information System**
GMFMC	**Gulf of Mexico Fishery Management Council (Gulf Council)**
GPS	**Global Positioning System**
GREAT	**Gulf Reef Environmental Action Team**
HAPC	**Habitat Areas of Particular Concern**
HAZMAT	**Hazardous material**
IMO	**International Maritime Organization**
JEA	**Joint Enforcement Agreement**
MSD	**Marine Sanitation Device**
MMPA	**Marine Mammal Protection Act**
MMS	**Minerals Management Service**
MOA	**Memoranda of Agreement**
MPR	**Management Plan Review**
MSA	**Magnuson-Stevens Fishery Conservation and Management Act**
NAZ	**No Activity Zone**
NEPA	**National Environmental Policy Act**
NMSA	**National Marine Sanctuaries Act**
NOAA	**National Oceanic and Atmospheric Administration**
NOS	**National Ocean Service**
NPDES	**National Pollutant Discharge Elimination System**
OAAP	**Operations and Administration Action Plan**
OCS	**Outer Continental Shelf**
OCSLA	**Outer Continental Shelf Lands Act**
OLE	**Office for Law Enforcement**
OMAO	**Office of Marine and Aviation Operations**
ONMS	**Office of National Marine Sanctuaries**
PEA	**Programmatic Environmental Assessment**
RMAP	**Research and Monitoring Action Plan**
ROV	**Remotely Operated Vehicle**
RPAP	**Resource Protection Action Plan**
SCA	**Student Conservation Association**
SCUBA	**Self Contained Underwater Breathing Apparatus**

SEAP	**Sanctuary Expansion Action Plan**
TABS	**Texas Automated Buoy System**
TAMUG	**Texas A&M University Galveston**
USCG	**United States Coast Guard**
VHF	**Very High Frequency**
VMS	**Vessel Monitoring System**
VUAP	**Visitor Use Action Plan**

Executive Summary

The Sanctuary

Located in the northwestern Gulf of Mexico (Gulf), 70 to 115 miles off the coasts of Texas and Louisiana, Flower Garden Banks National Marine Sanctuary (FGBNMS or sanctuary) includes three separate undersea features: East Flower Garden Bank, West Flower Garden Bank and Stetson Bank. The Banks range in depth from 55 feet to nearly 500 feet and are underwater hills formed by rising domes of ancient salt. The Banks provide a wide range of habitat conditions that support several distinct biological communities, including the northernmost coral reefs in the continental United States. These and similar formations throughout the northern Gulf of Mexico provide the foundation for essential habitat for a variety of species. The combination of location and geology makes FGBNMS extremely productive and diverse, and presents a unique set of challenges for managing and protecting its natural wonders.

East and West Flower Garden Banks were designated a national marine sanctuary in 1992 for purposes of protecting and managing the conservation, ecological, recreational, research, education, and historic and aesthetic resources and qualities of these areas (P.L. 102-251). Stetson Bank was added to the sanctuary in 1996 (P.L. 104-283). The management plan for FGBNMS was originally developed in 1991 as part of the designation process (56 FR 63634). The Office of National Marine Sanctuaries (ONMS) is required to periodically review sanctuary management plans to ensure that sanctuary sites continue to best conserve, protect and enhance their nationally significant living and cultural resources. Upon such review, NOAA has decided to update and revise the 1991 Flower Garden Banks management plan to address recent scientific discoveries, advancements in managing marine resources, and new resource management issues.

In September 2006, the sanctuary embarked on its first Management Plan Review (MPR), a public process to examine the original designation documents, management plan and regulations, and evaluate them for the future. The sanctuary mission—revised with review of this management plan—is to identify, protect, conserve, and enhance the natural and cultural resources, values, and qualities of FGBNMS and its regional environment for this and future generations.

Scope of the Issues

During the scoping phase of the management plan review, FGBNMS staff collected and summarized input from the public on potential resource protection and management issues to be addressed in the revised management plan and regulations. Taking into consideration the advice and recommendations from the FGBNMS advisory council, sanctuary staff identified six priority issues: regional habitat protection (sanctuary expansion), education and outreach, enforcement, fishing impacts, pollutant discharge, and visitor use. These issues were further characterized and discussed in working groups, at advisory council meetings, and through public workshops. They have been addressed in the development of the action plans as part of this revised management plan and are summarized below.

Sanctuary Expansion

Numerous banks and associated topographic features in the northwestern Gulf of Mexico, like the Flower Garden Banks, have unique or unusual structural features, and may be ecologically linked to each other. Many of these geological and biological features exist outside current sanctuary boundaries. Additional features were revealed through the collection of high-resolution multi-beam bathymetry after the present sanctuary boundaries were established. These features may be highly vulnerable to certain anthropogenic impacts that alter the physical, chemical, biological, or acoustic environment. It is proposed that selected features be evaluated for inclusion under the management and protection of the ONMS.

Education and Outreach

The level of awareness, understanding and appreciation of FGBNMS varies greatly among users and other members of the public. In many cases, this is inadequate to produce changes in individual attitudes, behaviors and/or community decision-making processes that affect the health of sanctuary resources. The progress made in engaging recreational SCUBA divers and K-12 educators and students needs to be sustained while developing programs that target other direct users of the sanctuary, as well as increasing general public awareness and visibility of the sanctuary.

Research and Monitoring

Science in FGBNMS plays a vital role in making informed resource management decisions. This scientific knowledge base is gained through general exploration and habitat characterization, investigations of specific research questions, and routine monitoring of resource health. Information gathered by the sanctuary science team and its partners is essential for expanding upon existing baseline data, comparing existing habitat conditions with past conditions, and targeting the most important management issues.

In order to determine the impacts of fishing and diving on sanctuary resources, a process to evaluate the need and design for a research area was proposed during the management plan review. The implementation of this process would build on several workshops and the development of a Research Area Working Group, and would include input from members of the sanctuary advisory council, scientists, fishers, divers and constituents from other user groups.

Resource Protection

Diving Impacts

Potential impacts on sanctuary resources from visitation by SCUBA divers are an ongoing concern. Anecdotally, divers have noted damage to the coral reef likely caused by recreational and research divers. Additionally, some marine animals such as rays and whale sharks may be negatively affected by interactions with divers who attempt to attract and touch the animals. Sanctuary staff lack quantitative information on direct and indirect human impacts to sanctuary resources from diving activities, and specifically, on whether there are any differences between impacts from recreational diving activities and scientific diving activities. The collection of information on diving impacts is addressed in the Research and Monitoring Action Plan while the outreach program to inform divers about wildlife interactions is an activity in the Education and Outreach Action Plan.

Enforcement
Enforcement is logistically difficult due to the distance of FGBNMS from shore and limited access to the site. The sanctuary relies heavily on assistance from the U.S. Coast Guard (USCG) and the NOAA Office for Law Enforcement (OLE) for enforcement efforts. In addition to its research and education mission, the sanctuary's vessel, R/V *Manta*, would be used as a platform for the USCG and OLE to supplement the sanctuary enforcement on the water. The R/V *Manta* will be used to make specific surveillance runs with law enforcement personnel. Sanctuary staff will coordinate with OLE and the USCG to have enforcement authorities on board for enforcement missions. Additionally, FGBNMS staff is developing a voluntary incident reporting system and is seeking to improve enforcement coordination with federal and state agencies to better address enforcement needs within the sanctuary.

Fishing Impacts
Fishing activities may negatively affect and threaten the natural living resources of FGBNMS. The influence of fishing activities within the sanctuary is not well documented, but concerns exist about both direct and indirect fishing-related impacts on marine ecosystems. Direct impacts of fishing can result in reduced fish biomass, while indirect impacts include secondary effects on species interactions, habitat alteration/damage, reduced marine biodiversity, and economic impacts. Specific concerns include targeted fishing efforts on particular fish species, focused fishing during spawning aggregations, injury to corals and other organisms by lost and discarded fishing gear, and discarded fishing bycatch.

Pollutant Discharge
Discharge of pollutants from sources inside and outside the sanctuary may have potentially detrimental effects on sanctuary resources. The quality of coastal waters of the northern Gulf of Mexico is in decline due to pollutants associated with the discharge of major river systems (such as the Mississippi and Atchafalaya) and general coastal runoff throughout the region. Predominant current patterns direct much of this water away from FGBNMS, but minor changes in circulation patterns could bring contaminated water to the sanctuary.

Many vessels enter the sanctuary for diving, fishing, and research. Pollution concerns from visiting and transiting vessels include exhaust, oil spills, fuel spills, human waste, and bilge discharge from fishing vessels. The discharge of untreated sewage from vessels is not allowed within or into the sanctuary. However, discharge from a U.S. Coast Guard approved marine sanitation device is allowed. Other discharges from vessels or oil and gas platforms include graywater from showers and galleys, debris from maintenance operations, and incidental release of petrochemicals from engine use.

Visitor Use
The primary visitors to FGBNMS are recreational SCUBA divers and recreational fishers. Although the precise status and trends of visitor use in the sanctuary are not known, visitation by SCUBA divers and fishers is estimated to be relatively low compared to other sanctuaries. This is primarily due to the distance of the banks from shore and possibly a lack of public awareness about the sanctuary. However, observations from sanctuary staff, long-time users of the sanctuary, and others

suggest that the level of fishing activity has been increasing in recent years. In addition, the sanctuary is becoming internationally known as a prime SCUBA dive destination.

As interest and use in the sanctuary increases, there will potentially be conflicts among users. As an example, recreational fishers and dive charters may compete for use of the same reef areas because both users target the same types of large fish. In addition, vessel operation in an area where diving is occurring can pose a potential safety risk. However, this risk can be reduced through adherence to dive flag requirements. Further, increased visitation will increase demand for mooring buoys. These combined pressures are an important management priority to minimize user conflict, promote safe practices, and protect sanctuary resources.

Operations and Administration

Additional staffing and infrastructure resources are required to meet the expanded public demands and expectations raised by the management plan review process and to respond to legal mandates and policies. Strengthening the sanctuary's base-level staffing, facilities infrastructure and program support to effectively meet the basic needs of sanctuary management is one of the priorities of this management plan.

Organization of this Document

This management plan is organized into six sections. Section 1 provides background information on national marine sanctuaries, FGBNMS, and the purpose and need for updating the management plan. Section 2 is an overview of the institutional setting in which the sanctuary operates and of the regional ecosystem of the northwestern Gulf of Mexico. It also describes the local environment of East and West Flower Garden Banks and Stetson Bank. Section 3 contains the action plans, which detail the management strategies and activities to address the priority issues of FGBNMS and meet the purposes and policies of the National Marine Sanctuaries Act (NMSA) (Appendix I). Section 4 provides information on the public comments received on the draft management plan and a summary of the changes that were made to the management plan as a result. Section 5 provides a summary of the environmental analysis of the two alternatives considered: 1) no action, and 2) the preferred alternative of revising the management plan and making modifications to FGBNMS regulations (Appendix II). Section 6 lists the sources cited in this document.

Acknowledgements

The staff of NOAA's Office of National Marine Sanctuaries (ONMS) and Flower Garden Banks National Marine Sanctuary (FGBNMS) developed this document and take full responsibility for its content. Primary contributors include Jennifer Morgan, Vicki Wedell, Helene Scalliet, G.P. Schmahl, Emma Hickerson, Jennifer DeBose, Shelley DuPuy, LT Tracy Hamburger, and Molly Holt. This plan has also benefited from significant input from a variety of people who care passionately about the Flower Garden Banks. Special acknowledgment is given to the participation of members of the FGBNMS advisory council: Irby Basco, Frank Burek, John Embesi, Tim Gibson, Kristina Hardwick, Joe Hendrix, Mike Jennings, Beth Keister, Dana Larson, Dale Loughmiller, Ian MacDonald, Art Melvin, Clint Moore, Rebecca Nadel, James Sinclair, John Stout, Rusty Swafford, Lori Traweek, Charles Tyer, Frank Wasson, Haidee Williams, Page Williams, and Dick Zingula.

Introduction

1.1 NOAA Office of National Marine Sanctuaries

The Office of National Marine Sanctuaries (ONMS) is located within the NOAA National Ocean Service (NOS) and serves as the trustee for a system of 13 national marine sanctuaries and one marine national monument, together encompassing more than 150,000 square miles of ocean and Great Lakes waters from the State of Washington to the Florida Keys, and from Lake Huron to American Samoa. ONMS manages the national marine sanctuaries through the authority of the National Marine Sanctuaries Act of 1972 (16 U.S.C. 1431 et seq.; http://sanctuaries.noaa.gov/about/legislation/; Appendix I).

Marine sanctuaries contain deep ocean gardens, coral reefs, whale migration corridors, deep-sea canyons, historically significant shipwrecks, and other underwater archaeological sites. They range in size from one-quarter square mile in Fagatele Bay, American Samoa, to more than 134,000 square miles at Papahānaumokuākea Marine National Monument located in the northwestern Hawaiian Archipelago.

The ONMS fosters public awareness of marine resources and maritime heritage through scientific research, monitoring, exploration, education, and outreach, and works closely with its many partners and the public to protect and manage sanctuaries. The ONMS is a world leader in marine management through the protection of living marine resources, environmental quality, and maritime heritage, while facilitating recreational and commercial activities to the extent that they are compatible with long-term protection.

Office of National Marine Sanctuaries' Mission: *Identify, protect, conserve, and enhance the natural and maritime heritage resources, values, and qualities of the National Marine Sanctuary System for this and future generations throughout the nation.*

1.2 Flower Garden Banks National Marine Sanctuary

The Flower Garden Banks have a short but rich history of exploration and discovery. It is reported that fishermen in the early 1900s named the area the Texas Flower Gardens after the brightly colored sponges, plants, and other marine life they could see through the clear water and sometimes snagged and brought to the surface. The first official documentation of the Banks did not occur until the 1930s. For the next 30 years, the Banks were occasionally included as part of scientific investigations of larger portions of the Gulf of Mexico. Despite these investigations and rumors of coral reefs from the fishing community, many scientists believed that any coral reefs located here must be dead, primarily because of the depth and water temperatures.

Then, in the 1960s, expeditions conducted by the Houston Museum of Natural Science, the U.S. Navy and volunteer divers settled the debate. Divers visited the reefs and brought back specimens and reports of living, healthy coral reefs that were stunning in their beauty. Exploration of the area

soon began in earnest, as the Banks became a popular spot for both researchers and recreational divers.

As new technology allowed oil and gas production to move offshore into deeper water in the 1970s, concerns about detrimental impacts to the reefs increased. The Minerals Management Service (MMS, formerly the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), and now called the Bureau of Ocean Energy Management (BOEM)) established "No Activity Zones" around most of the Banks in the northern Gulf of Mexico. While these measures controlled impacts from oil- and gas-related activities, they did not cover activities such as diving, anchoring, fishing and shipping.

The recreational SCUBA dive community took action to address anchoring issues and formed the Gulf Reef Environmental Action Team (GREAT). This group raised funds and recruited volunteers to install mooring buoys. These and other divers also offered their services to researchers involved in characterizing and monitoring the banks. Nevertheless, continued anchoring by large ships and impacts from certain types of fishing made it apparent that additional formal protection was needed. It would take the combined efforts of recreational divers, researchers, federal agencies and advocates in Congress to get the Flower Garden Banks designated as a national marine sanctuary in 1992.

FGBNMS was designated a national marine sanctuary for the purposes of protecting and managing the conservation, ecological, recreational, research, education, and historic and aesthetic resources and qualities of the Flower Garden Banks (P.L. 102-251; 56 FR 63634). NOAA issued final regulations (Appendix II) and released a final management plan and environmental impact statement to implement this designation (58 FR 65664). Congress added the coral-sponge communities of Stetson Bank to the sanctuary in 1996 (P.L. 104-283) and extended the regulatory protections of the Flower Garden Banks to Stetson at that time. Comprehensive resource protection and management for FGBNMS is described in the site's 1991 management plan, which includes programs for science, education, outreach, regulation, enforcement, permitting, and coordination with other local, state, and federal agencies.

1.3 Building a New Management Plan

New challenges and opportunities emerge with time. For this reason, the National Marine Sanctuaries Act (http://sanctuaries.noaa.gov/about/legislation/) requires periodic updating of sanctuary management plans to re-evaluate site-specific goals and objectives and to develop management strategies and activities to ensure the sanctuary best protects its resources. Management plans are sanctuary-specific planning and management documents used by all national marine sanctuaries. They identify immediate, mid-range, and long-term challenges and opportunities, and develop a course for the future. A management plan describes resource protection, research, and education programs that guide sanctuary operations, specifies how a sanctuary should best protect its resources, and describes sanctuary regulations if appropriate.

The original FGBNMS management plan was written as part of the sanctuary designation process and published in the 1991 Final Management Plan and Final Environmental Impact Statement

(http://flowergarden.noaa.gov/document_library/mgmtdocuments.html). Many of the activities in the original management plan have been accomplished. This document is the new FGBNMS Management Plan and its contents are the result of the sanctuary's first management plan review since its designation in 1992.

The management plan review process began in October 2006 with the publication of the Flower Garden Banks National Marine Sanctuary State of the Sanctuary Report (http://flowergarden.noaa.gov/document_library/mgmtdocuments.html) and the initiation of the public scoping period, which began with three public meetings (Houston/Galveston and Corpus Christi, Texas and New Orleans, Louisiana). The meetings were announced in the *Federal Register* and through various newspapers (71 FR 52757). More than 50 people attended the public scoping meetings and over 80 written comments were collected. Comment topics included artificial reefs, endangered species, enforcement, harvesting, oil and gas infrastructure, pollutant discharge, regional water quality, shipping and transportation, visitor use, wildlife interactions, boundary expansion, habitat connectivity, invasive species, education, global warming, hurricanes and administrative issues. Fishing, boundary expansion, and public outreach and education received more comments than other topics.

Throughout the winter of 2006, ONMS staff worked with the FGBNMS advisory council to characterize and prioritize resource protection issues for the revised management plan. At the February 2007 sanctuary advisory council meeting, six subcommittees were established to analyze specific priority issues and propose appropriate management strategies and activities needed to address each issue. Each subcommittee consisted of several council members and a supporting sanctuary staff member. Throughout 2007, several subcommittee and advisory council meetings and public workshops resulted in management recommendations to the sanctuary superintendent.

Sanctuary advisory council meeting in Galveston. Photo: FGBNMS

During the management plan review process, the sanctuary staff have provided regular briefings on the advisory council's recommended management plan strategies and activities to other federal agencies, including the BOEM Gulf of Mexico Regional Office, the NOAA Fisheries Southeast Regional Office, and the Gulf of Mexico Regional Fishery Management Council. Briefings were also given to a number of non-governmental organizations, stakeholders, and interest groups.

Sanctuary staff used the recommendations from the sanctuary advisory council to help inform the action plans as part of the preparation of the draft management plan. The draft management plan published on October 22, 2010 was the result of that process. Formal public hearings and comments on the draft plan helped staff revise the document into a final management plan, which outlines the sanctuary's priorities for the next 5 years until the next review. In addition, an environmental assessment was created to analyze the potential environmental impacts of the management plan and the regulatory changes associated with it.

1.4 Sanctuary Goals and Objectives

Sanctuary goals and objectives are significant in that they, along with the purposes and policies of the NMSA, are the standard by which new sanctuary management actions and regulations are considered. Along with the comments collected during the public scoping process, the goals and objectives guide the development of the management plan's action plans. The strategies and activities that comprise these action plans should help attain the sanctuary goals and objectives.

In preparation for a review of the management plan, the sanctuary staff worked with the sanctuary advisory council to update the FGBNMS' goals and objectives and create a mission statement.

Flower Garden Banks National Marine Sanctuary's Mission: Identify, protect, conserve, and enhance the natural and cultural resources, values, and qualities of Flower Garden Banks National Marine Sanctuary and its regional environment for this and future generations.

*Goal 1***:** Protect, maintain and, where appropriate, restore and enhance the resources and qualities of Flower Garden Banks National Marine Sanctuary and ecosystem that supports it.

1A: Prioritize resource protection in management decisions.
1B: Develop and integrate best practices, scientific information, and innovative management techniques.
1C: Reduce threats to sanctuary resources.
1D: Enhance compliance with and enforcement of sanctuary regulations.
1E: Improve ability to conduct emergency response and damage assessment.

*Goal 2***:** Support, promote, and coordinate characterization, research, and monitoring of FGBNMS and the regional environment to inform conservation and protection.

2A: Improve characterization of the physical, chemical, biological and human environment

of the sanctuary.
2B: Enhance research necessary for effective management and protection of sanctuary resources.
2C: Monitor and assess long-term environmental changes in the sanctuary.
2D: Evaluate environmental impacts that could result from changes in human activities or environmental conditions.

*Goal 3***:** Enhance and foster public awareness, understanding, appreciation, and stewardship of FGBNMS and the regional marine environment.

3A: Broaden public awareness of the sanctuary and the regional marine environment by reaching out to new audiences.
3B: Improve understanding of the sanctuary and its resource protection issues through the interpretation and dissemination of information on sanctuary science and management.
3C: Increase public appreciation, support and stewardship of the sanctuary, including the active participation of volunteers.

*Goal 4***:** Manage and facilitate multiple sustainable uses of FGBNMS compatible with the primary purpose of resource protection.

4A: Minimize potential user conflicts.
4B: Explore innovative management techniques, such as marine zoning, to achieve the mission of protecting sanctuary resources.
4C: Improve understanding of human activities and their potential impacts, direct, indirect and cumulative, to sanctuary resources and the regional environment.

*Goal 5***:** Promote and coordinate partnerships with stakeholders, agencies, and organizations.

5A: Coordinate the development and implementation of policies, regulations, procedures, and permitting activities.
5B: Enhance opportunities for stakeholder and public involvement in sanctuary activities, especially through the sanctuary advisory council process.
5C: Facilitate the exchange of scientific information, technical knowledge, and innovative management strategies.
5D: Improve collaboration and coordination with partners to increase public awareness, understanding and stewardship of the sanctuary.

*Goal 6***:** Promote ecosystem-based management of the FGBNMS regional environment.

6A: Improve understanding of how sanctuary resources are connected to other areas through ecosystem processes.
6B: Improve understanding of other threatened areas in the FGBNMS regional environment that may be nationally significant.
6C: Evaluate and implement management actions that enhance ecosystem-based management.

Sanctuary Setting

2.1 Northwestern Gulf of Mexico

The Flower Garden and Stetson Banks are only three among dozens of reefs and banks scattered along the edge of the continental shelf of the northwestern Gulf of Mexico (Figure 3). All of these banks are part of a regional ecosystem heavily influenced by current patterns within the Gulf (Figure 4). Inflows from the large watershed that drains two-thirds of the continental United States also play a significant role in the health of this region.

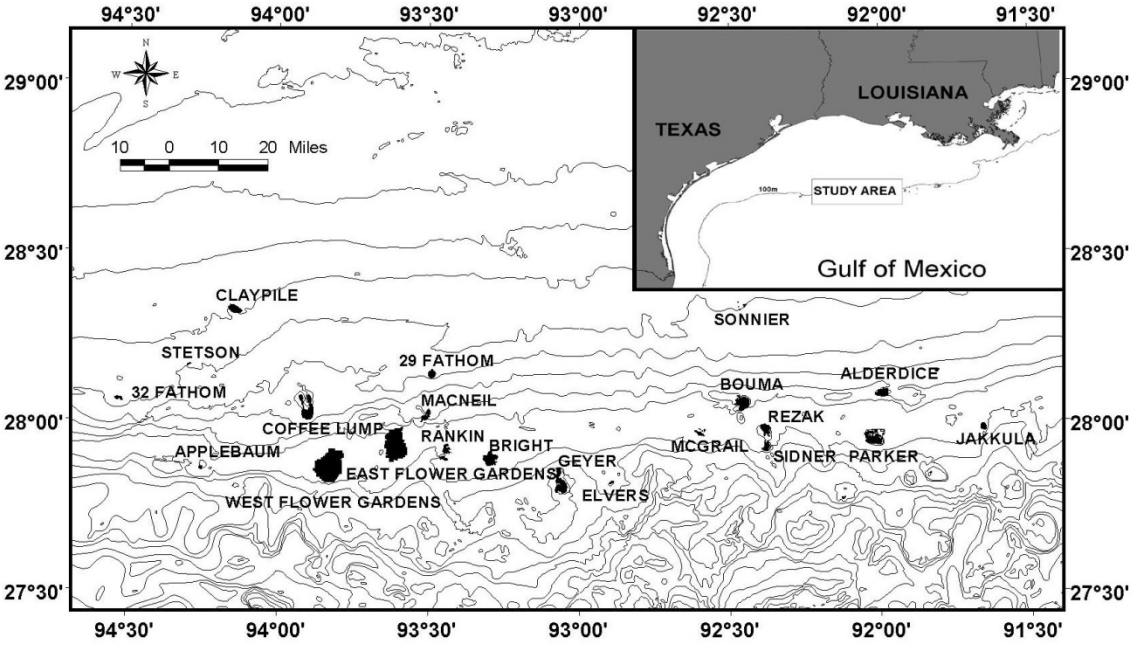


Figure 3: Selected reefs and banks of the northwestern Gulf of Mexico

Currents

From the south, the Gulf of Mexico is fed by the Yucatan Current, a current of warm water from the Caribbean that enters the Gulf between Mexico's Yucatan Peninsula and Cuba. The deeper water flows up the middle of the sea, forming the Gulf Loop Current, which curves east and south along Florida's coast and exits through the Straits of Florida.

The Gulf Loop Current is variable, sometimes barely entering the Gulf before turning, while at other times, it travels almost to Louisiana's coast before swinging toward Florida. Simultaneously, portions of the loop often break away from the main current and form circular eddies that move westward, affecting the Flower Garden, Stetson and other banks to the west. The influx of water to the Gulf brings with it animal larvae, plant spores and other imports from the south, and accounts for the many Caribbean species found in the northern Gulf of Mexico. During its progress, the loop current also picks up similar 'passengers' from the northern Gulf to deliver along its route to the northern Caribbean and western Atlantic.

Meanwhile, the shelf waters of the southern Gulf tend to travel northward, following the Mexico and Texas coastlines before turning east. These wind driven currents may also cross over the Flower Garden, Stetson and other banks and add to the Caribbean influence in the region.

Fresh water from rivers emptying into the northern Gulf of Mexico (Mississippi, Atchafalaya, Calcasieu, Sabine, Brazos, and others) generally flow west and south along the Louisiana and Texas coasts. As these waters move, they mix with nearshore waters of the continental shelf and are also forced offshore as they encounter northward flows along the Texas coast. At times, exceptionally high flow rates can extend the influence of fresh water quite far offshore in the northwestern Gulf.

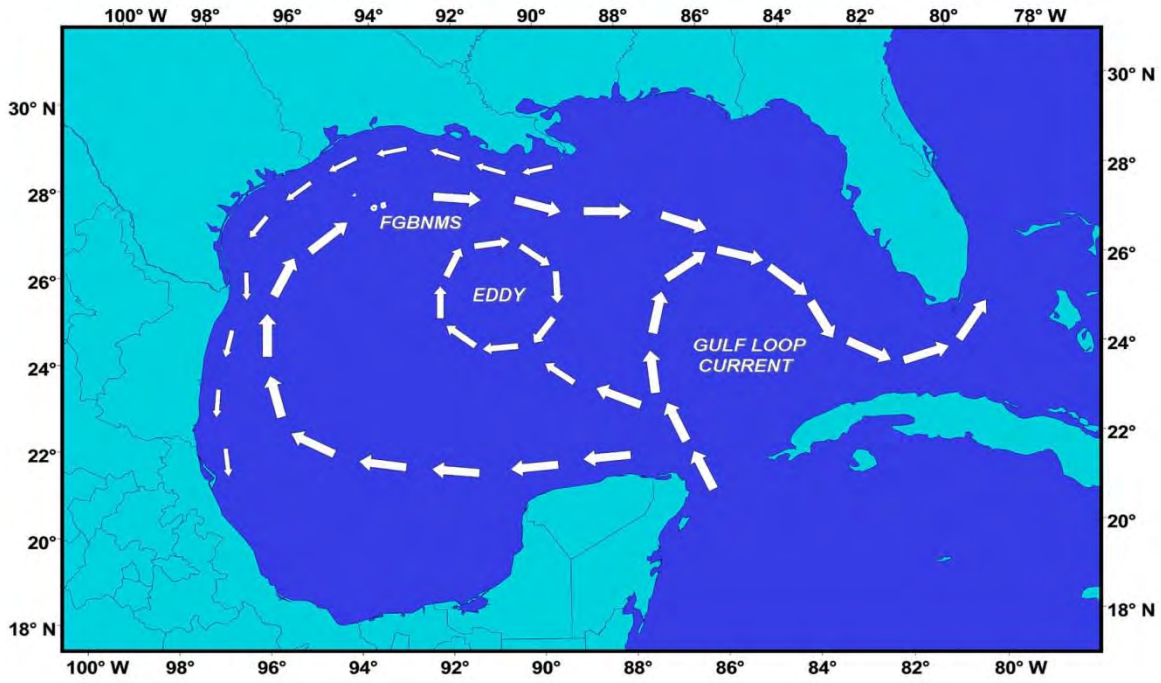


Figure 4: Currents in the Gulf of Mexico

Watershed

From the north, the Gulf of Mexico is fed by multiple rivers that drain the interior of North America. The most significant of these is the Mississippi River. Each river carries runoff accumulated from urban, suburban, and rural areas and wildlands along their respective routes. Before reaching the Gulf, this replenishing source of water is partially depleted by extractions for municipal, industrial and agricultural consumption, thus reducing freshwater inflows that sustain the estuaries. When healthy, the estuaries filter sediments and pollutants from the water, export organic material for the food chain in nearshore areas, and provide nursery areas for many species, some of which later move offshore to the system of banks along the continental shelf.

Connectivity

Scientists have long been aware that water circulation connects the dozens of banks along the continental shelf in the northern Gulf of Mexico. Recent explorations, however, have demonstrated

that there may be much more physical connection than previously believed. Technological advances have allowed the creation of high resolution maps that reveal systems of low relief geological features (such as rock outcrops) between many reefs and banks in this area. These features may allow much more direct interaction between the banks than previously thought. As we build upon the knowledge base established by the discoveries to date, we may discover that these interactions play a crucial role in maintaining the health of the sanctuary's living marine resources.

2.2 Institutional Setting

The offshore areas of the Gulf of Mexico and their resources are currently managed under multiple authorities by several federal agencies. BOEM has historically protected topographic features, including the Flower Garden Banks, through stipulations in leases that prevent drilling in sensitive areas called No Activity Zones (NAZs). National Oceanic and Atmospheric Administration (NOAA) and the Gulf of Mexico Fishery Management Council (GMFMC or Gulf Council) have designated many of these same topographic features as Habitat Areas of Particular Concern (HAPCs), which may limit the types of fishing activities that can occur in the area. NOAA Fisheries also manages endangered and threatened species through the Endangered Species Act (ESA) and protected marine mammals through the Marine Mammal Protection Act (MMPA). In addition, the Environmental Protection Agency (EPA) is responsible for protecting the quality of the nation’s waterways through the Clean Water Act (CWA).

BOEM manages oil, gas, and mineral exploration and development through the Outer Continental Shelf Lands Act (OCSLA; 43 U.S.C. 1331 et seq.). The OCSLA authorizes the Secretary of the Interior to prescribe rules and regulations to administer leasing of the Outer Continental Shelf (OCS). Such rules and regulations will apply to all operations conducted under a lease.

The Gulf of Mexico Fishery Management Council is one of eight regional fishery management councils that were established by the Fishery Conservation and Management Act in 1976 (now called the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1801 et seq.)). The Gulf Council prepares fishery management plans (FMPs) to manage fishery resources in the Exclusive Economic Zone (EEZ) of the Gulf of Mexico, the area from state (3 nautical miles) waters out to the 200 nautical mile limit. As required by the Magnuson-Stevens Act, the Gulf Council has identified essential fish habitat (EFH) in the Gulf of Mexico, and has established a number of HAPCs, including the East and West Flower Garden and Stetson Banks.

The ESA (16 U.S.C. 1531 et seq.) protects animals and plants threatened with extinction. Implementation of the ESA is the responsibility of the U.S. Fish and Wildlife Service (terrestrial species) and NOAA Fisheries (marine species). ESA-listed species that regularly occur in the vicinity of FGBNMS include loggerhead and hawksbill sea turtles, although leatherback turtles have also been observed. Sperm and fin whales may also be present in this area.

Under the MMPA (16 U.S.C. 1361 et seq.), the Secretary of Commerce (authority delegated to NOAA Fisheries) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). Various marine mammals occur in the northern Gulf of Mexico, but most are

not common in the vicinity of FGBNMS.

The National Marine Sanctuaries Act (Appendix I) states that NOAA shall "maintain for future generations the habitat and ecological services of the natural assemblage of living resources that inhabit [sanctuaries]" (16 U.S.C. 143(a)(4)(C)). The NMSA further recognizes that "while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of the marine environment" (16 U.S.C. 1431(a)(3)). Accordingly, the ONMS subscribes to a broad and comprehensive management approach to meet the NMSA's primary objective of resource protection.

This comprehensive management approach differs from that of other national and local agencies and laws directed at managing single or limited numbers of species or specific human activities within the ocean. Comprehensive sanctuary management serves as a framework for addressing long-term protection of a wide range of living and non-living marine resources, while allowing multiple uses of the sanctuary to the extent that they are compatible with resource protection. The ecosystems managed by the ONMS span diverse geographic, administrative, political and economic boundaries. Strong partnerships among resource management agencies, the scientific community, stakeholders and the public at-large are needed to realize the coordination and program integration that the NMSA calls for in order to comprehensively manage national marine sanctuaries.

2.3 East and West Flower Garden Banks

The Flower Garden Banks are significant among ecosystems in the Gulf of Mexico. They contain the northernmost coral reefs in the continental United States. The nearest neighboring tropical coral reefs are 400 miles (643 km) away in the Bay of Campeche, off the Yucatan peninsula of Mexico, while the closest U.S. coral reefs are located 750 miles (1,207 km) southeast in the Florida Keys.

East Flower Garden Bank (Figure 5) is a pear-shaped dome, 5.4 by 3.2 miles (8.7 by 5.1 km) in size, capped by 250 acres (1 square km) of coral reef that rise to within 55 feet (17 m) of the surface. West Flower Garden Bank (Figure 6) is an oblong-shaped dome, 6.8 by 5 miles (11 by 8 km) in size, which includes 100 acres (0.4 square km) of coral reef area starting 59 feet (18 m) below the surface.

Brain and star corals dominate the coral caps of the Flower Garden Banks, with a few coral heads exceeding 20 feet (6 m) in diameter. There are at least 21 species of coral on the coral cap, covering over 50% of the bottom to depths of 100 feet (30 m), and exceeding 70% coral cover in places to at least 130 feet (40 m) (Schmahl et al. 2008, and references therein). Interestingly, the coral caps do not contain some species commonly found elsewhere in the Caribbean, such as many of the branching corals, sea whips or sea fans. In fact, despite the high cover, only about a third of Caribbean hard coral species are found in FGBNMS.

A recent observation of note is the discovery of two live *Acropora palmata* colonies, one each at East and West Flower Garden Banks. These colonies are some of the deepest records of this coral species (Zimmer et al. 2006).

Less well-known is the deepwater habitat of the Flower Garden Banks that makes up over 98% of the area within sanctuary boundaries. Habitats below recreational SCUBA limits (approximately 120 feet) include algal-sponge zones, "honeycomb" reefs (highly eroded outcroppings), mud flats, mounds, mud volcanoes and at least one brine seep system. Different assemblages of sea life reside in these deeper habitats, including extensive beds of coralline algae pavements and algal nodules, colorful sea fans, sea whips, black corals, deep reef fish, batfish, sea robins, basket starfish and feather stars.

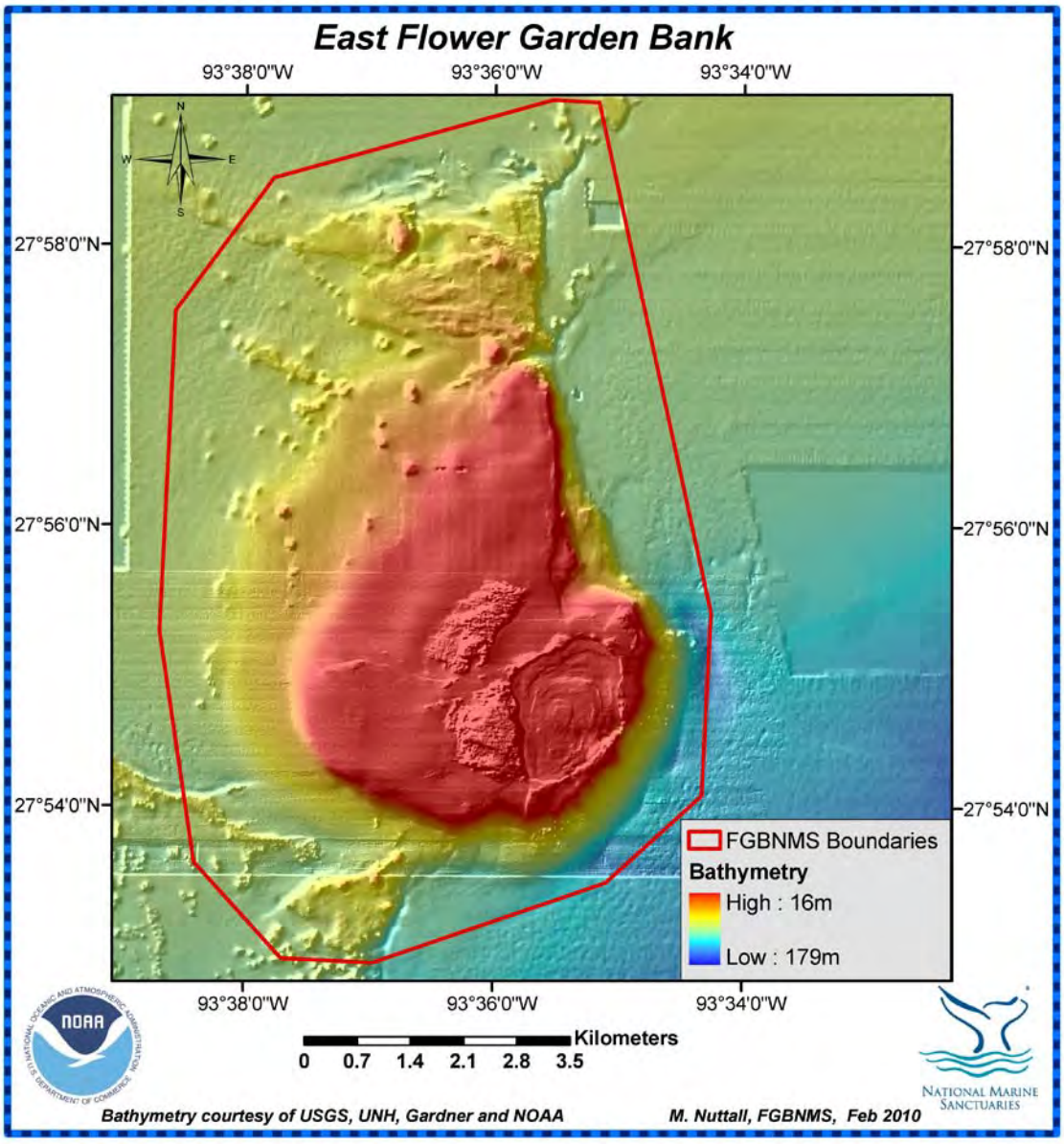


Figure 5: East Flower Garden Bank

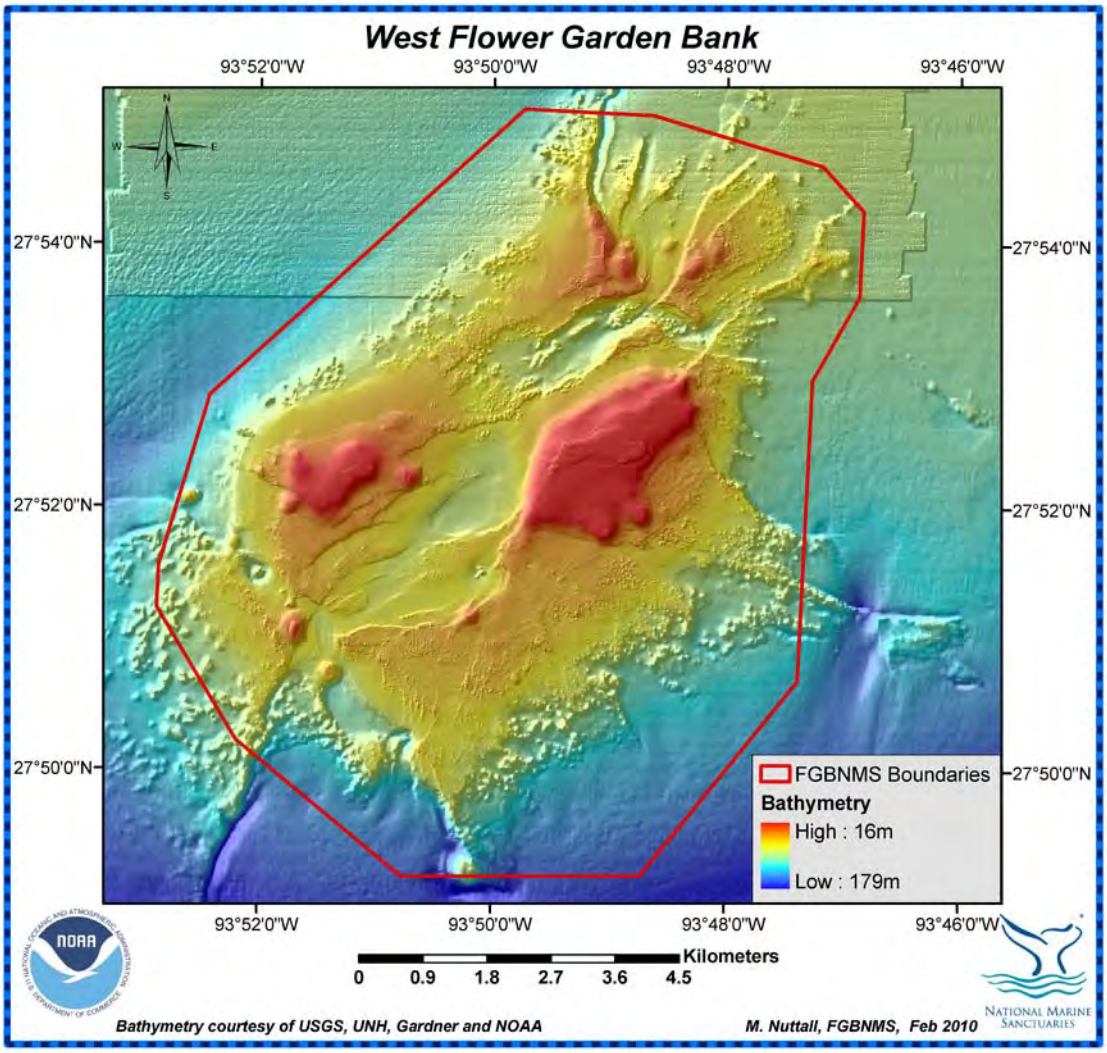


Figure 6: West Flower Garden Bank

2.4 Stetson Bank

Stetson Bank (Figure 7) is located 70 miles (113 km) south of Galveston, Texas, and 30 miles (48 km) to the northwest of West Flower Garden Bank. Depths at Stetson Bank range from about 55 feet (17 m) to 170 feet (52 m). Environmental conditions at Stetson Bank, which include more extreme fluctuations in temperature and turbidity, do not support the growth of reef forming corals like those found at East and West Flower Garden Banks. Divers have described Stetson as having a "moonscape" appearance, with distinct pinnacles that push out of the seafloor for 1,500 feet (457 m) along the northwest face of the bank. An area referred to as the "flats" stretches out behind the pinnacles region and is dotted with low relief outcroppings.

The pinnacles of Stetson Bank are dominated by fire coral and sponges, with cover exceeding 30% (Bernhardt 2000). There are at least nine coral species at Stetson Bank, but with the exception of

fire coral and a large area of *Madracis decactis*, most colonies are small and sparsely distributed. Algae, sponges and rubble dominate the flats.

A “halo” of claystone outcroppings that ring the main feature of Stetson Bank (Gardner et al. 1998) was identified through surveys after the designation of the sanctuary boundaries. Sponges, gorgonians and black corals dominate this impressive ring of outcroppings at about 165-196 feet (50-60 m). Deep reef fish and invertebrates are prominent inhabitants of the "Stetson Ring." Much of the feature is outside of the current sanctuary boundaries, an issue that has been identified as a priority for consideration through the management plan review.

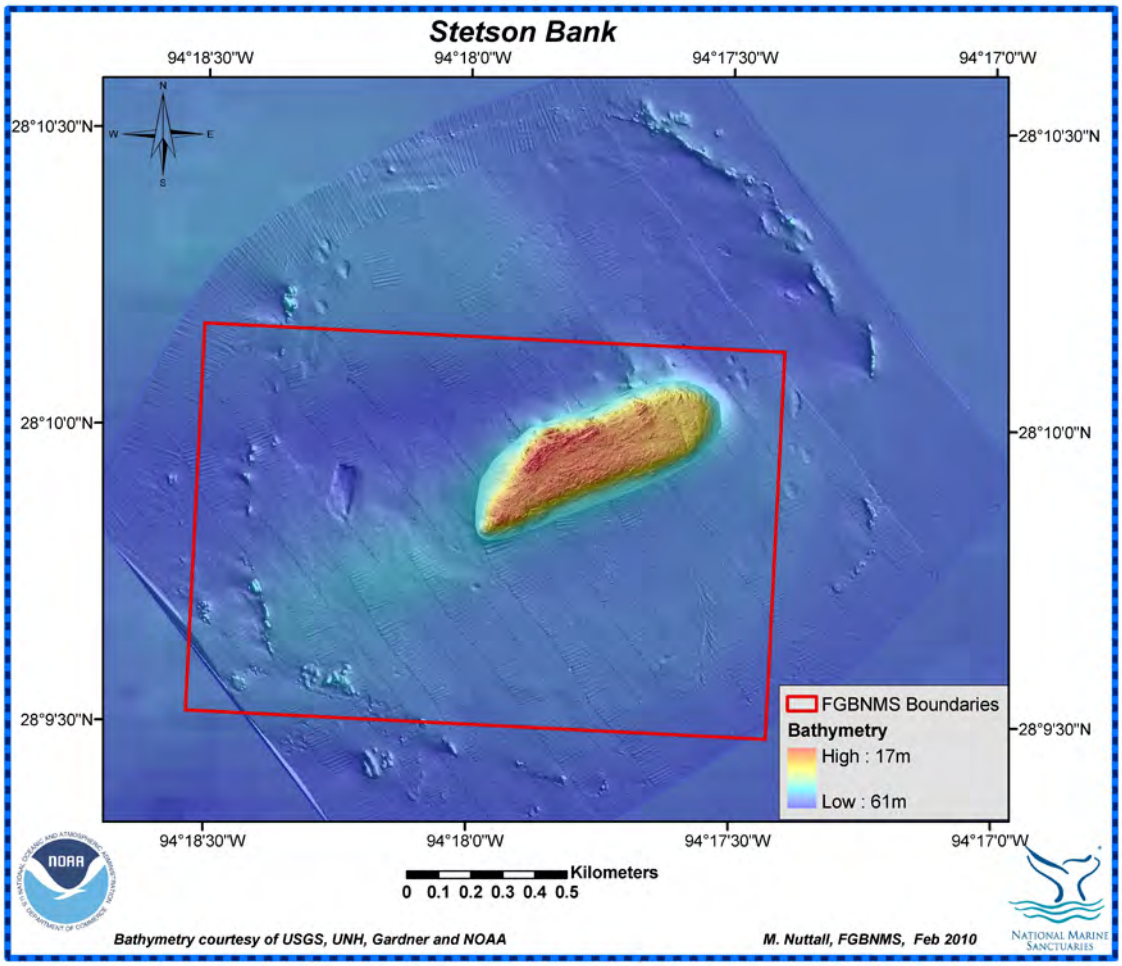


Figure 7: Stetson Bank

2.5 Human Environment

The reefs and banks of the northwestern Gulf of Mexico, including the Flower Garden and Stetson Banks, are utilized by a variety of user groups.

Recreational SCUBA Diving
Recreational SCUBA divers constitute the largest user group within FGBNMS. An estimated 2,500–3,000 divers visit the sanctuary each year. Although the Flower Garden Banks is often a challenging dive site, recreational divers consistently rate it among the favorite dive sites in North America. The sanctuary is also a popular site for underwater photography. Most divers access the sanctuary on commercial dive charter vessels, but some visit the area in personal boats. Diving is also popular on oil and gas platforms and other artificial reefs in the vicinity.

Fishing
Recreational and commercial fishing are common and economically important activities in the northwestern Gulf of Mexico. Primary species of importance to the fisheries in the Flower Garden Banks area include reef fish within the snapper-grouper complex, including Red Snapper, Vermilion Snapper, deepwater groupers (Yellowedge, Snowy, Speckled Hind, Warsaw) and shallow water groupers (Gag, Scamp, Yellowfin, Yellowmouth, Black, Rock Hind, Red Hind). A number of sharks and other pelagic fish, such as Wahoo, mackerel and Greater Amberjack, and other reef fish, such as Gray Triggerfish, are also sought after species. Conventional hook and line fishing, both recreational and commercial, is allowed within FGBNMS. All other fishing methods, including bottom trawling, trapping and bottom long-lining are prohibited to protect sensitive bottom habitat. Spearfishing is also prohibited. The spatial resolution of fishing data is currently not precise enough to quantitatively assess fishing pressure within the sanctuary.

Vessel Traffic
The sanctuary is located adjacent to a major shipping lane for shipping and transport headed to the Port of Houston, one of the busiest ports in the nation. In the past, this led to occasional anchoring incidents resulting in damage to the coral reefs of FGBNMS. This is now largely managed through a "no-anchor" designation from the International Maritime Organization (IMO) and sanctuary regulations. Other concerns from large vessel traffic include sewage discharge, gray water effluent, marine debris, exhaust emissions, ballast water release, and occasional towing cable impacts. Smaller vessel traffic within the sanctuary includes charter fishing and diving vessels, and personal watercraft used for recreational activities. The number of these vessels visiting the sanctuary each year is limited by the sanctuary's distance from shore and the variability of sea conditions. Mooring buoys are provided by the sanctuary for vessels up to 100 feet in length to avoid anchoring incidents. Vessel discharge and marine debris are other concerns.

Other vessels are occasionally observed transiting the sanctuary without stopping. These include passing shrimp trawlers, as well as service boats and barges associated with oil and gas activities. In the past, significant injury to sanctuary resources has resulted from improperly attended cables between tugs and towed barges.

Oil and Gas Activities

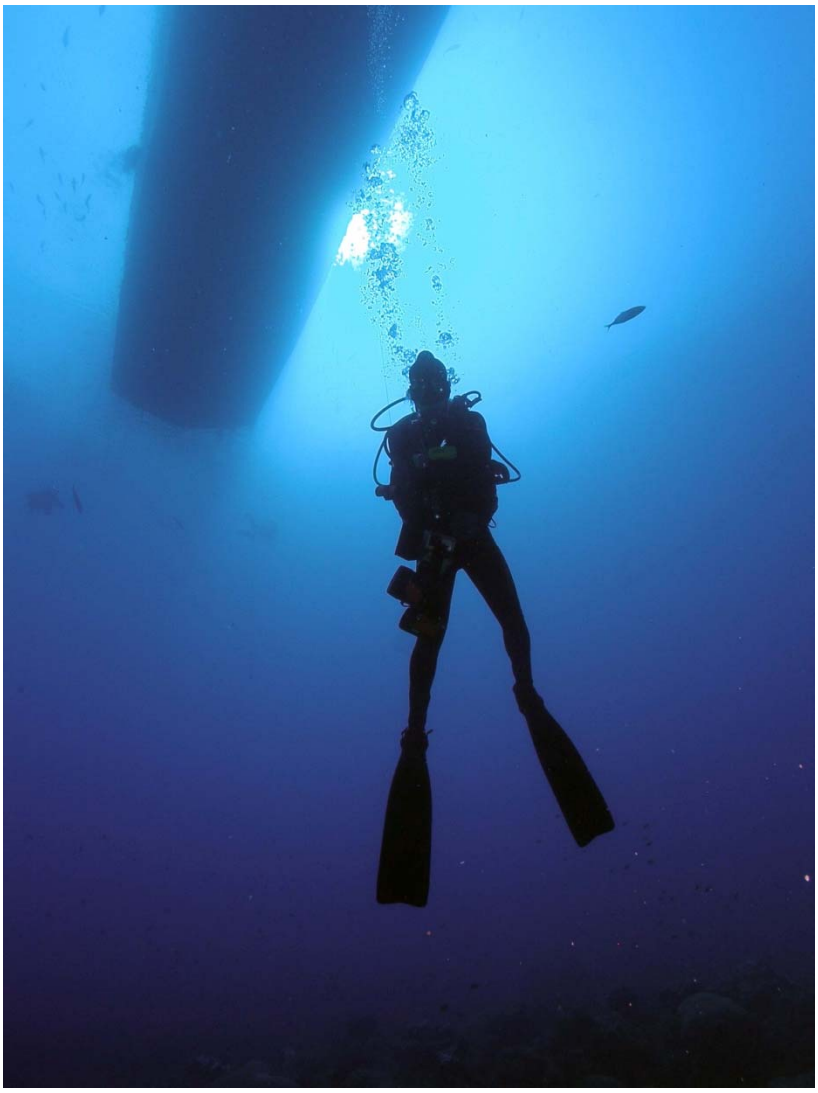
The northwestern Gulf of Mexico is home to one of the most active areas of oil and gas exploration and development in the world. Approximately 150 oil and gas platforms are located within 25 miles of the existing boundaries of Flower Garden Banks National Marine Sanctuary. One production platform, located in BOEM lease block High Island 389A, is within the boundary of East Flower Garden Bank. Constructed in 1981, prior to sanctuary designation, this platform continues to facilitate active exploration for and production of oil and gas. The structure itself also serves as an artificial reef, providing habitat for a variety of organisms that live on and around it, as well as an exciting dive opportunity for sanctuary visitors.

Research

FGBNMS has a long history of research and exploration that continues today. Scientists from a variety of universities, research foundations, and government agencies are constantly monitoring and evaluating the fauna and flora of the sanctuary. Many recent studies have focused on the deepwater areas surrounding and between the various reefs and banks, utilizing remotely operated vehicles (ROV) and other technologies. Because of the remote location, the coral reefs of the sanctuary have remained relatively buffered from problems that plague many other reefs in the world and have become a benchmark for evaluating the health of other reef systems.

Education and Outreach

As the only coral reef ecosystem in this region, the Flower Garden Banks is a valuable experiential learning site for educational programming. Instead of just learning about coral reefs, program participants can experience them first-hand, thus adding another dimension to their appreciation of this resource in the northwestern Gulf of Mexico. For example, FGBNMS staff organizes workshops that train between 500 and 1,000 teachers every year.



A diver floats beneath a boat within the sanctuary. Photo: FGBNMS

Action Plans

3.1 Introduction

Action plans identify a series of steps to be carried out to address priority issues in FGBNMS over the next five years. They take on two different forms – issue-driven and program-driven. Issue-driven action plans focus on a particular concern, such as reducing conflicts among sanctuary visitors. Program-driven action plans are related directly to program areas of FGBNMS, such as research or education, and cross through the issue areas.

Action plans are a collection of strategies sharing common management objectives. The plans provide an organized structure and process for implementing these strategies over the next five years, including a description of the required activities and a schedule for implementation. This management plan, and the action plans contained within it, is not intended to be comprehensive in scope. Rather it is designed as a strategic document that will address those priority issues that can be realistically accomplished in a five-year time frame.

How were action plans developed?
Action plans arose from issues and concerns that were identified in the State of the Sanctuary Report and during the public scoping process in October 2006. After compiling and categorizing the areas of concern, FGBNMS staff worked with the sanctuary advisory council to evaluate and prioritize the issues. The council currently consists of 21 members: 16 non-governmental voting members and 5 governmental non-voting members. The 16 voting council seats represent a variety of regional interests and stakeholders, including: recreational diving, diving operations, oil and gas industry, conservation, education, research, commercial fishing, and recreational fishing. The governmental representatives include: Bureau of Ocean Energy Management, U.S. Coast Guard, NOAA Fisheries, NOAA Office for Law Enforcement, and Environmental Protection Agency. The council serves as a forum for consultation and deliberation among its members and as a source of advice to the sanctuary superintendent regarding the management of FGBNMS. The combined expertise and experience of these individuals are a valuable and effective resource for the sanctuary superintendent.

Six categories were selected as the top priority subjects for the sanctuary to address: boundary expansion, education/outreach, enforcement, fishing impacts, pollution discharge, and visitor use. Subcommittees were formed including members from the sanctuary advisory council and FGBNMS staff for each issue area. Additional issues, such as administration and performance evaluation, were addressed primarily by the sanctuary staff. Over the following two years, the issues were examined through subcommittee meetings and public workshops. As a result, some issues were repackaged or incorporated into other issue areas. The following list represents the final set of action plans contained in this management plan:

- Sanctuary Expansion Action Plan (SEAP)
- Education and Outreach Action Plan (EOAP)
- Resource Protection Action Plan (RPAP)

- Research and Monitoring Action Plan (RMAP)
- Visitor Use Action Plan (VUAP)
- Operations and Administration Action Plan (OAAP).

How will they be evaluated?
With this management plan, FGBNMS is initiating a performance measurement process in order to establish a baseline of information that can be used to evaluate the effectiveness of site management over time. Implementation of each action plan will be evaluated through one or more performance measure(s). A table at the end of each action plan contains measures specific to the action plan strategies, though not all strategies will have an associated performance measure.

Ongoing and routine performance evaluation is an emerging priority for ONMS as part of an effort to improve overall management of sanctuaries. Both site-specific and national efforts are underway to better understand the FGBNMS staff's ability to meet stated objectives and to address the issues identified in this management plan.

Performance evaluation has many benefits, including:

- Identifying successful or less successful efforts of FGBNMS management;
- Keeping the public, Congress, and other interested parties apprised of FGBNMS effectiveness;
- Helping FGBNMS management identify resource gaps;
- Improving accountability;
- Improving communication among sanctuaries, stakeholders, the general public and partners in plan implementation;
- Fostering the development of clear, concise and measurable outcomes;
- Providing a means to comprehensively evaluate FGBNMS management in both the short and long term;
- Fostering an internal focus on problem solving and improved performance;
- Providing additional support for the resource allocation process;
- Motivating staff with clear policies and a focused direction.

Performance measures are the means by which the sanctuary staff will evaluate its progress towards achieving of the desired outcomes of each action plan. Measures provide information on results over time, from the near term (within one year) to the long term (over the span of ten years or more). FGBNMS staff will conduct routine performance evaluations over time using the performance measures. Sanctuary staff will determine their effectiveness by evaluating progress towards achievement of each action plan's desired outcomes and assessing the role or added value of those outcomes in the overall accomplishment of site goals and objectives.

Results from performance evaluation will also be analyzed and used to meet ONMS, National Ocean Service (NOS), or NOAA-wide performance requirements. Performance data may also be presented annually: identifying each measure, how it was evaluated, and describing the next steps. Based on this analysis, FGBNMS staff, in cooperation with the advisory council, will identify accomplishments and determine those management actions that may need to be changed to better

meet their stated targets or outcomes.

The targets themselves also may be analyzed to determine their validity (if, for instance, they are too ambitious or unrealistic). The public may have opportunity to comment on the sanctuary staff's perception of its performance, ways in which FGBNMS staff could be more effective, and methods for improving performance measurement.

How are they organized?
Action plans consist of a description of the issue, the goal and objectives of the action plan, and the particular strategies and activities that will be used to implement the action plan. A table that estimates the 5-year costs of implementing the strategies is included and connections to other action plans are identified. Finally, the relevant performance measures related to the action plan are posted at the end.

How are they prioritized?
The action plans in the FMP comprise a body of work that, to fully implement, would require resources well beyond what is currently available –and expected to be available – to FGBNMS. Cost estimates developed by FGBNMS staff for each action plan indicate FGBNMS would need an annual base budget ranging between $1.88 and $3.24 million in order to accomplish all of the work in the action plans. FGBNMS currently operates with an annual budget of around $1.05 million, not including in-kind support from other NOAA offices or grants from NOAA or other agencies and organizations. The amount of in-kind support and grant funding FGBNMS receives each year varies greatly. All of the strategies in the action plans are important in helping FGBNMS meet its goals and objectives. However, given funding limitations, it was necessary to prioritize the strategies to show which are most likely to be implemented. As such, strategies in the management plan are rated as high, medium and low priorities for FGBNMS.

What are the requirements for implementation?
Sanctuary staff developed budgets for each action plan by evaluating the resources necessary for implementation. The cost estimates serve as a general guide and are based on many factors that are difficult to predict for a five-year time frame. Staff estimated the programmatic costs, materials, supplies, and travel-time required to address each activity. Labor estimates are incorporated in the Sanctuary Operations and Administration Action Plan and not included in the estimated costs. Some activities will require outside funding in addition to current estimated costs. A summary of the cost estimated for each action plan is included in Table 1.

Table 1: Estimated Total Costs for the Flower Garden Banks National Marine Sanctuary Management Plan

Action Plan	Estimated Cost ($000)					Total Estimate 5-Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
Sanctuary Expansion Action Plan	110	20	0	0	0	130
Education and Outreach Action Plan	54	108	150	97	134	543
Research and Monitoring Action Plan	534	634	626	773	669	3,236
Resource Protection Action Plan	2	2	52	52	52	160
Visitor Use Action Plan	35	85	110	140	165	535
Operations and Administration Action Plan	1,151	1,424	1,941	1,956	2,242	8,714
Total Estimated Annual Cost of All Action Plans	1,886	2,273	2,879	3,018	3,262	13,345

3.2 Sanctuary Expansion Action Plan

Background

Protecting additional critical habitat in the northwestern Gulf of Mexico emerged as a priority issue during the management plan review process. During scoping, 69 separate comments indicated support for boundary expansion and specified 18 additional areas that sanctuary staff should consider including in the sanctuary. In response, the sanctuary advisory council formed a subcommittee and held several public workshops to explore the issue. The subcommittee presented recommendations to the advisory council, who deliberated and made final recommendations to the sanctuary superintendent in December 2007. The Sanctuary Expansion Action Plan (SEAP) describes a process that will be used to evaluate areas for inclusion in the sanctuary and to implement the expansion as appropriate.

A number of reasons were raised as to why additional protection is necessary. First, there is a significant concern about impacts from anchoring on the sensitive biological resources and geological features associated with many reefs and banks in the area. Specific examples were identified that indicate certain areas, such as Sonnier Bank, have already been injured as a result of indiscriminate anchoring. Sanctuary designation would bring a management approach similar to the one that exists at the East and West Flower Garden and Stetson Banks, where mooring buoys have been installed to eliminate the need to anchor in these areas. Second, several areas, such as Sonnier, Bright and Geyer Banks, are becoming popular sites for recreational SCUBA diving, especially as technical diving technologies allowing divers to go deeper underwater become more available. Sanctuary designation could again allow for the installation of mooring buoys to provide safe access to these areas for divers. Third, some areas contain special features that require high levels of protection. These areas include McGrail Bank, where a unique deepwater coral reef is located, and Alderdice Bank, where prominent basalt spires arise from the seafloor, a feature of significant geological interest. Finally, there are areas, such as Bright Bank, where significant damage has occurred as a result of activities that are not properly regulated (e.g., excavation in search of submerged historical resources). For these and other reasons, a comprehensive management approach offered by National Marine Sanctuary designation could provide the necessary protection to these critical habitats.

High-resolution multi-beam bathymetry has revealed reefs and banks outside FGBNMS that form an interconnected network of habitat in the northwestern Gulf of Mexico. In addition to the high relief topographic features known in the region, there are comparatively low relief ridges that connect some of the banks, particularly those near the shelf edge. Many of these hard bottom features are structurally connected to the banks of the sanctuary and are likely important in maintaining the integrity of the sanctuary ecosystem through habitat and species connectivity.

Observations made during submersible and ROV surveys indicate that fish occupy and may move preferentially along these features from bank to bank. The ridges and outcrops provide habitat for many species that are prey to the larger migratory species commonly seen along them. Thus, these “habitat highways” may be critical to the ecological integrity of the reefs and banks of the northwestern Gulf of Mexico, including FGBNMS. In addition, numerous banks and associated

topographic features have unique or unusual structural features, including brine seeps and flows, fragile outcrops and reef cavities, and spawning aggregation sites. Some features may be vulnerable to certain anthropogenic impacts that alter the physical, chemical, biological, or acoustic environment. Although many banks have some protection through BOEM No Activity Zones (NAZ) or through NOAA Fisheries HAPC designations, it is evident that additional resource protection provided by sanctuary status may be warranted.

An initial list of potential boundary expansion sites was compiled from the scoping comments, advisory council and sanctuary staff recommendations, and information collected and compiled from scientific literature. The boundary expansion subcommittee and sanctuary staff evaluated 19 areas for inclusion under the management and protection of FGBNMS (Table 2).

Table 2: Recommendations for Boundary Expansion of Flower Garden Banks National Marine Sanctuary

All Banks Considered	Subcommittee Recommendation	Advisory Council Recommendation
East and West FGB	East and West FGB	East and West FGB
Stetson Ring	Stetson Ring	Stetson Ring
Horseshoe Bank	Horseshoe Bank	Horseshoe Bank
McGrail Bank	McGrail Bank	McGrail Bank
Geyer Bank	Geyer Bank	Geyer Bank
Bright Bank	Bright Bank	Bright Bank
Sonnier Bank	Sonnier Bank	Sonnier Bank
Alderdice Bank	Alderdice Bank	Alderdice Bank
MacNeil Bank		MacNeil Bank
Rankin Bank		Rankin Bank
28 Fathom Bank		28 Fathom Bank
29 Fathom Bank		
Rezak Bank		
Sidner Bank		
Bouma Bank		
Jakkula Bank		
Alabama Pinnacles		
Madison/Swanson		
FL Middle Grounds		

The subcommittee determined that the geographic scope for a sanctuary expansion resulting from the FGBNMS management plan review should be restricted to the northwestern Gulf of Mexico, and therefore eliminated the Florida Middle Grounds, the Madison/Swanson area, and the Alabama

Pinnacles from consideration. The subcommittee then developed criteria and a ranking process that included an assessment of each area's biological and/or geological significance, and/or uniqueness, structural connectivity, biological connectivity, level of perceived or known threats, and public and sanctuary priority. The criteria were designed to carry forward the primary mandate of resource protection under the NMSA. From that ranking process, the subcommittee developed options for areas to be included in boundary expansion and presented them to the full advisory council. The subcommittee's preferred option included modifications to East and West Flower Garden and Stetson Banks, and the addition of six other banks to the sanctuary. Based on additional input from advisory council members and public comment, the Flower Garden Banks National Marine Sanctuary advisory council amended the subcommittee's preferred option by adding three additional areas to their official recommendation to the sanctuary superintendent.

The subcommittee recommended that the boundaries for new sanctuary areas be as small as possible while still providing adequate protection to the critical habitat areas associated with each feature. "Critical habitat areas" were identified based on seafloor topography and biological information obtained through previous SCUBA, ROV and submersible investigations. The primary biological assemblages considered as critical habitat include coral reefs, coral communities, coralline algal reefs, and deep coral zones. The critical habitat area includes prominent features associated with each reef or bank, defined as seafloor topography greater than three meters in vertical relief and 25 meters in diameter. The boundary of each critical habitat area was developed by identifying the outermost series of prominent features as landmarks, forming the vertices of an irregular polygon. The subcommittee also recommended that a buffer zone be included to provide an added margin of protection. Buffer zones of 250, 500 and 1000 meters were considered. Ultimately, the subcommittee recommended a 500-meter buffer zone. This buffer recommendation was based on literature detailing dispersal patterns and the likely range of effects of pollutants associated with shunted drilling lubricants and cuttings released during oil and gas exploration and production.

Deepwater habitat at Bright Bank. Photo: IFE/URIIAO

After the initial boundary criteria were developed, an analysis of each proposed addition area was

conducted. Oil and gas infrastructure was examined and recommendations were made to either include or exclude areas with existing platforms, depending on their distance from the critical habitat area and their proximity to the edge of the recommended buffer zone. As a result, it was anticipated that oil and gas leasing activity would also continue within these new sanctuary boundaries, as well. The final sanctuary advisory council recommendation includes four oil and gas production platforms within the recommended boundaries (including HIA389A, which lies within the current sanctuary boundaries).

The final advisory council recommendation for boundary expansion and modification, with boundaries based on the critical habitat area and a 500-meter buffer zone, includes modifying the existing boundaries of East and West Flower Garden Banks and Stetson Bank, and adding Horseshoe Bank, McGrail Bank, Geyer Bank, Bright Bank, Sonnier Bank, Alderdice Bank, MacNeil Bank, Rankin Bank, and 28 Fathom Bank (Figure 8).

The term boundary expansion has been used by the Office of National Marine Sanctuaries to refer to the addition of new areas to existing sanctuary sites. The boundary expansion being proposed for Flower Garden Banks National Marine Sanctuary includes a modification of existing boundaries that define the sanctuary at East and West Flower Garden Banks and Stetson Bank, but also the incorporation of additional banks into the network of sanctuary sites in the northwestern Gulf of Mexico. Presently, Flower Garden Banks National Marine Sanctuary has three discrete sanctuary boundaries around three separate banks. The sanctuary's boundary expansion would incorporate additional banks into this sanctuary network of discrete sites. Although the term boundary expansion was used throughout the advisory council process, sanctuary staff now suggests that the term sanctuary expansion more accurately describes the proposed action. This expansion is being proposed to support the physical and biological connections that maintain the species and ecosystems of the existing sanctuary, as well as those of the other banks in the northwestern Gulf of Mexico.

The NMSA gives administrative authority to designate or expand sanctuary boundaries to the Secretary of Commerce, who delegates that authority to ONMS. The NMSA has specific requirements for the associated administrative process that include inter-agency consultations and environmental analyses, among other activities. As identified in this action plan, the sanctuary will formally consider expansion through a public process guided by requirements of the NEPA and the NMSA. This process requires the development of an environmental impact statement (EIS), which describes the affected environment, the development of alternatives, and the environmental consequences to the human and natural environments of each of the alternatives. In January 2008, the ONMS and the MMS (which became BOEM in 2011) entered into a cooperating agency agreement on the development of the EIS for boundary expansion at FGBNMS. In addition, informal consultations with the GMFMC have been ongoing since the initiation of the management plan review process. Formal consultation with the GMFMC pursuant to Section 304(a)(5) of the NMSA will occur as part of the rulemaking process, as required. It is assumed that since this is an expansion of an existing sanctuary, any new areas will be subject to the regulations that are applicable to FGBNMS (Appendix II). However, site-specific regulations may be necessary for

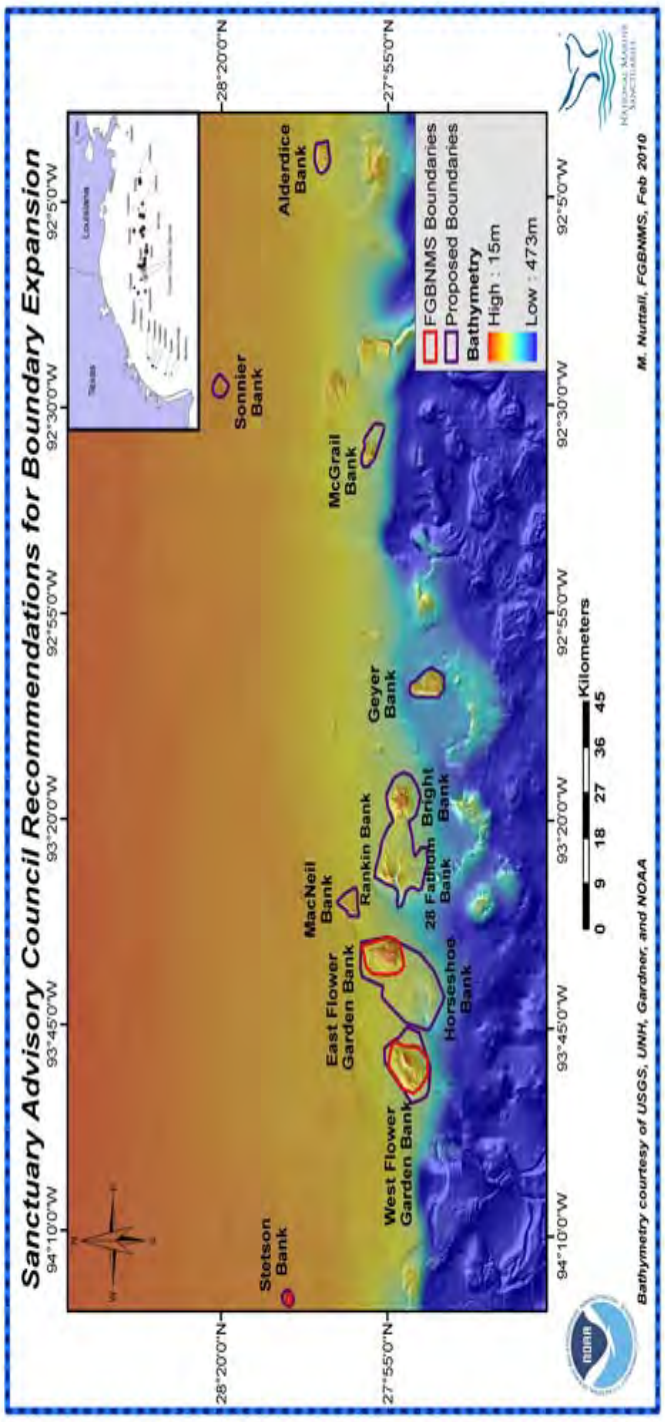


Figure 8. Sanctuary Advisory Council Recommendation for Boundary Expansion

some or all of the new areas and will be considered and evaluated in the designation process.

Purpose

The Sanctuary Expansion Action Plan (SEAP) helps to attain the FGBNMS *Goal 6*—promote ecosystem-based management of the FGBNMS regional environment—and *Objective 6C*—evaluate and implement management actions that enhance ecosystem-based management. The purpose of the SEAP is to protect and manage additional sensitive habitat in the northwestern Gulf of Mexico, allowing for the protection of unique geological and biological features of the region that may be ecologically linked to one another.

Strategies and Activities

The SEAP contains one strategy to implement a process that will expand the network of protected areas within FGBNMS by incorporating selected reefs and banks in the northwestern Gulf of Mexico for their long term protection and management.

SE.1 – Evaluate and expand, as appropriate, the network of protected areas within the sanctuary to include 5-12 additional reefs and banks, and to modify the existing boundary of East and West Flower Garden and Stetson Banks to include critical adjacent habitat.

Activity 1.1 Develop a draft environmental impact statement (DEIS) to evaluate alternatives for incorporating additional reefs and banks in the northwestern Gulf of Mexico into FGBNMS, and identify a preferred alternative.

Activity 1.2 Assess whether changes to the FGBNMS management plan are required to meet the needs of the potential additional areas and develop a draft management plan for the new areas, if necessary.

Activity 1.3 Develop any necessary implementing regulations.

Activity 1.4 Release the DEIS, proposed regulations, and draft management plan for public review and comment.

Activity 1.5 Finalize and release the final EIS, regulations, and management plan.

Table 3: Estimated Costs for the Sanctuary Expansion Action Plan

Activity	Estimated Cost ($000)					Total Estimate 5-Year Cost	Priority Level
	YR 1	YR 2	YR 3	YR 4	YR 5		
(1.1) DEIS for sanctuary expansion	100	0	0	0	0	100	High
(1.2) Management plan assessment	0	0	0	0	0	0	High
(1.3) Regulation development	0	0	0	0	0	0	High
(1.4) Draft EIS, proposed rule, and draft management plan	10	0	0	0	0	10	High
(1.5) Final EIS, regulations, and management plan	0	20	0	0	0	20	High
Total Estimated Annual Cost	110	20	0	0	0	130	

Note: Labor estimates are incorporated in the Operations and Administration Action Plan.

Table 4: Performance Measures for the Sanctuary Expansion Action Plan

Sanctuary Expansion Action Plan Activity	Performance Measure	Baseline	Description	Link to National Program Performance Measures
Activity 1.4 Release the DEIS, proposed regulations, and draft management plan for public review and comment.	By 2013, FGBNMS staff will publish a Draft Environmental Impact Statement (DEIS) on boundary expansion.	FGBNMS staff are currently developing the components of a DEIS and gathering existing information on the affected environment and socioeconomics.	FGBNMS staff will continue to collect information and analyze the potential effects, as required by NEPA, and prepare the required documents.	n/a

3.3 Education and Outreach Action Plan

Background
The level of awareness, understanding, and appreciation of FGBNMS varies greatly among users and other members of the public, and in many cases is inadequate to produce changes in individual attitudes, behaviors, or community decision making processes that affect the health of sanctuary resources.

Since sanctuary designation, education and outreach efforts have focused heavily on two primary audiences: K-12 educators (and, hence, their students) and recreational divers. These audiences were given high priority as a result of staff analysis and constituent input. To date, educator workshops have trained between 500 and 1,000 teachers. Since each classroom teacher reaches between 20 and 150 students each year and each informal venue educator reaches thousands of students each year, this was deemed the most efficient and effective approach to disseminating sanctuary messages. Education and outreach programs have also targeted additional sanctuary users and the general public by taking advantage of specific opportunities such as working with public aquariums interested in developing Flower Garden Banks exhibits.

The progress made in addressing K-12 educators/students and recreational divers needs to be sustained while implementing programs that address new priority issues and target additional audiences, especially direct users of the sanctuary. One of the mandates of the NMSA is to enhance public awareness, understanding, and appreciation of the marine environment; therefore it is important to raise general visibility of the sanctuary and increase public awareness.

Purpose
The purpose of the Education and Outreach Action Plan (EOAP) is to use education and outreach to enhance effective management of the sanctuary by cultivating a knowledgeable public that progresses from simple awareness to active stewardship of FGBNMS and the regional marine environment. The EOAP contributes to the attainment of FGBNMS *Goal 3*—enhance and foster public awareness, understanding, appreciation, and stewardship of FGBNMS and the regional marine environment.

Strategies and Activities
The EOAP contains four strategies and associated activities that focus on developing programs to address specific management needs and target audiences, increasing general public awareness and knowledge of the sanctuary, building internal processes and capabilities, and cultivating relationships and networks with appropriate partners and media contacts.

<u>EO.1 – Broaden public awareness of the sanctuary and the regional marine environment.</u>
Activity 1.1 Build a presence in the community.
Activity 1.2 Develop programs to reach previously underserved audiences.
Activity 1.3 Use print and broadcast media to increase public awareness.
Activity 1.4 Work with informal education venues, such as aquariums and museums, to create exhibits and associated programs about the sanctuary.

EO.2 – Improve understanding of the sanctuary and its resource protection issues.
Activity 2.1 Develop and implement programs to inform stakeholders about science activities and changes in sanctuary regulations.
Activity 2.2 Enhance K-12 education programs.

EO.3 – Increase public support and stewardship of the sanctuary.
Activity 3.1 Cultivate strategic partnerships.
Activity 3.2 Develop a strong volunteer program.
Activity 3.3 Implement NOAA's Blue Star Program.

EO.4 – Enhance communication through effective use of technology and products.
Activity 4.1 Continue to build a dynamic and up-to-date internet presence.
Activity 4.2 Take advantage of emerging technologies.
Activity 4.3 Continue to use traditional products (brochures, posters, videos).

EO.5 – Evaluate effectiveness of education and outreach efforts.
Activity 5.1 Identify and implement appropriate evaluation tools.
Activity 5.2 Develop new evaluation tools as needed.

EO.1 Broaden public awareness of the sanctuary and the regional marine environment.
The sanctuary's remote location makes it difficult for land-based communities to have a sense of place and stewardship for the sanctuary. The staff and physical facilities are the closest exposure most people will ever have to sanctuary resources.

Activity 1.1 Build a presence in the local community.
FGBNMS will sponsor and participate in community events such as NOAA Ocean Discovery Day, local Earth Day festivals and coastal expos, to help create a sense of place for the sanctuary within the local community. Efforts over the next five years will focus primarily on establishing a strong presence in the Galveston Island community, where the sanctuary office is located, and nearby areas.

In addition, during the next five years, the education outreach team will develop a concept and implementation plan for a Flower Garden Banks National Marine Sanctuary visitor center in Galveston, Texas. For the majority of citizens who will never visit the sanctuary in person, a visitor center will provide a physical location where they can experience the wonders of the sanctuary virtually.

Activity 1.2 Develop programs to reach new audiences.
In order to conduct effective education and outreach that moves people from informed citizens to active stewards of the sanctuary and the ocean, FGBNMS staff must identify and characterize the groups of people who use the sanctuary for their recreation and livelihood. Characterization includes knowing who the groups are, how they use the sanctuary, their demographic information, and whether they are a specialized segment of a larger group.

FGBNMS staff will identify and utilize the existing lines of communication used by each user group

to enhance two-way exchange of information. Specific user groups need to be informed about regulations, best practices for particular uses, appropriate avenues for reporting observations and/or incidents, other ways to practice active stewardship of sanctuary resources, and voluntary compliance with sanctuary and other Federal regulations. Two-way exchange of information involves also receiving feedback regarding sanctuary practices and individuals reporting observations made during their visits to the sanctuary. FGBNMS staff will develop programs to target specific user groups using these concepts.

Activity 1.3 Use print and broadcast media to increase public awareness.
To date, efforts to engage the media have been inconsistent and focused on special events. During the next five years, sanctuary staff will work with the ONMS media coordinator to update the media contact database and develop a media communications plan. This approach will enhance regular communication with the media about the sanctuary**.** For purposes of this activity, print media includes publications such as newspapers and magazines, both general and special interest (e.g., airline in-flight magazines, SCUBA or fishing magazines), and broadcast media includes television and radio and their affiliated websites.

Activity 1.4 Work with informal education venues, such as aquariums and museums, to create exhibits and associated programs about the sanctuary.
Each year, roughly three million people experience the sanctuary through the exhibits and interpretive signage at five aquariums and zoos throughout the U.S. These include the Texas State Aquarium (Corpus Christi, TX), the Aquarium at Moody Gardens (Galveston, TX), the Audubon Aquarium of the Americas (New Orleans, LA), the Tennessee Aquarium (Chattanooga, TN) and the National Aquarium (Washington, DC). FGBNMS staff will develop an exhibits plan to maintain and update current exhibits and pursue new exhibits with future partners. Details on how this plan would be implemented are in the OAAP. The sanctuary's education and outreach team will also continue to provide professional development and training opportunities for aquarium and zoo staff and volunteers, and support for teacher workshops focused on sanctuary exhibits.

EO.2 Improve understanding of the sanctuary and its resource protection issues.
Sanctuary education and outreach efforts should target two groups: stakeholders and educators. Stakeholders (who are often users) already have awareness and baseline knowledge about the sanctuary, and are ready to continue along the progression toward active stewardship. They have expressed an interest in more information about sanctuary science and management. Training of classroom teachers has traditionally been a mechanism for reaching young people that are not aware of the sanctuary but are the future stewards of our ocean resources.

Activity 2.1 Develop and implement programs to inform stakeholders about science activities and changes in sanctuary regulations.
FGBNMS staff will develop a process for improved internal transfer of science and policy information for the purpose of further dissemination to stakeholders. FGBNMS has a robust research and monitoring program. Similarly, the education team has expertise in interpreting science for general stakeholders. Staff will then use existing programs and outlets to inform the public about ongoing efforts to understand and protect sanctuary resources.

Changes to FGBNMS regulations will affect various user groups. A need exists to target those affected by these changes as they relate to their particular use of the sanctuary. FGBNMS staff will build programs to address priority regulatory issues, such as sanctuary expansion, interactions with wildlife, and pollutant discharge. Emphasis will be placed on developing a program targeting commercial and recreational fishermen. In addition, climate change has been identified as a potential threat to sanctuary resources and efforts will be made to inform stakeholders of the impacts of climate change on sanctuary resources.

Activity 2.2 Enhance K-12 education programs.
FGBNMS will continue to implement programs designed to reach classroom teachers and their students. FGBNMS staff will provide professional development for educators, give presentations to students, and develop education modules and lesson plans about Flower Garden Banks National Marine Sanctuary for K-12 audiences.

Teachers learn to operate an ROV with the help of sanctuary staff during a Science at Sea workshop for educators. Photo: FGBNMS

EO.3 Increase public support and stewardship of the sanctuary.
Stewardship of the sanctuary can be enhanced through increased involvement of partners and volunteers. Sanctuary staff will work to strengthen education and outreach programs focused on assessing and improving these relationships. This strategy focuses on building the networks of people actively involved in sanctuary programs.

Activity 3.1 Cultivate strategic partnerships.
Good working relationships require active maintenance to build on mutual trust, which enhances effectiveness of communication. Such relationships increase opportunities to collaborate with other organizations to achieve mutual objectives. Stakeholders are not limited to those who use the sanctuary directly, but can include non-profit organizations, businesses, professional organizations and others. Sanctuary education and outreach must also establish relationships with international organizations to increase public awareness and understanding of the connections within the larger ecosystem.

FGBNMS staff will conduct a needs assessment by evaluating current partnerships and identifying current programs that would benefit from new partnerships. The staff will also actively seek potential new partners and implement a process for evaluating proposals for partnerships.

Activity 3.2 Develop a strong volunteer program.
Sanctuary staff currently recruits volunteers on an as-needed basis for specific events and tasks. The ONMS staff is currently working to develop policies and guidelines regarding volunteers. Sanctuary education and outreach staff will develop a volunteer program in accordance with those guidelines. The program will include recruitment, training, continuing education, opportunities to practice active stewardship of sanctuary resources, and recognition for service. Two key elements of this program will be to develop a volunteer manual and formalize the volunteer recruitment process.

Activity 3.3 Implement NOAA's Blue Star Program.
The Blue Star program was established by Florida Keys National Marine Sanctuary to recognize charter boat operators who promote responsible, sustainable and educational diving and snorkeling practices. FGBNMS staff will evaluate the possibility of adapting this program for the sanctuary to increase sanctuary stewardship.

EO.4 Enhance communication through effective use of technology and products.
This strategy focuses on finding the right combination of technology and traditional products to meet the information needs of a variety of audiences. We will continue to use the website and traditional products that are effective, but will also expand into newer technologies that will keep the sanctuary relevant in a time of abundant and rapidly available information.

Activity 4.1 Continue to build a dynamic and up-to-date internet presence.
The sanctuary website has grown substantially in recent years. In the next five years, the staff will continue to evaluate usability, assess information organization and make frequent updates to the website. To stay abreast of changes in website technology, the education and outreach team will prioritize staff training opportunities for web development.

Activity 4.2 Take advantage of emerging technologies.
In addition to the Internet, people are turning to emerging technologies as sources of information. Live broadcasts, such as the ONMS Oceans Live telepresence, provide the public with a chance to participate virtually in science expeditions to the sanctuary. Tools such as RSS feeds and social networking sites such as Twitter, Facebook, My Space and Linked-In provide new opportunities to communicate sanctuary information and interact with the public. Virtual meeting software could allow distant stakeholders to participate in more in-depth education opportunities, such as presentations and discussions on special topics. FGBNMS staff will assess and implement emerging technologies for their potential effectiveness in communicating with sanctuary stakeholders. Additionally, training may be needed to effectively implement new technologies.

Activity 4.3 Continue to use traditional products (brochures, posters, videos).
Although many people have turned to technology for their information, many also continue to

depend on more traditional sources, such as brochures and one-page informational sheets. The sanctuary education team will assess the value of current products, update and use those that remain effective, and develop new ones as needed. Some of these products will also be adapted for delivery via the website. Staff will create an easy to read summary of sanctuary regulations, a need expressed by constituents.

EO.5 Evaluate effectiveness of education and outreach efforts.
It is important to evaluate education and outreach programs in order to determine their effectiveness. To date, the ONMS education staff have focused on developing evaluation methods and tools for formal education programs, such as professional development workshops for educators and volunteers. Next, the staff will focus on developing evaluation methods and tools for other types of education and outreach, such as exhibits at aquariums or visitor centers, community events, websites, and radio programs.

Activity 5.1 Identify and implement appropriate evaluation tools.
FGBNMS staff will use existing evaluation methods and tools as appropriate to evaluate current and new programs.

Activity 5.2 Develop new evaluation tools as needed.
As new education and outreach programs are created, new tools and methods for evaluation will be designed to complement them. Existing tools and methods will be used as a spring board for conducting sanctuary-specific evaluations.

Table 5: Estimated Costs for the Education and Outreach Action Plan

Activity	Estimated Cost ($000)					Total Estimate 5-Year Cost	Priority Level
	YR 1	YR 2	YR 3	YR 4	YR 5		
(1.1) Community presence	5	10	10	10	10	45	High
(1.2) Audience-specific programs	2	2	2	2	2	10	High
(1.3) Print and broadcast media	1	1	1	1	1	5	High
(1.4) Informal education venues	30	50	85	50	85	300	Medium
(2.1) Outreach on science and changes in regulations	2	3	5	5	5	20	High
(2.2) K-12 education	2	3	5	5	5	20	Medium
(3.1) Strategic partnerships	2	2	2	2	2	10	Low
(3.2) Volunteer program	2	4	6	8	10	30	High
(3.3) Implement NOAA's Blue Star Program	1	1	2	2	2	8	Low
(4.1) Internet presence	2	2	2	2	2	10	High
(4.2) Emerging technologies	0	0	0	0	0	0	Low
(4.3) Traditional products	5	30	30	10	10	85	Medium
(5.1) Existing evaluation tools	0	0	0	0	0	0	High
(5.2) New evaluation tools	0	0	0	0	0	0	Low
Total Estimated Annual Cost	54	108	150	97	134	543	

Note: Labor estimates are incorporated in the Operations and Administration Action Plan.

Table 6: Performance Measures for the Education and Outreach Action Plan

Education and Outreach Action Plan Activity	Performance Measure	Baseline	Description	Link to National Program Performance Measures
Activity 1.2 Develop programs to reach previously underserved audiences.	By 2012, FGBNMS staff will conduct a survey to characterize the sanctuary recreational and commercial fishing audience in order to enable future outreach efforts to these sanctuary visitors.	There is currently only anecdotal information on the use of the sanctuary by fishermen, both recreational and commercial.	Upon completion of a pilot study with a focus group, FGBNMS staff will develop a survey to determine the appropriate audiences for outreach priorities among the fishing community.	Characterization (PART)
Activity 3.2 Develop a strong volunteer program.	By 2016, FGBNMS staff will have a strong volunteering program including a formalized process and established policies for each of the four components of the program.	There is currently no formal volunteer program, although informal volunteers have participated in various events.	A formal volunteer program includes the following four components: - Formalized recruitment process - Recognition and retention of volunteers - Training manual with annual or semi-annual training opportunities - Position description for each category of volunteers	Volunteer
Activity 5.1 Identify and implement appropriate evaluation tools. AND Activity 5.2 Develop new evaluation tools as needed.	By 2013, a performance evaluation component will be included in 100% of the education programs at FBGNMS.	Teacher professional development workshops contain an evaluation component. Wildlife Expo has a modest evaluation component. Most aquarium exhibits or volunteer activities do not contain an evaluation component.	FGBNMS education programs include: - Teacher professional development - Community events - Aquarium exhibits - Volunteer training - Constituent outreach	Education Evaluation (PART)

3.4 Research and Monitoring Action Plan

Background
Many research and monitoring issues were identified by the ONMS and the public during the FGBNMS management plan review. Public scoping comments highlighted several concerns for the overall health of the sanctuary, including potential impacts to sanctuary resources from fishing and diving activities, invasive species, marine debris, climate change, and pollutant discharge. Of particular interest is the ecological connectivity of FGBNMS and other banks in the northwestern Gulf of Mexico. These concerns can be addressed with continued characterization, research, and monitoring in FGBNMS and integrated into the six strategies outlined below.

Purpose
The purpose of the Research and Monitoring Action Plan (RMAP) is to provide a guide for research activities at FGBNMS, and throughout the region, that will inform management and protection of sanctuary resources and the reefs and banks of the northwestern Gulf of Mexico that are ecologically connected to the sanctuary. The RMAP contributes to the attainment of the following FGBNMS goals: *Goal 1*) Protect, maintain, and where appropriate, restore and enhance the resources and qualities of Flower Garden Banks National Marine Sanctuary and the ecosystem that supports it; *Goal 2*) Support, promote, and coordinate characterization, research, and monitoring of FGBNMS and the regional environment to inform conservation and protection; and *Goal 6*) Promote ecosystem-based management of the FGBNMS regional environment.

Strategies and Activities
The RMAP has five strategies and associated activities to guide research and monitoring efforts.

<u>RM.1 – Investigate ecosystem processes.</u>
Activity 1.1 Investigate the reproductive ecology of marine organisms.
Activity 1.2 Investigate recruitment dynamics of marine fishes and coral reef invertebrates.
Activity 1.3 Investigate trophic interactions within the FGBNMS ecosystem.
Activity 1.4 Investigate the biological and physical connectivity among the banks of the northwestern Gulf of Mexico and the wider Gulf region.

<u>RM.2 – Assess and characterize sanctuary resources.</u>
Activity 2.1 Conduct mapping at various scales throughout FGBNMS and other banks in the northwestern Gulf of Mexico.
Activity 2.2 Document the range of biodiversity found within the sanctuary and surrounding areas.
Activity 2.3 Conduct geological characterization of sanctuary resources.
Activity 2.4 Conduct regional oceanographic characterizations.

<u>RM.3 – Maintain and enhance monitoring programs.</u>
Activity 3.1 Maintain the long-term monitoring program and databases of coral ecosystems within the sanctuary.
Activity 3.2 Enhance and expand the long-term monitoring program within the sanctuary and surrounding banks.

Activity 3.3 Monitor sanctuary resources for human health concerns.
Activity 3.4 Continue to conduct monitoring in response to natural and human-induced events.
Activity 3.5 Establish FGBNMS as a sentinel site to monitor climate change and ocean acidification.

RM.4 – Implement a process to evaluate the impacts of fishing and diving.
Activity 4.1 Establish a working group of the sanctuary advisory council to comprehensively examine the concept of and develop potential designs for research areas.
Activity 4.2 Establish and implement a biological resource monitoring program within the sanctuary to establish baseline data for fish and benthic communities prior to experimental manipulation.
Activity 4.3 Develop and implement an analysis to determine potential socioeconomic impacts of implementing a research (experimental closure) area within FGBNMS.
Activity 4.4 Conduct an analysis of possible alternatives for the establishment of a research design to determine impacts of fishing and diving.

RM.5 – Identify and evaluate ongoing and potential threats to sanctuary resources.
Activity 5.1 Assess the accumulation and impacts of marine debris.
Activity 5.2 Continue to identify presence and behavior of invasive species.

RM.6 – Develop partnerships with local, national, and international researchers and organizations to enhance sanctuary research and monitoring programs.
Activity 6.1 Collaborate with national and international scientists, agencies and institutions to conduct research on priority issues.

RM.1 Investigate ecosystem processes.
FGBNMS will encourage investigations of ecosystem processes to better understand the species, relationships, and processes that are critical to sustaining the ecological functioning of sanctuary resources. Ecosystem processes of significant interest include reproductive ecology, recruitment dynamics of fish and invertebrates, trophic interactions and biological and physical connectivity among the banks of the northwestern Gulf of Mexico. By increasing our understanding of this connectivity, we will be able to assess the overall ecosystem health of the banks and potentially, the wider Gulf region.

Activity 1.1 Investigate the reproductive ecology of marine organisms.
Understanding the reproductive ecology of coral reef organisms is an ongoing effort, especially in regards to non-coral species, such as sponges and other invertebrates, and associated fish populations. We presently lack a complete understanding of the role of the Flower Garden and Stetson Banks in contributing to the reproductive output of marine fishes and invertebrates within the sanctuary and throughout the wider Gulf region.

Studies and observations are ongoing on the reproductive timing and behavior of corals, sponges, other invertebrates, and grouper in FGBNMS. Reproductive studies, to date, have primarily been limited to the coral reef cap, but will be expanded to include deeper water habitat within the sanctuary, as well as other banks in the region.

Recent reports have also identified potential spawning aggregations of Silky Shark at Stetson Bank and Marbled Grouper at Geyer Bank. Research efforts will focus on these newly documented aggregations to reconcile the general lack of data on these species and their specific use of the habitats within FGBNMS region. Partnerships will be sought to provide the expertise and funding to fully investigate these areas of interest.

Activity 1.2 Investigate recruitment dynamics of marine fishes and coral reef invertebrates.
Larval fish and invertebrate recruitment to the Flower Garden Banks, Stetson Bank and other banks in the northwestern Gulf of Mexico is an important diagnostic for assessing the overall ecosystem functioning of the reefs. Partnerships will be sought to provide the expertise and funding for recruitment surveys that will be conducted over the Flower Garden Banks and other nearby banks. These studies will link fish recruitment dynamics to habitat characteristics, including benthic species composition, structural complexity, as well as oceanographic parameters, such as water temperature, salinity, and current direction.

Activity 1.3 Investigate trophic interactions within the FGBNMS ecosystem.
Trophic interactions are commonly studied through feeding (gut content) analysis of fishes and the use of dietary tracers (e.g., stable isotopes). Understanding the trophic relationships of organisms within coral reef communities and associated communities within and adjacent to the sanctuary will allow sanctuary management to fully account for the connections among the various habitats. Connections highlighted through the food web will inform management decisions regarding the multiple habitats in use by organisms, as well as potential human health concerns (see Activity 3.3). To begin developing a trophic interaction model, organisms will be sampled at all trophic levels. Partnerships will be sought to provide the expertise and funding for trophic studies at FGBNMS. Initial investigations have been conducted with research partners and external funding sources.

Activity 1.4 Investigate the biological and physical connectivity among the banks of the northwestern Gulf of Mexico and the wider Gulf region.
Studies will be conducted to ascertain the level of biological and physical connectivity on a regional basis. Biological connectivity can be described at various levels: genetic, larval recruitment and dispersal, and adult movement patterns and habitat use. A broad array of techniques will be utilized to investigate these questions, including genetic analysis, quantitative and qualitative analysis of population structure, larval recruitment and dispersal studies, trophic interactions analysis, acoustic and satellite tagging of benthic, pelagic and highly migratory species, modeling island hopping or the use of habitat highways, and direct observation. Physical connectivity can be described through detailed mapping of the seafloor, groundtruthing and habitat characterizations. Physical features with similar structural components and depth profiles may support biological connectivity among the banks in the northwestern Gulf of Mexico.

Since 1997, FGBNMS staff, with the help of partners, have been actively mapping features on the seafloor of the northwestern Gulf of Mexico with high-resolution multi-beam and backscatter technologies. From this mapping effort, sanctuary staff have identified at least 31 separate banks or high relief features in the region that exhibit similarities in depth and physical habitat structure and contribute to an overall connectivity among banks in the region.

FGBNMS and partners will continue to conduct groundtruthing surveys, produce habitat characterization maps, and inventory biological components. FGBNMS will pursue partnerships to provide the expertise and funding for genetic analysis, larval recruitment and dispersal studies, trophic interactions, acoustic and satellite tagging, and modeling.

RM.2 Assess and characterize sanctuary resources.

Baseline characterization studies were first conducted in the region in the mid- and late 1970s and early 1980s by the Bureau of Land Management (which became the responsibility of the BOEM). These investigations were continued by the FGBNMS research team in the early 1990s and are ongoing. As new technologies and capabilities are developed, updated studies will provide researchers and management with higher resolution information upon which to base adaptive management decisions and research priorities.

Activity 2.1 Conduct mapping at various scales throughout FGBNMS and other banks in the northwestern Gulf of Mexico.

The FGBNMS research team will collaborate with partners to utilize the R/V *Manta* and other NOAA vessels for continued mapping efforts in the region. FGBNMS, U.S. Geological Survey, University of New Hampshire, NOAA Office of Exploration, BOEM, and NOAA Office of Marine and Aviation Operations have collaborated since 1997 to conduct high resolution multi-beam surveys in the northwestern Gulf of Mexico, covering over 4000 km^2 of seafloor. Despite the scale of previous efforts, mapping of more seafloor at higher resolution continues to be a priority to help determine the extent of biological and geological habitat and emergent features. Shelf-edge banks in the northwestern Gulf of Mexico are specifically targeted as they represent Essential Fish Habitat (EFH), and have been designated as Habitat Areas of Particular Concern by the Gulf of Mexico Fishery Management Council. Mapping will continue to be conducted in sanctuary areas opportunistically.

As new information and details are obtained through manned submersible, ROV and SCUBA surveys, higher resolution and more accurate biological and structural habitat maps of the region will be developed. The initial habitat zonation maps for the region were developed from studies conducted in the 1970s and 1980s (Rezak et al. 1985). These initial maps provided the current efforts with a solid baseline of data upon which to build biological and geological datasets. As a result of increased resolution of mapping, photography, videography, sampling capabilities, and underwater tracking, the original biological maps have been updated by the FGBNMS research team. However, the biological habitat maps need to be groundtruthed. These verification efforts will continue as funding permits.

Activity 2.2 Document the range of biodiversity found within the sanctuary and surrounding areas.

Research efforts within the sanctuary will continue to identify previously undocumented species that are encountered. Range extensions of known species and new species descriptions have been recorded for FGBNMS. For instance, Roper's inshore squid (DeBose and Vecchione 2005) and the Caribbean two-spot octopus were documented in FGBNMS as range extensions for these species. Two species of serranids, Nassau Grouper (*Epinephelus striatus*) and Goliath Grouper (*Epinephelus*

itajara), that were previously unreported at FGBNMS have been documented since 2004. Three new (previously undescribed) species have also been reported from FGBNMS: the Mardi Gras Wrasse (*Halichoeres bureki*; Weaver and Rocha 2007), a red algae (Rhodophyta: *Martensia hickersonii*; Fredericq 2005), and a snapping shrimp (*Alpheus hortensis*; Wicksten and McClure 2003).

Activity 2.3 Conduct geological characterization of sanctuary resources.
Sanctuary staff will pursue partnerships and funding to conduct geological characterizations to determine the origin and history of the reefs of FGBNMS and place the deeper water areas into historical perspective. Deep coring (approximately 60ft/18m depth) studies will be conducted, as funding allows, to determine the extent and age of the coral caps at East and West Flower Garden Banks. Targeted coring studies on the coral cap will also be conducted, as funding allows, to describe *Acropora's* natural history and role in the development of FGBNMS coral reefs. Paleoclimatological studies have been conducted at FGBNMS, but do not reach back through the historical records beyond several hundred years. If funding allows, shallow cores from deepwater areas will be obtained using technical divers to determine substrate type and geological history, especially relating to the historical shoreline underlying the biological communities of the sanctuary.

Activity 2.4 Conduct regional oceanographic characterizations.
The movement and quality of regional water masses play a fundamental role in the ecosystem of FGBNMS. Sanctuary staff will pursue funding opportunities to enhance *in situ* oceanographic instrumentation to provide increased capabilities for real time weather observations and forecasting throughout the region. Texas A&M University's Geochemical and Environmental Research Group (GERG) has maintained two Texas Automated Buoy System (TABS) buoys in the vicinity of FGBNMS as a component of a FGBNMS Joint Industry Project coordinated by MMS (which became BOEM in 2011). These buoys provide real-time temperature, current, and wind measurements. *In situ* water quality instruments have been placed on the sea floor at each bank to measure temperature and salinity. Additional water quality parameters, such as turbidity, dissolved oxygen, pH, and chlorophyll-a, will be added to the instrument arrays as funding allows. Sanctuary staff will pursue opportunities to analyze existing, archived datasets to model oceanic processes affecting the sanctuary and other banks in the northwestern Gulf of Mexico.

RM.3 Maintain and enhance monitoring programs.
Ecosystem health is reflective of a system's ability to resist, and be resilient following environmental and anthropogenic disturbances. The FGBNMS ecosystem includes both the benthic components and water masses surrounding the physical structure of the banks. Long-term monitoring of the coral cap regions of the sanctuary is designed to examine the health of the reef through direct measurements of percent cover of benthic organisms, occurrence of coral mortality, coral diversity, and growth or retreat of coral tissue. By tracking changes in these parameters from year to year, the monitoring acts as an early warning system for sanctuary management to take steps to prevent any further loss of health on the reef. Water quality monitoring also aids sanctuary management in making informed decisions surrounding the offshore reefs of FGBNMS. Expanding the sanctuary monitoring effort to include the pelagic and deeper regions of the sanctuary, along with additional water quality measurements, will enable sanctuary management to incorporate more ecosystem-wide parameters in the determination of overall ecosystem health and potential threats and concerns.

With the recent discovery of ciguatoxin[1] in fishes from the waters in and around the sanctuary, monitoring aspects of the environment that may affect human health is of particular importance. An efficient and effective monitoring program is required for the adaptive management of these offshore coral communities. FGBNMS will pursue expertise and funding to address this more thoroughly.

Activity 3.1 Maintain the long-term monitoring program and databases of coral ecosystems within the sanctuary.

FGBNMS will continue to sponsor and/or conduct the long-term monitoring efforts at East and West Flower Garden and Stetson Banks. Long-term monitoring of East and West Flower Garden Banks has been conducted since 1988 through contracting and in partnership with MMS (which became BOEM in 2011). Sanctuary staff assumed responsibility for the Flower Garden Banks long-term monitoring project in 2009 through a combination of ONMS and MMS support. Sanctuary staff have conducted the long-term monitoring program at Stetson Bank since 1998. The sanctuary research team maintains a database of the monitoring data, including historical records and non-digitized collections.

A diver attaches a new tag to a monitoring pin at East Flower Garden Bank. Photo: FGBNMS

Sanctuary staff will continue to maintain the historical database that consists of long-term data acquired from annual photographic and video transects and quadrat images, fish surveys, and qualitative observations. Coral core (sclerochronology) and water quality measurements are also included in this database. Shallow coring of the coral cap at East and West Flower Garden Banks is

[1] A potent neurotoxin that is secreted by a dinoflagellate and can accumulate in the flesh of certain marine fish, such as grouper or snapper. It causes ciguatera poisoning in those who eat fish that have concentrated toxic levels.

conducted once every other year to assess the vitality of their coral communities. Water quality at East and West Flower Garden Banks is monitored quarterly.

Activity 3.2 Enhance and expand the long-term monitoring program within the sanctuary and surrounding banks.

Long-term monitoring activities will be enhanced to include surveys outside of the historical and current study areas on reef caps of both East and West Flower Garden Banks, as funding allows. These activities will include random belt transects collecting benthic cover and fish data. Monitoring techniques will be developed for the deepwater habitats utilizing ROV and diving technology. FGBNMS staff will also initiate monitoring programs, if possible, at surrounding reefs and banks. Of particular interest is Sonnier Bank, which has been heavily impacted by mechanical damage from anchoring, fishing, and the passage of Hurricane Rita. The recovery of Sonnier's biological community will be investigated if funding is secured. McGrail Bank is also a priority, as the crest of McGrail hosts a deep coral reef community that has not been previously monitored.

Though the water quality at East and West Flower Garden Banks is monitored quarterly, a regional picture of water quality is also desirable to maintain awareness of its effects on the sanctuary ecosystem. Discharge of pollutants from sources inside and outside the sanctuary may have potential detrimental impacts on sanctuary resources. The quality of coastal waters of the northern Gulf of Mexico is in decline due to pollutants associated with the discharge of major river systems, such as the Mississippi and Atchafalaya Rivers, and general coastal runoff throughout the region. Predominant current patterns direct much of this water away from FGBNMS, but minor changes in circulation patterns could bring contaminated water to the sanctuary. Monitoring the sources and effects of fresh, nutrient-rich, and/or polluted water on the sanctuary ecosystem will provide both valuable information regarding the wider region's effect on FGBNMS and heightened awareness of immediate water quality effects on the coral reef and coral-associated communities of the sanctuary. FGBNMS will pursue expertise and funding to address this more thoroughly.

Activity 3.3 Monitor sanctuary resources for human health concerns.

Dr. Tracy Villareal (University of Texas Marine Science Institute) reported the first encounter of the toxic dinoflagellate *Gambierdiscus toxicus* in algae sampled at the Flower Garden Banks in September 2006. At that time it was unknown whether ciguatoxins were entering the food web of the sanctuary. On February 5, 2008, the Food and Drug Administration (FDA) issued a Seafood Advisory targeting seafood processors purchasing grouper, amberjack, and related predatory reef species captured in the northern Gulf of Mexico. The advisory was issued in response to the FDA's concern over a number of recent outbreaks of ciguatera fish poisoning (CFP) that had been traced to fish from the vicinity of the sanctuary. The FDA considers CFP a likely hazard for hogfish, grouper, and snapper 'species of concern' captured within 10 miles of the sanctuary, and amberjack, barracuda and other pelagic 'species of concern' captured within 50 miles of the sanctuary.

FGBNMS staff and cooperating researchers will seek funding and support to seasonally sample algae and fish communities to monitor the presence and levels of ciguatoxin and the potential threat to humans through consumption of fish caught in the vicinity of FGBNMS. If funding is identified, algae will be sampled through SCUBA operations and fish tissue samples will be collected by

partnering with the fishing community. Sanctuary staff will also pursue expertise and funding to monitor for presence of mercury and other heavy metals in fish communities.

Activity 3.4 Continue to conduct monitoring in response to natural and human-induced events.

The FGBNMS research team will continue to respond to and document episodic events of coral disease, bleaching, and hurricane effects on the sanctuary. Direct anthropogenic impacts, such as anchoring and oil spills, are also events that require a response plan and immediate documentation. Vessel support by the R/V *Manta* will greatly enhance the ability to quickly respond to such events, which had not been possible in the past. Once on site, SCUBA surveys will be conducted to monitor shallow regions (< 130 feet), and when needed, ROV surveys will be conducted in deeper water areas (> 130 feet).

Activity 3.5 Establish FGBNMS as a sentinel site to monitor climate change and ocean acidification.

Research on climate change has projected decreases in ocean pH and concomitant acidification of the ocean, increasing water temperatures and sea level rise. The location and biological assemblage of FGBNMS situates this sanctuary as an ideal sentinel site for monitoring the impacts of climate change on coral communities. The corals of FGBNMS, including *Acropora palmata*, are at the northern edge of their natural range, and as such, are ideal for monitoring the effects of forecasted changes in ocean chemistry and sea temperature. FGBNMS staff have prioritized the organization of a baseline of physical and biological oceanographic data relevant to understanding the local effects of ocean acidification. Data gaps and research needs will be identified, and research partnerships formed, to clarify the dynamics of climate change on sanctuary resources.

RM.4 Implement a process to evaluate the impacts of fishing and diving.

The sanctuary was established primarily to provide protection for the significant marine resources of the Flower Garden and Stetson Banks. The sanctuary must also provide for public use of its resources, as long as those activities are compatible with the primary mandate of resource protection. However, it has become clear from public comment that there is concern over the potential impact of some uses on the sanctuary.

Fishing and diving activities may impact sanctuary resources directly (physical impacts to the reef) and indirectly (removal of species that are key to ecosystem functioning and changing fish behavior through diver interactions). These activities have the potential to negatively impact and threaten the natural living resources of FGBNMS. The influence of fishing and diving activities on FGBNMS is not well documented, but concerns are mounting. Specific fishing activity concerns for FGBNMS include: targeted fishing efforts that could impact reef and pelagic fish populations; focused fishing during spawning aggregations; injury to corals and other organisms by lost and discarded fishing gear; and discarded fishing bycatch. Diving activity concerns include injury to corals and other organisms, and harassment of fishes and sea turtles to the point of significantly altering their behavior.

Fishing was identified as a primary issue of concern during the public scoping process. There is a perception by some long-time observers that the number and size of certain prominent fish species have declined in recent years. The sanctuary advisory council also identified fishing impacts as a priority issue and created a subcommittee to explore management strategies to address the concerns. The subcommittee identified an urgent need for additional detailed information about fishing and fish populations in order to establish recommendations for management action. It became clear that existing data sources (fish landings, etc.) are inadequate to determine how or if existing levels of fishing and diving activity negatively impact sanctuary resources. To address this issue, the council reached consensus in April 2007 to recommend that the sanctuary design an experiment to investigate the impact of these activities. The experimental design will include the establishment of research areas in which fishing and diving will be restricted, and allow for comparison to similar areas that are unrestricted. Two workshops (July 2007 and April 2008) were conducted to explore the concept of such research areas. Participants from the workshops concluded that the establishment of controlled closure areas was the most direct and efficient method to determine potential impacts from fishing and diving activities. In September 2007, the sanctuary advisory council approved and forwarded to sanctuary management fishing impact strategies proposed by the subcommittee, including a recommendation for the establishment of an experimental fishing closure. The advisory council recommended that the study include time-limited access restrictions for fishing and diving within portions of the existing boundaries of FGBNMS.

The utilization of areas closed to fishing or diving for the purpose of research or management can be highly controversial. However, the need for definitive information on the impacts of these activities is necessary for future management of the sanctuary. Significant research questions exist at FGBNMS that can only be addressed by establishing research areas as controls. Therefore, NOAA believes, based on the recommendation of the sanctuary advisory council, that the research area concept should be further explored through a public review process. The advisory council recommendation included a number of proposed conditions that should accompany research area designation. The full scope of the council recommendation is as follows:

- Immediately implement a voluntary vessel registration system to begin to determine the level of fishing and diving activity within the sanctuary prior to management action.
- Compile all available data on vessel use activity within the sanctuary. Work with NOAA Office for Law Enforcement to obtain relevant information on commercial fishing activity acquired through the Vessel Monitoring System (VMS) program and other sources.
- Based on success of voluntary vessel registration system, consider the implementation of a sanctuary regulation requiring mandatory vessel registration in order to conduct activities within the sanctuary. This future regulation would be designed to align with other NOAA vessel registration requirements.
- Establish a monitoring program to evaluate fish and coral communities within areas proposed for experimental management. The monitoring program should be initiated at least one year prior to the implementation of the research areas.
- Establish a research program to determine the impacts of fishing and diving within the sanctuary through the use of appropriately placed research areas. The research areas will serve as control locations within which fishing and diving activities may be controlled. The

boundaries of the research areas will be determined through a public process that will include sanctuary advisory council members, identified experts and stakeholders. The research areas should not be implemented until at least one year after the effective date of the implementation of the regulation to require mandatory vessel registration, and at least one year of baseline monitoring data has been acquired.

- Continue and enhance research to identify spawning aggregations, critical habitat and sensitive features within the sanctuary that may be impacted by fishing and diving activities.
- A program must be in place to monitor and enforce compliance with the sanctuary regulations relating to the experimental closure.
- Any experimental closure will terminate after eight years unless further action is taken by NOAA.

Activity 4.1 Establish a public process through the sanctuary advisory council to evaluate and provide recommendations for the establishment of research control areas within the boundaries of the East Flower Garden, West Flower Garden and/or Stetson Banks to investigate the potential impacts of fishing and diving.

To more extensively consider the utilization of research control areas in FGBNMS, the sanctuary advisory council voted in January 2009 to establish a research area working group. The working group will be led by members of the advisory council but will include the broad expertise that will consist of, but not be limited to, commercial fishers, recreational fishers, divers, researchers, law enforcement and other state and federal agency representatives. This group will be tasked to comprehensively examine the concept of and potential designs for the designation of research areas in FGBNMS as part of an experimental design to investigate the impact of fishing and diving, and will also develop recommendations for the full sanctuary advisory council to consider.

The areas to be evaluated in this process will be limited to the East Flower Garden, West Flower Garden and Stetson Banks. Areas under consideration for sanctuary expansion will not be included in the experimental design. Recognizing that the potential scale of impacts is different for fishing as compared to diving, the experimental design to evaluate those impacts will also be different. The research design to determine the impact of fishing should include control areas large enough to discern ecosystem level impacts (an entire bank or entire habitats within a bank); whereas the control areas needed to determine impacts of diving will be much smaller (portions of diveable areas within a bank). It will not be necessary to control diving access on an entire bank because potential impacts of non-consumptive diving are localized within an area, usually associated with mooring buoys. Therefore, the placement of mooring buoys will be utilized to investigate the potential impacts of recreational diving.

Activity 4.2 Establish and implement a biological resource monitoring program within the sanctuary for fish and benthic communities prior to establishment of research areas.

In order to evaluate the effects on sanctuary resources (fish and coral communities) of potential experimental management, NOAA would design and implement a biological monitoring program to assess any changes to fish and invertebrate communities inside and outside of the research areas should these areas be designated as a result of a public process. This monitoring program would have to be in place at least one year prior to designation of the research areas in order to provide

adequate baseline data in advance of experimental management actions. The monitoring program will include the assessment of fish populations associated with representative habitats affected by the research area designations (i.e., coral reef, coral communities, algal reef and deepwater coral areas). The monitoring program design must provide statistically valid data in order to compare populations inside and outside the research areas and over time. Monitoring will continue at regular intervals throughout the experimental time frame.

Activity 4.3 Develop and implement an analysis to determine potential socioeconomic impacts of implementing a research area within FGBNMS.

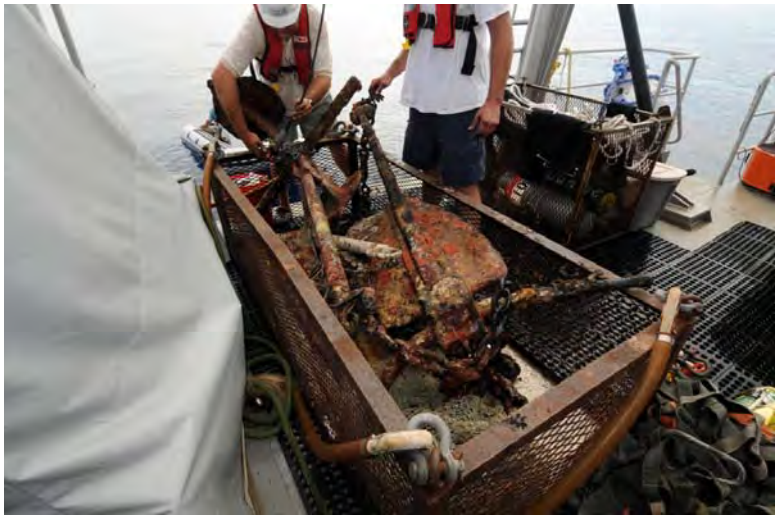
A socioeconomic study will be conducted to provide information on resource use as it relates to sanctuary expansion and the use of experimental closures to evaluate fishing and diving impacts. Additional socioeconomic studies, as needed, will be completed to evaluate resource use. Interviews with resource users, primarily commercial and recreational fishers and recreational divers, among other methods will contribute to our understanding of visitor use.

Activity 4.4 Conduct an analysis of possible alternatives for the establishment of a research design to determine impacts of fishing and diving.

A working group of the sanctuary advisory council will develop and present to the council a set of research area alternatives. Following recommendations of the council, sanctuary staff will conduct an alternatives analysis for the purpose of preparing a draft environmental impact statement, available for public comment, for any proposed research areas.

RM.5 Identify and evaluate ongoing and potential threats to sanctuary resources.

During the management plan review process, a number of issues were identified as having the potential to threaten the future health of sanctuary resources. Many of these issues are discussed in the FGBNMS State of the Sanctuary Report (2006) and the FGBNMS Condition Report (2008). Of these, three were identified as posing immediate threat to the sanctuary, and should be specifically addressed in this management plan. They are: marine debris, pollutant discharge, and invasive species.



Removal of marine debris from the sanctuary. Photo: FGBNMS

Derelict fishing gear and other marine debris are problems throughout the world ocean. Marine debris has been documented on all banks within FGBNMS, but is most concentrated at Stetson Bank. The source of the debris is primarily from fishing and boating activities. Marine debris can negatively impact reef ecosystems by entangling animals and "ghost-fishing" (continuing to catch fish after the gear has been abandoned), as well as by degrading reef habitat through scouring. Pollutants, such as mercury and hydrocarbons, from boating and industry sources, also have the potential to impact sanctuary resources. Finally, ecosystem integrity of FGBNMS is threatened by the arrival and establishment of invasive species. Research will target these three areas, their current impacts, and their potential for synergistic impacts on the sanctuary ecosystem.

Activity 5.1 Assess the accumulation and impacts of marine debris.
Recreational and commercial fishing occur within and in the vicinity of the sanctuary. Shrimp trawl nets, boat anchors, twisted metal and fishing line litter the surface of Stetson Bank and the deeper regions around the Flower Garden Banks. The presence of derelict fishing gear and other marine debris at Stetson and East and West Flower Garden Banks has been reported by divers and documented through ROV habitat characterization surveys. The mapping and assessment of marine debris and its impacts on sanctuary resources will directly inform management decisions, whereas the removal of debris will help protect and restore the impacted reef habitat. Sanctuary staff will conduct opportunistic research on the occurrence, accumulation and impacts of marine debris within FGBNMS, as well as other hard-bottom habitats in the northwestern Gulf of Mexico.

Activity 5.2 Continue to identify presence and behavior of invasive species.
Invasive species, such as orange cup coral *(Tubastraea coccinea),* have already appeared in the sanctuary. Though mechanisms of recruitment of invasive species are still unknown for the sanctuary, there is a possibility that the proximity of artificial structures aids in the dispersal of invasive species. It is essential that sanctuary staff gather more scientific information on the presence, mechanism of dispersion, and impacts of invasive species in FGBNMS. A more thorough understanding of this issue will enable sanctuary staff to develop a response plan to manage the impacts of invasive species on sanctuary resources.

The Indo-Pacific lionfish (*Pterois volitans, Pterois miles*), a venomous fish native to the Pacific Ocean, is the first invasive species of fish to become established in the Western Atlantic. Lionfish are opportunistic predators that may impact the biodiversity of important ecological and commercial fish species in their juvenile stage, as well as impact the resilience of coral reefs. In 2010, sightings were recorded in the northwestern Gulf of Mexico, along the coasts of Alabama, Mississippi and Louisiana. In September 2010, two individual lionfish were observed at Sonnier Bank – the first confirmed sightings of lionfish at the natural banks in the north western Gulf of Mexico, about 60 miles east of East Flower Garden Bank. The first lionfish report in the sanctuary came from recreational divers at West Flower Garden Bank the week of July 20, 2011. On July 27, 2011 photographic evidence was provided by a separate group of divers at Stetson Bank. This animal was removed on August 2, 2011. A third animal was collected by the sanctuary research team on August 3, 2011 at West Flower Garden Bank. To date, a total of eight lionfish have been observed in sanctuary waters since July 2011. Sanctuary staff will also develop collaborations to enhance early

warning capabilities (e.g., Texas Parks and Wildlife Department, oil and gas industry, BOEM) to address emerging threats such as the increasing number of Pacific lionfish in the Caribbean and tropical Atlantic.

At this time, NOAA's policy is to remove any lionfish encountered in sanctuary boundaries using prescribed protocols. Permits for the removal of lionfish have been issued to some dive masters of recreational dive charters that frequent the sanctuary to assist in this effort. Currently, the diving public is encouraged to help monitor the situation by reporting any lionfish sightings, including date, time, location of the sighting, size of the lionfish, and any other information about the habitat or the behavior of the fish to the sanctuary office.

RM.6 Develop partnerships with local, national, and international researchers and organizations to enhance sanctuary research and monitoring programs.

FGBNMS is composed of reef communities that are unique to the Gulf of Mexico (e.g., coral-sponge communities, mesophotic coral communities) with location-specific research questions that could allow for comparison to other reef systems in the region, in other parts of the U.S. EEZ, and elsewhere in the world. Research and monitoring programs are dependent on outside expertise and investment. FGBNMS staff will continue current partnerships with research collaborators and institutions, while developing new partnerships in line with sanctuary research priorities. Sanctuary staff is able to offer the R/V *Manta* for charter or at no cost to facilitate research activities within FGBNMS and on surrounding banks in the northwestern Gulf of Mexico.

Activity 6.1 Collaborate with national and international scientists, agencies and institutions to conduct research on priority issues.

To accomplish research objectives, sanctuary staff will develop an annual research priorities plan and solicit outside researchers to conduct projects to address identified issues. Memoranda of Agreement (MOA) can be developed to establish the details of collaborative partnerships. Providing R/V *Manta* ship time for priority research projects is one method to ensure researchers have the ability and flexibility to conduct studies at FGBNMS. Access to field equipment, lab space, and office support are other attractive features available to researchers.

Table 7: Estimated Costs for the Research and Monitoring Action Plan

Activity	Estimated Cost ($000)					Total Estimate 5-Year Cost	Priority Level
	YR 1	YR 2	YR 3	YR 4	YR 5		
(1.1) Reproductive ecology	*5	*5	*5	*5	*5	25	Medium
(1.2) Recruitment dynamics	*0	*0	*0	*0	*0	*0	Low
(1.3) Trophic interactions	*0	*0	*0	*0	*0	*0	Low
(1.4) Connectivity	*10	*10	*10	*25	*25	80	High
(2.1) Physical &habitat mapping	15	25	25	30	30	125	High
(2.2) Biodiversity assessment	0	0	0	0	0	0	Low
(2.3) Geological characterization	0	50	0	150	0	200	Medium
(2.4) Oceanographic assessment	*0	*0	*0	*0	*0	*0	Medium
(3.1) Current monitoring	200	220	242	266	292	1,220	High
(3.2) Expansion of monitoring	20	40	60	80	100	300	Medium
(3.3) Human health factors	5	5	5	5	5	25	Low
(3.4) Event response	5	5	5	5	5	25	Medium
(3.5) Sentinel site	*0	*0	*0	*0	*0	*0	High
(4.1) Research area working group	10	10	10	0	0	30	High
(4.2) Monitoring program for baseline data	150	165	182	200	220	917	High
(4.3) Socioeconomic study	15	150	15	0	0	180	High
(4.4) Research area alternatives analyses	0	0	0	15	15	30	High
(5.1) Marine debris	2	2	2	5	5	16	Low
(5.2) Invasive species	2	2	2	2	2	10	High
(6.1) Research collaboration	0	0	0	0	0	0	Medium
Total Estimated Annual Cost	439	689	563	788	699	3,183	

*Will require outside funding in addition to amount indicated (source not yet identified).

Note: Labor and vessel cost estimates are incorporated in the Operations and Administration Action Plan.

Table 8: Performance Measures for the Research and Monitoring Action Plan

Research and Monitoring Action Plan Activity	Performance Measure	Baseline	Description	Link to National Program Performance Measures
Activity 3.2 Enhance and expand the long-term monitoring program within the sanctuary and surrounding banks.	By 2016, FGBNMS staff will develop and implement a monitoring plan for Sonnier and McGrail Banks, if they are added to the sanctuary during the sanctuary expansion concept under consideration.	There are currently no monitoring plans in place since the decision to expand FGBNMS boundaries has not been made.	n/a	Monitoring
Activity 3.2 Enhance and expand the long-term monitoring program within the sanctuary and surrounding banks.	By 2016, FGBNMS staff will develop a monitoring plan for each of the new areas under consideration in the boundary expansion concept, if applicable.	There are currently no monitoring plans in place since the decision to expand FGBNMS boundaries has not been made.	n/a	Monitoring
Activity 3.2 Enhance and expand the long-term monitoring program within the sanctuary and surrounding banks.	By 2014, the water quality monitoring program will expand to include three new areas under consideration in the sanctuary expansion concept (Sonnier, Geyer, and Bright Banks), if applicable.	At East and West Flower Garden Banks physical samples are collected quarterly for off-site biological monitoring (nutrients, chlorophyll). At East and West Flower Garden and Stetson Banks, there are currently moored stations continuously recording temperature and salinity, with data retrieval occurring quarterly.	Multi-parameter water monitoring systems will be deployed by divers on Sonnier, Geyer, and Bright Banks.	Water Quality (PART)
Activity 4.1 Establish a working group of the sanctuary advisory council to comprehensively examine the concept of and develop potential designs for a research (experimental closure) area in FGBNMS.	By 2013, FGBNMS staff will begin a public process to examine the research area concept.	The FGBNMS sanctuary advisory council has made a recommendation to the FGBNMS Superintendent to explore the concept of research areas. A formal public process to consider this action has not yet begun.	n/a	n/a
Activity 5.1 Assess the accumulation and impacts of marine debris.	By 2013, FGBNMS staff will have developed a marine debris monitoring program for East and West Flower Garden Banks, and expanded the efforts in Stetson Bank.	Stetson Bank has been initially assessed for the presence of marine debris.	Monitoring for marine debris would include mapping the location of debris, identifying impacts and sources of debris, surveying the accumulation of debris and removing the debris when feasible.	Monitoring

3.5 Resource Protection Action Plan

Background
The Resource Protection Action Plan (RPAP) makes recommendations to enhance the protection of sanctuary resources from various threats and addresses the enforcement of sanctuary and other regulations to enhance the quality of the FGBNMS ecosystem. The management plan review public scoping process identified several issues of concern including: law enforcement, impacts from pollutant discharge, and fishing activities. The sanctuary advisory council formed several subcommittees to address these issues. In addition, a FGBNMS Law Enforcement Summit was held in Galveston, Texas in April 2007.

Purpose
The purpose of the RPAP is to improve sanctuary resource and ecosystem protection. This action plan contributes to the FGBNMS *Goal 1*—Protect, maintain and, where appropriate, restore and enhance the resources and qualities of Flower Garden Banks National Marine Sanctuary and the ecosystem that supports it.

Strategies and Activities
The RPAP has two strategies and associated activities to protect sanctuary resources from various threats:

RP.1 – Enhance enforcement efforts.
Activity 1.1 Incorporate surveillance and enforcement into the mission plan for the R/V *Manta.*
Activity 1.2 Develop a process for voluntary incident reporting of possible FGBNMS regulation violations.
Activity 1.3 Improve interagency coordination with federal and state enforcement agencies.
Activity 1.4 Partnering with the oil and gas industry for monitoring or surveillance.

RP.2 – Increase protection of sanctuary resources from potential threats.
Activity 2.1 Investigate the potential designation of the sanctuary as an "Area to be Avoided" by the International Maritime Organization (IMO).
Activity 2.2 Revise FGBNMS regulations to prohibit attracting, touching, or disturbing rays and whale sharks.
Activity 2.3 Evaluate the need for additional measures to protect resources from impacts associated with inappropriate fishing gear.
Activity 2.4 Work with the U.S. Coast Guard to revise and implement a specific pollutant spill contingency plan for the FGBNMS area.
Activity 2.5 Revise regulations to improve protection for sanctuary resources from pollutant discharge impacts.
Activity 2.6 Address the impacts of climate change on sanctuary resources.

RP.1 Enhance enforcement efforts.
Enforcement and surveillance are logistically difficult at the Flower Garden and Stetson Banks due

to their distance from shore. Therefore, the sanctuary relies heavily on assistance from the U.S. Coast Guard (USCG) and the NOAA Office for Law Enforcement (OLE) for enforcement efforts. Only recently has the sanctuary acquired a dedicated vessel, the R/V *Manta*, which can be used as a platform for USCG and OLE law enforcement staff to supplement the sanctuary enforcement presence at the Flower Garden and Stetson Banks. This vessel has the ability to elevate onsite sanctuary surveillance and monitoring. Further, FGBNMS will increase collaboration with both federal and state law enforcement agencies, including OLE, the USCG, and the Texas and Louisiana state law enforcement agencies.

Activity 1.1 Incorporate surveillance and enforcement into the mission plan for the R/V *Manta.*

The addition of the R/V *Manta* to the sanctuary infrastructure will greatly improve the ability of sanctuary staff to have an on-the-water enforcement presence at the banks. In addition to its research and education mission, the vessel will be used to make specific surveillance runs with law enforcement personnel. As appropriate, some surveillance can be conducted from the vessel in tandem with non-enforcement-related missions. Sanctuary staff will coordinate with OLE and the USCG to have enforcement authorities on board for enforcement missions.

Activity 1.2 Develop a process for voluntary incident reporting of possible FGBNMS regulation violations.

The sanctuary's distance from shore means that sanctuary staff cannot have a physical presence on the water most of the time. However, the sanctuary is regularly visited by fishers, divers and oil industry personnel. These visitors are able to assist sanctuary staff through direct voluntary reporting of trip observations. For example, sighting cards are currently available on the sanctuary website for reporting observations of sharks and rays, Whale Sharks, sea turtles, and octopus and squid. Visitors submit the completed cards to the research coordinator, who enters the information into a database (http://flowergarden.noaa.gov/visiting/reportobservations.html).

The Flower Garden Banks Law Enforcement Summit recommended development and use of a similar voluntary incident reporting form to gather information from interested parties on potential sanctuary violations and acquire knowledge of activities occurring within the sanctuary. The form would be posted on the sanctuary website with the sighting cards. A visitor could fill out the incident report form and submit it directly to the sanctuary office through email. Sanctuary staff would then follow up with OLE, as appropriate.

Activity 1.3 Improve interagency coordination with federal and state enforcement agencies.

FGBNMS will work with both state and federal enforcement agencies to increase cooperation and communication. FGBNMS will continue to work closely with OLE and the USCG to address enforcement needs within the sanctuary. Both OLE and USCG are represented on the sanctuary advisory council and fully participate on enforcement-related issues and working groups. The USCG has many operational assets that may be available to assist with enforcement requirements. Vessels stationed at Galveston and Freeport, TX conduct patrols in the vicinity of the sanctuary and can enforce sanctuary regulations. The USCG Air Station in Corpus Christi, TX routinely conduct aerial surveillance in the northern Gulf of Mexico, including FGBNMS. Information on vessel

activity and potential enforcement issues are reported when observed. FGBNMS will conduct periodic updates and training for USCG personnel to ensure that they are informed about sanctuary regulations and policies. If appropriate, FGBNMS will pursue formal agreements with USCG on enforcement and resource protection issues.

FGBNMS will pursue increased cooperation with state enforcement agencies in Texas and Louisiana. State law enforcement personnel can be authorized to enforce federal regulations in areas outside of state waters through cooperative agreements signed between the states and federal law enforcement agencies. Two documents define this cooperative relationship between federal and state agencies: the Cooperative Enforcement Agreement (CEA) and state Joint Enforcement Agreements (JEAs). The CEA is an overarching agreement that deputizes and authorizes state marine conservation law enforcement officers to enforce federal regulations, including the National Marine Sanctuaries Act, the Magnuson-Stevens Fishery Conservation and Management Act, and the Marine Mammal Protection Act. A JEA is an agreement between an individual state and OLE that authorizes federal funding to support state efforts in federal law enforcement. JEA's provide detailed information about the types of programs targeted for increased enforcement, the resources the federal agency will provide in support of the JEA, and equipment or property that will be purchased with JEA funds. Both Texas and Louisiana have an existing JEA. These agreements will be explored as potential mechanisms to increase enforcement activities within the sanctuary.

Activity 1.4 Partnering with the oil and gas industry for monitoring or surveillance.
Enforcement at the sanctuary is logistically difficult due to the distance from shore. NOAA recognizes that partnering with industry to place monitoring or surveillance equipment on the production platform that lies within current sanctuary boundaries could greatly enhance enforcement capabilities. NOAA will keep abreast of opportunities for collaboration on this topic.

RP.2 Increase protection of sanctuary resources from potential threats.
A number of potential threats to sanctuary resources were identified through the management plan review process. Several of these were further evaluated for immediate action. For example, there is a potential for physical injury to wildlife and habitat in the sanctuary from shipping, fishing activities and diver interactions. Additionally, the discharge of pollutants from sources inside and outside the sanctuary may have detrimental impacts on water quality. To protect against some of these threats, changes to FGBNMS regulations will be evaluated and implemented, if appropriate. Impacts from oil spills and other hydrocarbons will be addressed through a sanctuary-specific planning and response process.

Activity 2.1 Investigate the potential designation of the sanctuary as an "Area to be Avoided" by the International Maritime Organization
In the past, injuries to sanctuary resources have been caused by anchoring, improperly attended cables from towed exploration equipment, and cables connecting tugs and towed barges. These impacts could be reduced through the designation of the sanctuary as an "Area to be Avoided" (ATBA). The International Maritime Organization (IMO), through the Maritime Safety Committee, can designate marine ATBAs for the purposes of navigational and environmental safety. The IMO defines an ATBA as a routing measure within a defined area in which either navigation is

particularly hazardous or it is exceptionally important to avoid casualties, and which should be avoided by all ships or certain classes of ships. An ATBA can be either voluntary or mandatory and applies to all domestic and international vessels. Federal regulations can be promulgated to mirror the international regulation and would apply to all domestic vessels as well.

FGBNMS staff will work with the shipping industry, USCG, enforcement entities and the sanctuary advisory council to determine if the sanctuary requires the protections afforded by ATBA status. Designating an ATBA requires application for the routing measure through the Maritime Safety Committee of the IMO. The sanctuary would then work with the NOAA Office of General Counsel International Law to develop the application and supporting information, and to navigate the clearance and approval process for NOAA and the IMO.

Activity 2.2 Revise FGBNMS regulations to prohibit killing, injuring, attracting, touching, or disturbing rays or Whale Sharks.

Approximately 20 species of sharks and rays have been documented at the Flower Garden and Stetson Banks, some seasonal, others year-round. Whale Sharks and rays are transient creatures and migrate between areas for feeding and mating. During the winter months, Spotted Eagle Rays (*Aetobatus narinari*) are common visitors to all three banks. The reason for the seasonality of their visits is unclear, but their occurrence is quite predictable. Summer months usually bring Whale Sharks (*Rhincodon typus*) to the area. These filter-feeding creatures can reach over 30 feet (9 meters) in length. Manta Rays (*Manta birostris*) and the very similar-looking mobula rays (*Mobula* spp.) are regular visitors to the sanctuary throughout the year. At least 58 different individual manta rays have been documented and identified by distinctive markings on their undersides. Recent acoustic tracking of the manta rays has revealed that they are moving between the three banks of the sanctuary.

A diver looks on as a Manta Ray moves by undisturbed. Photo: FGBNMS

Divers can physically harm rays and Whale Sharks by attracting, touching, riding or pursuing the animals, which can then expose the animals to other potential injuries. In particular, people can cause injury to the skin of the animal through touching. The animals may actively avoid diver interactions by changing direction or diving, and may exhibit stress behavior such as violent shuddering. When these types of responses occur, rays and Whale Sharks expend energy that could otherwise be used for feeding and other natural activities.

Whale Sharks and rays are not listed under the Endangered Species Act (ESA) or designated as depleted under the Marine Mammal Protection Act (MMPA), and are therefore not protected from harassment and injury in the same manner as threatened and endangered species under the ESA or depleted marine mammals under the MMPA. Therefore, NOAA will strengthen the protection of rays and Whale Sharks from physical harm and harassment by implementing regulations to prohibit killing, injuring, attracting, touching, or disturbing these animals. The purpose of the regulations is to reduce adverse human interactions with rays and Whale Sharks.

Activity 2.3 Evaluate the need for additional measures to protect resources from impacts associated with inappropriate fishing gear.

The impacts of fishing and fishing activities on marine resources within the sanctuary have not been precisely documented. The use of conventional hook and line fishing gear is allowed in the sanctuary, however impacts can still occur. In addition, illegal fishing by both commercial longliners and recreational spearfishers has been observed. Lost or tangled bottom fishing gear has been found on numerous occasions, as well as lost spearfishing equipment. SCUBA divers have also documented discarded fishing bycatch (such as dead sharks and other marine life) within the sanctuary.

During public scoping, the impact of fishing was identified as a priority issue. Many people commented that the sanctuary should consider the use of no-take marine reserves within all or part of FGBNMS, or strengthening certain restrictions on allowable fishing gear. It was determined that while not enough information was available to warrant closing all or portions of the sanctuary to fishing, an experiment should be conducted to evaluate whether fishing activity is having a significant detrimental impact on sanctuary resources (see Strategy RM.4). In addition, the sanctuary advisory council, through its fishing impacts subcommittee, explored several other regulatory options for protecting sanctuary resources from fishing impacts, including: implementing an allowable gear fishing regulation (i.e., specifying what gear is allowed, rather than what gear is prohibited); restricting hook and line fishing to a maximum of three hooks; prohibiting the use of electric-powered reels; prohibiting bottom contact by fishing gear; and/or restricting the amount of weight that can be used on fishing lines. Over the next few years, sanctuary staff will conduct a deliberative process to evaluate the implementation of research control areas as a method to determine the impacts of fishing in the sanctuary. In the meantime, FGBNMS staff will continue to evaluate the potential impacts of allowable fishing gear and may explore additional measures to protect resources in the future.

Activity 2.4 Work with the U.S. Coast Guard to revise and implement a specific pollutant spill contingency plan for the FGBNMS area.

Impact from an oil spill or other hydrocarbon release is an ongoing concern. Oil spills and discharges from vessels, pipelines or platforms should be considered threats to the sanctuary resources.

The Oil Pollution Act of 1990 called for the development of a national planning and response system dedicated to oil and hazardous material (HAZMAT) spills. The U.S. Coast Guard has developed Area Contingency Plans (ACPs) for each region of coastal waters. The response tool that includes the federal waters of the sanctuary is the ACP for Southeast Texas and Southwest Louisiana. FGBNMS staff will update and revise the Sub Area Contingency Plan for the sanctuary, which will address spills from vessels and platforms, provides specific information on the sensitive habitat areas and species found within sanctuary boundaries, and scientific recommendations for spill responders. Sanctuary staff will continue to work with the NOAA Scientific Support Coordinator and other area committee members on the revision and adoption of this sub-area plan by the U.S. Coast Guard. The revised plan will be a great asset to the Federal On Scene Coordinator and other coordinating agencies when making decisions concerning spill response and clean-up of waters in and surrounding the sanctuary.

Activity 2.5 Revise regulations to improve protection for sanctuary resources from vessel discharges.

NOAA will revise the FGBNMS regulations relating to vessel discharges from marine sanitation devices (MSDs) and other sources to make them consistent with industry best management practices and recent vessel discharge regulations implemented for other national marine sanctuaries. NOAA will also require that MSDs be locked in a manner that prevents discharge or deposit of untreated sewage while in sanctuary waters. Requiring that MSDs be locked also provides a practical compliance element for enforcing this prohibition.

The revised vessel discharge regulation for FGBNMS will be consistent with similar regulations recently implemented for other national marine sanctuaries. NOAA will clarify that the prohibition applies to discharges into the sanctuary as well as from within the sanctuary boundaries. The regulations will eliminate the existing exception that allows for the discharge or deposit of biodegradable effluents in the sanctuary and eliminate the phrase “routine vessel operations”. NOAA previously determined that the use of the term “biodegradable” potentially raises enforcement and compliance issues. It is not a term that has a recognized legal definition and products are labeled “biodegradable” without reference to a fixed set of standards. NOAA also believes that the phrase “routine vessel operations” lack a legal definition and potentially creates enforcement and compliance issues. To facilitate compliance by clearly identifying what types of discharges or deposits from vessel operations are permitted and focus on those contaminants that pose the greatest threat to water quality, NOAA will require clean deck wash down, clean cooling water, and clean bilge water all be free of detectable levels of “harmful matter” as defined by the regulations. NOAA will also modify the Flower Garden Banks regulations to clarify that only discharges or deposits of clean effluent from properly functioning Type I or II MSDs are allowed in the sanctuary. “Clean” means not containing detectable levels of harmful matter; and “harmful

matter" means any substance, or combination of substances, that because of its quantity, concentration, or physical, chemical, or infectious characteristics may pose a present or potential threat to sanctuary resources or qualities. Defining the terms "clean" and "harmful matter" in FGBNMS regulations facilitates compliance and enforcement by providing vessel operators with a definition of what is prohibited, and focuses on the type of contaminants that pose the greatest threat to water quality. NOAA will also clarify that the exception to the prohibition on discharges or deposits (hereafter referred collectively as "discharges") for fish, fish parts, or chumming materials (bait) applies only to discharges made during the conduct of fishing with conventional hook and line gear within the sanctuary.

In the future, sanctuary staff will evaluate the potential impacts from other pollutant discharges including ongoing operational effluents from oil and gas facilities, such as drilling lubricants, produced water (water separated from the oil or gas after it is pumped from the source reservoir), and operational discharges (sewage, graywater, deck wash).

Activity 2.6 Address the impacts of climate change on sanctuary resources.

Climate change has been acknowledged as one of the greatest natural threats facing the planet today. ONMS has been entrusted with the stewardship of many of the most ecologically, economically, and socially important marine resources in U.S. waters, and therefore it must act to reduce the threat of climate change on its entrusted resources. To that end, NOAA finalized a Climate Strategy for national marine sanctuaries and implemented a "Climate-Smart Sanctuaries" Initiative in 2010. This initiative outlines the need to develop climate site scenarios for each site, and to organize and implement a climate action plan at each site that would result in certification as a "Climate-Smart Sanctuary" as a way to indicate they have made certain efforts and achieved a set of standards. Strategies in a climate change action plan would include research, education and outreach, and adaptive management, as well as green operating standards for transportation, water and energy use efficiency, waste management, and use of supplies.

The certification standards and evaluation process are currently being developed by ONMS and piloted in the Gulf of the Farallones and Fagatele Bay National Marine Sanctuaries. In the near future, FGBNMS staff will prepare strategies and activities as part of a site-specific climate change action plan in order to meet ONMS stewardship responsibilities.

Table 9: Estimated Costs for the Resource Protection Action Plan

Activity	Estimated Cost ($000)					Total Estimate 5-Year Cost	Priority Level
	YR 1	YR 2	YR 3	YR 4	YR 5		
(1.1) R/V *Manta* mission plan	0	0	0	0	0	0	Medium
(1.2) Voluntary incident reporting process	2	2	2	2	2	10	High
(1.3) Joint Enforcement Agreements	0	0	50	50	50	150	High
(1.4) Partnering with the oil and gas industry for monitoring or surveillance.	0	0	0	0	0	0	Low
(2.1) "Area to be Avoided"	0	0	0	0	0	0	Low
(2.2) Regulations to prohibit attracting, touching, or altering the behavior of rays and whale sharks	0	0	0	0	0	0	High
(2.3) Protection for resources from fishing gear impacts	0	0	0	0	0	0	Medium
(2.4) FGBNMS Sub Area Contingency Plan	0	0	0	0	0	0	High
(2.5) Regulations to protect resources from pollutant discharges	0	0	0	0	0	0	High
(2.6) Address impacts of climate change	0	0	0	0	0	0	High
Total Estimated Annual Cost	2	2	52	52	52	160	

Note: Labor and vessel cost estimates are incorporated in the Operations and Administration Action Plan.

Table 10. Performance Measures for the Resource Protection Action Plan

Resource Protection Action Plan Activity	Performance Measure	Baseline	Description	Link to National Program Performance Measures
Activity 1.3 Improve interagency coordination on enforcement with federal and state enforcement agencies through Joint Enforcement Agreements.	By 2014, FGBNMS staff will amend the current Joint Enforcement Agreement with the states of Texas and Louisiana to include specific language about enforcement in the sanctuary.	The current JEA with Texas and Louisiana does not include language specific to enforcement in the sanctuary.	The states of Texas and Louisiana are involved with enforcement in the Gulf of Mexico, and a revised JEA would commit to sanctuary-specific enforcement by those state agencies.	Enforcement
Activity 2.1 Consider a process to propose that the International Maritime Organization designate the sanctuary as an "Area to be Avoided."	By 2016, FGBNMS staff will request the IMO to designate FGBNMS as an "Area to be Avoided."	The process to consider this action has not been initiated yet.	n/a	n/a
Activity 2.3 Explore additional protection for resources from fishing gear impacts	By 2018, , after undergoing a separate public review process, FGBNMS staff will publish new and/or revised regulations to increase protection for sanctuary resources from fishing gear impacts.	The FGBNMS sanctuary advisory council has made recommendations to the FGBNMS Superintendent to explore various regulatory changes. A formal public process to consider any of these actions has not yet begun.	n/a	n/a
Activity 2.4 Revise and implement the FGBNMS Sub Area Contingency Plan.	By 2013, NOAA will provide to responders (Coast Guard, contractors) a Sub Area Contingency Plan with detailed scientific recommendations for how to address spills from vessels and platforms.	There is currently an Area Contingency Plan for the Gulf of Mexico, and the Sub Area Contingency Plan for the sanctuary is in progress.	n/a	SHIELDS (Sanctuary Hazardous Incident Emergency Logistics Database)

3.6 Visitor Use Action Plan

Background
Visitor use was identified as a priority issue during the management plan review process. In response, the sanctuary advisory council formed a subcommittee to address this issue. The Visitor Use Action Plan (VUAP) makes recommendations to enhance information about visitors to the sanctuary. It makes additional recommendations to reduce user conflicts and to protect the property owned and maintained by NOAA. The potential impacts to natural resources from the specific activities conducted by visitors are addressed in the Resource Protection Action Plan.

The primary user groups visiting the sanctuary are recreational divers, recreational fishers, commercial fishers, researchers, oil and gas support and general boaters. Most recreational divers and many recreational fishers access the sanctuary through diving and fishing charter operations. When visiting the sanctuary, most vessels utilize one of a number of mooring buoys maintained by FGBNMS, although others may simply transit the sanctuary or drift. With the exception of the major diving charter operations, insufficient information exists as to the level and precise location of most of the existing visitor use in the sanctuary. Due to the distance from shore, it has been extremely difficult to monitor visitor use levels at the sanctuary, so more information is needed on the types of activities and when such activities occur.

The sanctuary is becoming internationally known as a prime recreational dive and fishing destination. With increased recognition and improved vessel technology, higher levels of visitation are likely. As visitor use increases, demand for mooring buoys will also increase, potentially leading to user conflict and possible safety issues.

Purpose
The purpose of the VUAP is to promote multiple uses of the sanctuary compatible with resource protection and to protect NOAA property. The VUAP contributes to the FGBNMS *Goal 4*— Manage and facilitate multiple sustainable uses of FGBNMS compatible with the primary purpose of resource protection.

Strategies and Activities
The VUAP has three strategies and associated activities to foster safe and compatible human uses.

<u>VU.1 – Improve the quantity and quality of visitor information needed to make management decisions.</u>
Activity 1.1 Develop and implement a voluntary vessel registration system.
Activity 1.2 Develop and implement a visitor use monitoring program using the best available technology.

<u>VU.2 – Reduce the potential for user conflict and promote compatible uses.</u>
Activity 2.1 Revise FGBNMS regulations to require that all vessels in the sanctuary exhibit either the blue and white International Code flag “A” (“alpha” dive flag) or the red and white “divers down” flag whenever diving activities are being conducted.
Activity 2.2 Consider revising FGBNMS regulations to require a minimum distance between

vessels displaying an “alpha” dive flag and approaching vessels.
Activity 2.3 Develop guidelines for proper use of mooring buoys.

VU.3 – Protect and maintain NOAA property.
Activity 3.1 Consider establishing FGBNMS regulations to prohibit damaging sanctuary and other authorized equipment.
Activity 3.2 Establish a mooring buoy plan.

VU.1 Improve the quantity and quality of visitor information needed to make management decisions.
The sanctuary currently does not have a comprehensive program aimed at determining who typically visits the sanctuary, what type of activities are occurring in the sanctuary, and when are such activities occurring. Most of the information known about visitor use comes from anecdotal information shared by visitors or observed by sanctuary staff.

Visitation by SCUBA divers and anglers is estimated to be relatively modest at present, compared to some other marine parks, but visitation by SCUBA divers and anglers is expected to increase. Estimates of diver use are between 2,500 and 3,000 divers per year resulting in at least 10,000 dives annually in the sanctuary. Most of these divers arrive in a dive charter vessel. Private vessels and researchers also visit the banks.

The level of recreational and commercial fishing at the sanctuary is not precisely known. Reports by long-time users of the sanctuary and observations by sanctuary staff and others suggest that the level of fishing activity has been increasing in recent years. Stetson Bank is heavily used during the spring mackerel season. Anglers also target Wahoo aggregations, which are currently without catch limits, at East and West Flower Garden Banks. Large commercial charter fishing vessels (“headboats”) have been observed regularly at Stetson Bank and smaller fishing charters offer trips to the Flower Garden Banks.

Activity 1.1 Develop and implement a voluntary vessel registration system.
A web-based system to report visitation, activities, and observations could significantly improve the quantity and quality of information on visitor use at FGBNMS. Already, the sanctuary has established a program for voluntary reporting observations of wildlife through forms available on the sanctuary website. Sanctuary staff will evaluate web-based reporting systems, develop a reporting mechanism, and identify reporting requirements. Implementing this program requires analyses to evaluate the burden to the public and the benefit of the desired information. Initially, the system would be voluntary in order to test the concept and technological aspects of such a system, but a mandatory system may be considered in the future.

Education and outreach will be an important component of a new vessel registration system and will enhance compliance with the program. Sanctuary staff will develop an outreach program and appropriate products to inform visitors and instruct them how to report their visitation and activities.

A reporting system will be developed to present the information collected via the registration

system. Sanctuary staff will also develop a process to determine compliance levels and evaluate ways to improve compliance. Based on that evaluation, the vessel registration system will be revised and updated, if necessary.

Activity 1.2 Develop and implement a visitor use monitoring program using the best available technology.

To address the need for information relating to visitor use of FGBNMS, sanctuary staff will explore several methods, including the best available technology and traditional direct observation on the water. Using multiple methods will help ground truth reports from the voluntary vessel registration system.

Recent technology offers improved ways of obtaining information on vessels visiting or transiting the sanctuary. These technological methods use various communication and navigation systems (e.g., VHF radio, satellite, GPS) to automatically track vessel movement, and include Automatic Identification System (AIS) and Vessel Monitoring System (VMS). The AIS is a shipboard broadcast system that acts like a transponder, operating in the VHF maritime band, and provides navigational safety information, including the vessel's identity, type, position, course, speed, navigational status and other information. The U.S. Coast Guard requires most commercial vessels, other than passenger and fishing vessels, to operate AIS equipment. The USCG utilizes AIS to direct shipping traffic in and around many port facilities.

A Vessel Monitoring System (VMS) is a vessel monitoring tool for improving the effectiveness of resource management that provides, at a minimum, vessel location and speed at a given time. The system is used by the NOAA Office for Law Enforcement (OLE) to monitor and survey fishing vessels for compliance with area-specific fishing regulations, and to track and prosecute violations. OLE maintains the confidentiality of fishing positions. In the Gulf of Mexico, all owner/operators of vessels with a commercial vessel permit for Gulf reef fish are required to have an operating VMS unit onboard. It is anticipated that most, if not all, commercial fishing vessels will be required to utilize VMS in the future. While this data is strictly confidential and is not publicly available, specific inquiries can be made through OLE about general VMS activity in the sanctuary, as necessary.

Recreational fishers at Stetson Bank. Photo: FGBNMS

VU.2 Reduce the potential for user conflict and promote compatible uses.
As interest and use in the sanctuary increases, there will potentially be conflicts among users arising from competing objectives. As an example, recreational fishers and dive vessels may compete for use of the same reef areas. Typically, recreational fishers target the same types of large fish that divers travel to the sanctuary to see. In addition, fishing in an area where diving is occurring can pose a potential safety risk. This type of user conflict is already occurring, especially at Stetson Bank, and will only intensify as numbers increase.

As the number of users increases, it is anticipated that competition for mooring buoys will also increase. Currently, the maximum size of individual vessels allowed to use mooring buoys is 100 feet, but the number or type of vessels is not addressed. Use of the mooring buoys is currently guided by a first-come, first-served policy, which could lead to conflicts without additional installations of mooring buoys. It could also lead to maintenance or safety concerns if multiple vessels tie to individual existing buoys, causing excessive strain on the mooring system.

Activity 2.1 Revise FGBNMS regulations to require that all vessels in the sanctuary exhibit either the blue and white International Code flag "A" ("alpha" dive flag) or the red and white "sports diver" flag whenever diving activities are being conducted.
NOAA will revise FGBNMS regulations to require that all vessels engaged in diving activities at FGBNMS clearly exhibit either the blue and white International Code flag "A" ("alpha" flag) or the red and white "sports diver" flag whenever a SCUBA diver from that vessel is in the water, and remove it once all divers exit the water and return on board the vessel. Because the entire sanctuary is within federal waters, use of the "alpha" flag would be consistent with the U.S. Coast Guard requirement (33 C.F.R. § 83.27) for small vessels engaged in diving operations whenever these vessels are restricted in their ability to maneuver if divers are attached to the vessel. However, in sports diving, where divers are usually free swimming, the alpha flag does not have to be shown and the Coast Guard encourages the continued use of the traditional sports diver flag. The sports diver flag is an unofficial signal that, through custom, has come to be used to protect the diver in the water. See the "Eighth Coast Guard District Special Notice To Mariners Gulf Of Mexico 00-2008" for more detailed information (http://www.uscg.mil/d8/waterways/marinfo.asp). Use of a dive flag, consistent with U.S. Coast Guard requirements and recommendations promotes better enforcement of sanctuary regulations.

Activity 2.2 Consider revising FGBNMS regulations to require a minimum distance between vessels exhibiting an "alpha" dive flag and approaching vessels.
Other national marine sanctuaries have regulations that regulate vessel operation in proximity to vessels exhibiting dive flags. For example, the Florida Keys National Marine Sanctuary requires operation of a vessel at a no-wake speed within 100 feet of vessels displaying dive flags. FGBNMS does not currently have a dive flag regulation. A change to the regulations to require a minimum distance between vessels and dive flags will improve safety and reduce conflict between divers and vessel operations.

NOAA proposes to require that vessel operators stay at least 100 feet away from a vessel displaying the "alpha" dive flag. It will also require that a vessel operator maintain a lower speed, to be

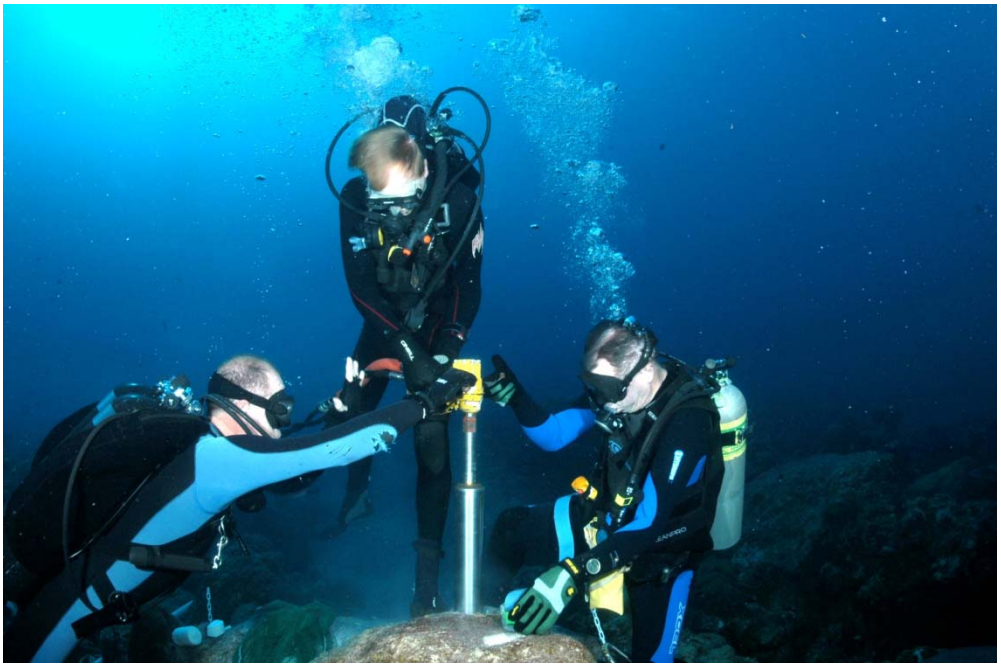
determined during a subsequent rulemaking process with public input, while the vessel is within 300 feet of a vessel displaying the "alpha" flag. As an exception, the requirement to stay at least 100 feet away from a vessel displaying a dive flag will not apply when directly approaching, securing to, and departing from a sanctuary mooring buoy.

Activity 2.3 Develop guidelines for proper use of mooring buoys.
Improper use of sanctuary mooring buoys may cause damage to the buoys and their anchoring systems and result in increased wear on mooring buoy components. FGBNMS will develop guidelines or best practices for vessels utilizing the mooring buoy system. The guidelines will address subjects such as the proper amount of scope to use under various sea conditions, how to approach and tie off to a mooring buoy, how to determine if the mooring buoy has been damaged or compromised and vessel weight guidelines.

VU.3 Protect and maintain NOAA property.
In order to allow vessels to visit the sanctuary without dropping anchor, FGBNMS staff deploy and maintain mooring buoys at the sanctuary. Up to 17 mooring buoys are located at East and West Flower Garden Banks and Stetson Bank at any one time. Buoys are periodically removed for maintenance. There are several other types of buoys in place around FGBNMS. They collect information on water quality and meteorological conditions that may be used by private boaters, commercial charter operators, industry, government or anyone interested in learning more about on site conditions in and near the sanctuary. The remote location, depths and complexities of the sanctuary make it necessary for researchers to use a wide variety of tools and technology to research, explore, monitor and manage this ocean treasure. This strategy focuses on maintaining NOAA property essential to sanctuary management.

Activity 3.1 Consider establishing FGBNMS regulations to prohibit damaging NOAA property and other authorized equipment.
FGBNMS proposes to implement regulations to prohibit damage to sanctuary and other authorized equipment such as marker buoys, mooring buoys, navigation aids and scientific instrumentation. The regulation will be similar to those in place at Florida Keys National Marine Sanctuary. The ONMS will propose revisions to sanctuary regulations to protect NOAA property.

Activity 3.2 Establish a mooring buoy plan.
FGBNMS staff will create a plan that will evaluate the need for additional buoys and their seasonal location, both in the existing sanctuary and in new areas under consideration in the sanctuary expansion process, if applicable. The plan will also provide for the continued deployment and maintenance of the existing mooring buoy system.



Buoy installation in the sanctuary. Photo: FGBNMS

Table 11: Estimated Costs for the Visitor Use Action Plan

Activity	Estimated Cost ($000)					Total Estimate 5-Year Cost	Priority Level
	YR 1	YR 2	YR 3	YR 4	YR 5		
(1.1) Vessel registration system	0	10	10	15	15	50	High
(1.2) Visitor use monitoring	0	25	50	50	50	175	Medium
(2.1) “Alpha” dive flag	0	0	0	0	0	0	High
(2.2) Vessel minimum distance	0	0	0	0	0	0	Medium
(2.3) Mooring buoy guidelines	0	0	0	0	0	0	Low
(3.1) Damage to property	0	0	0	0	0	0	Medium
(3.2) Mooring buoy plan	35	50	50	75	100	310	Medium
Total Estimated Annual Cost	35	85	110	140	165	535	

Table 12. Performance Measures for the Visitor Use Action Plan

Visitor Use Action Plan Activity	Performance Measure	Baseline	Description	Link to National Program Performance Measures
Activity 1.1 Develop and implement a voluntary vessel registration system.	By 2013, FGBNMS staff will develop and implement a voluntary vessel registration system to track sanctuary visitors.	There is currently no vessel registration system in place for FGBNMS visitation.	n/a	Characterization (PART)
Activity 1.2 Develop and implement a visitor use monitoring program using the best available technology and direct contact.	By 2013, FGBNMS staff will publish a report establishing a baseline of visitor use of the sanctuary and identifying gaps in the currently available information.	Current resources (e.g., VMS, aerial photography, divers' perception study from Texas A&M) need to be analyzed to provide a baseline of the available information on visitor use. Further needs for information will be identified upon analysis of the available information.	n/a	Characterization (PART)
Activity 3.2 Establish a mooring buoy plan.	By 2013, FGBNMS staff will develop a plan for the installation of additional mooring buoys.	There are currently some buoys in the sanctuary, but the number of buoys is not adequate.	This plan will focus on characterizing the need for additional buoys and their seasonal location, both in the existing sanctuary and in new areas under consideration in the sanctuary expansion process.	n/a

3.7 Operations and Administration Action Plan

Background
The Operations and Administration Action Plan (OAAP) provides recommendations to strengthen the sanctuary's base-level staffing, facilities, infrastructure and program support to effectively meet the basic needs of sanctuary management. Emphasis is placed on the physical infrastructure and financial resource requirements of the site.

Purpose
The purpose of the OAAP is to ensure the administrative, operational, and financial capacities of the sanctuary are adequate to effectively implement the goals and objectives of the sanctuary.

Strategies and Activities
The OAAP has two strategies and associated activities to build the additional capacity needed for the sanctuary to meet basic requirements for staffing, infrastructure support, and program implementation:

OA.1 – Strengthen sanctuary human resource and program support capabilities.
Activity 1.1 Maintain, and increase when necessary, human resources required to support existing, new or expanded sanctuary programs.
Activity 1.2 Enhance the use of volunteers, partnerships, internships, and cooperative programs to fulfill human resource needs, when possible.

OA.2 – Maintain and enhance sanctuary facilities, vessels and other infrastructure.
Activity 2.1 Effectively operate and maintain the sanctuary vessel R/V *Manta*.
Activity 2.2 Maintain existing facility infrastructure, and develop and implement a long-range facilities plan.
Activity 2.3 Implement the "Climate-Smart Sanctuaries" Initiative.

OA.1 Strengthen sanctuary human resource and program support capabilities.
As sites update and revise management plans, they identify and evaluate needs for more effective management. Additional staffing and infrastructure resources are required to meet the expanded public demands and expectations raised by the process and to respond to legal mandates and policies. Strengthening the sanctuary's base-level staffing, facilities infrastructure and program support to effectively meet the basic needs of sanctuary management is one of the priorities of this management plan. Emphasis is placed on the human resources and physical infrastructure of the site.

Activity 1.1 Maintain, and increase when necessary, human resources required to support existing, new or expanded sanctuary programs.
FGBNMS will maintain basic staffing requirements to support existing programs in the areas of conservation science, education and outreach, resource management and administration.

Current (2011) staff positions and responsibilities include:

Management
- Sanctuary Superintendent
- Program Manager - Sanctuary Advisory Council

Administration
- Administrative Program Specialist
- IT Specialist

Education & Outreach
- Education & Outreach Coordinator
- Outreach Specialist

Operations
- Operations Coordinator (NOAA Corps)
- Captain and one crew member, R/V *Manta*

Research and Monitoring
- Research and Permit Coordinator
- Research Specialist
- Research Specialist (Monitoring Program)
- Research Assistant

Over the next five years, it is anticipated that additional staff positions will be necessary to carry out the activities and programs identified in this management plan. Subject to funding allocations, the following positions may be needed:

Management
- Deputy Superintendent
- Resource Protection Specialist

Administrative
- Secretary/Receptionist

Education and Outreach
- Volunteer Coordinator
- Outreach/Media Specialist
- Program Specialist

Operations
- Marine Engineer
- Deck Crew Member, R/V *Manta*

Research and Monitoring
- Monitoring Program Coordinator
- Technical Specialist (water quality)
- Geographic Information System (GIS) Specialist

Additional positions will be considered as warranted.

Activity 1.2 Enhance the use of volunteers, partnerships, internships, and cooperative programs to fulfill human resource needs, when possible.
Given the limited funding generally available to address personnel requirements, FGBNMS will utilize to the fullest extent alternative mechanisms to meet human resource needs. This will include support of an active volunteer base to capitalize on the interest of constituents to assist with sanctuary programs. FGBNMS will also promote the use of student internships and cooperative programs with universities and other institutions to address specific sanctuary issues. Existing programs, such as the Hollings Scholarship, the Nancy Foster Scholarship and Student Conservation Association (SCA), will be utilized, as appropriate, to fill future needs. Programs associated with the Texas Maritime Academy at Texas A&M University at Galveston (TAMUG) will be investigated to provide support for vessel operations and maintenance.

A NOAA Hollings Scholar summer intern presents a lesson to elementary school students. Photo: FGBNMS

OA.2 Maintain and enhance sanctuary facilities, vessels and other infrastructure.
The sanctuary office relocated to Galveston Island from Bryan, Texas in 2006. The sanctuary headquarters in Galveston, Texas, is co-located with the NOAA Fisheries Laboratory on the historic Fort Crockett property. Built in the early 1900s as an Army installation, Fort Crockett contains a number of buildings of historical and architectural significance. It has been utilized as a fisheries laboratory since 1950, when the U.S. Bureau of Commercial Fisheries (predecessor to NOAA Fisheries) established a facility there. Recognizing the historical importance of this facility, NOAA

undertook a comprehensive renovation beginning in the mid 1990s. The FGBNMS office is housed in the old Post Exchange (Building #216) on the east end of the campus. This unique building once housed recreational facilities for the base, including a bowling alley and ballroom. Although the bowling alley is gone, the original ballroom has been renovated and provides for a spacious meeting and special event area.

FGBNMS acquired a custom-built 83-foot research vessel, the R/V *Manta*, in 2008. This vessel has the capability to support a wide variety of sanctuary operations, including research, education, enforcement and resource management. In addition, the sanctuary staff makes the vessel available to other agencies and universities to conduct projects to support research or resource management needs in the Gulf of Mexico. Vessel use may be subject to cost reimbursement by the partner entities.

The R/V Manta, *an important tool for research, monitoring, enforcement and emergency response, at the vessel's dedication in Galveston on June 27, 2008. Photo: FGBNMS*

Activity 2.1 Effectively operate and maintain the sanctuary vessel R/V *Manta*.
The R/V *Manta* will be operated and maintained in a safe and efficient manner, and will meet or exceed the standards established by the NOAA Small Boat Program and the NOAA Office of Marine and Aviation Operations (OMAO). A rigorous maintenance program will be established and implemented. FGBNMS staff will ensure that vessel operations are conducted in as environmentally sensitive a manner as possible, including the incorporation of the use of biofuels and biodegradable marine products, when possible.

FGBNMS will establish a review process for the use of the R/V *Manta* by sanctuary partners and research institutions. The process will include mechanisms for partners to request use of the vessel,

submit cruise instructions, and submit required documentation (e.g., permits, authorizations).

Activity 2.2 Maintain existing facility infrastructure, and develop and implement a long-range facilities plan.

FGBNMS staff will develop a long-range (10 to 20 years) facilities plan to consider the need for office space, vessel support facilities, visitor centers, signage and other infrastructure located throughout the sanctuary's operational area, as necessary to support implementation of the management plan. A national facilities plan is under development for all sites within the National Marine Sanctuary System. Facility planning for FGBNMS will be consistent with and incorporated into that plan.

The administrative headquarters for FGBNMS is located in the Post Exchange building at the NOAA Fort Crockett Galveston Laboratory. This building is large enough to meet the administrative needs of FGBNMS over the next 5 years. Additional renovation of the building's first floor will be necessary to accommodate existing needs and potential growth within the next 3 years. There may be additional space on the Fort Crockett campus that could be utilized by FGBNMS in the future, if necessary.

The sanctuary vessel, R/V *Manta*, is currently housed at the marina on the campus of Texas A&M University Galveston (TAMUG) on Pelican Island, about three miles from Fort Crockett. It is maintained at a dock facility built by TAMUG with funds provided by NOAA. The TAMUG campus waterfront is undergoing extensive renovation, including the addition of a new science center that is now open near the marina. FGBNMS will continue to coordinate with TAMUG for vessel and dive operation support as changes occur.

Significant public input was received during the scoping process promoting the development of a visitor center in Galveston, where people could go to learn more about the FBGNMS and the northwestern Gulf of Mexico. Over the next three years, FGBNMS staff will investigate options and develop a plan for the establishment of a visitor center or visitor contact point (EOAP Activity 1.1). A FGBNMS visitor center would likely be modest in size, but incorporate new technologies to allow visitors to experience the sanctuary without actually going there. The plan will encourage working with partners, such as other federal, state and local agencies, in visitor center development and operation. The plan will also include an analysis of possible locations, size, type of messages and information to be provided, and operational costs. Options suggested during discussions on this topic include a building on the NOAA Fort Crockett campus, a storefront in the Strand area of downtown Galveston, incorporation into redevelopment of the Galveston seawall, or as part of an interagency nature center on the East End of Galveston Island.

FGBNMS staff will develop (see EOAP Activity 1.4) and implement an educational exhibits plan to utilize existing outreach venues to assist in the dissemination of information about the sanctuary. FGBNMS staff have identified a number of outreach venue locations that could provide for the sanctuary's interpretive needs from both geographical and thematic points of view. These facilities cover a geographic area from Corpus Christi, TX to New Orleans, LA. The sanctuary will seek funding and work with the identified facility to develop appropriate exhibits, informational signage

and other outreach materials. Outreach and interpretive exhibit venues being established or considered include:

- Aquarium at Moody Gardens, Galveston, TX
- Audubon Aquarium of the Americas, New Orleans, LA
- Houston Museum of Natural Science, Houston, TX
- Houston Zoo, Houston, TX
- Mission-Aransas National Estuarine Research Reserve, Port Aransas, TX
- Texas A&M University at Galveston, Galveston, TX
- Tennessee Aquarium, Chattanooga, TN
- Texas Seaport Museum, Galveston, TX
- Texas State Aquarium, Corpus Christi, TX

Activity 2.3 Implement the "Climate-Smart Sanctuaries" Initiative.

Undertake greening efforts to reach the minimal green operating standards outlined in ONMS' "Climate-Smart Sanctuaries" Initiative by:

- Reducing emissions
- Reducing commuting impact
- Increasing energy efficiency
- Managing waste and supply use
- Managing landscaping impacts and water use

Table 13: Estimated Costs for the Operations and Administration Action Plan

Activity	Estimated Cost ($000)					Total Estimate 5-Year Cost	Priority Level
	YR 1	YR 2	YR 3	YR 4	YR 5		
(1.1) Current staffing	621	652	684	718	754	3,429	High
(1.2) Staffing increase	0	175	350	525	700	1,750	Medium
(2.1) Manta operations	525	577	885	698	768	3,453	High
(2.2) Facility planning	0	10	10	0	0	20	Low
(2.3) Implement the "Climate-Smart Sanctuaries" Initiative.	5	10	12	15	20	62	High
Total Estimated Annual Cost	1,151	1,424	1,941	1,956	2,242	8,714	

Public Comments on Draft Management Plan

4.1 Comment Period and Public Notice

The Flower Garden Banks National Marine Sanctuary draft management plan/environmental assessment (DMP/EA) and proposed rule were released to the public on October 22, 2010 for a 90-day public review. The comment period was October 22, 2010 – January, 20, 2011. The DMP/EA and proposed rule were each posted on the sanctuary website for the duration of the public comment period. Interested individuals could also request printed copies of the draft plan or an electronic version on CD by contacting the sanctuary office by phone, fax or email. Additionally, NOAA press releases announcing the availability of the DMP/EA and proposed rule and the dates of the public comment period were distributed to regional and local media.

The National Oceanic and Atmospheric Administration (NOAA) conducted two public hearings to gather input on the FGBNMS draft management plan/environmental assessment and proposed rule. A Public Meeting about the draft plan was held in Galveston on December 9, 2011. This was an opportunity for interested people to learn more about the draft management plan and speak directly to sanctuary staff. Comments about the plan were also received at the Sanctuary Advisory Council meeting on November 17, 2011.

4.2 Responses to Comments and Questions

All written and verbal comments received during the public comment period were compiled and grouped into eight general topics. Similar comments from multiple submissions have been treated as one comment for purposes of response. NOAA considered all of these comments and, where appropriate, made changes to the final management plan (FMP) and environmental assessment (EA) in response to the comments. Editorial comments on the FMP/EA were also taken under consideration by NOAA and, where appropriate, applied to the EA or FMP. These comments are not included in the list below due to their editorial nature. Substantive comments received are summarized below, followed by NOAA's response.

Sanctuary Expansion

Comment 1. Sanctuary expansion is not necessary because the proposed reefs and banks have relatively low visitation by scuba divers and fishers compared to other sanctuaries. Are there other ways to protect additional reefs and banks in the Gulf of Mexico without sanctuary expansion?

The National Marine Sanctuaries Act (NMSA) authorizes the Secretary of Commerce to designate and protect areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or esthetic qualities as national marine sanctuaries. It is this concept of special places that persuades us to protect and enhance certain marine areas, even before impacts occur or without immediate pressures on the resource. Sanctuary expansion would allow other reefs and banks in the

northwestern Gulf of Mexico to benefit from comprehensive management, something currently not available by other means.

The sanctuary expansion action plan does not make any determination regarding the various options for expanding the sanctuary or regulations within expansion areas. The action plan only lays out the framework for conducting a thorough environmental review required by NEPA and NMSA. Alteration to the boundaries of FGBNMS (or expanding the sanctuary) would necessitate a change to the FGBNMS terms of designation, regulations, and coordinates. Should NOAA decide to pursue boundary expansion, NOAA will prepare a draft environmental impact statement (DEIS) and conduct extensive public review.

Other means of protecting additional reefs and banks in the Gulf of Mexico include, for example, No Activity Zones managed by the Bureau of Ocean Energy Management (BOEM) or Habitat Areas of Particular Concern managed by NOAA's National Marine Fisheries Service. These kinds of conservation measures have specific purposes and are not designed to address the need to protect an ecosystem from a holistic perspective.

Comment 2. The public should not have limited access to and use of potential new sanctuary areas. Regulations in any new sanctuary areas should not prohibit fishing and diving.
This final rule does not expand any area of the Sanctuary. NOAA has yet to determine potential areas to be added to the sanctuary or what regulations are needed in possible new expansion areas. The management plan states that new areas would be subject to the regulations of the current sanctuary, which generally allow fishing and diving; however, site specific regulations may be appropriate. The current FGBNMS management plan would apply or a new management plan would be written and applied to any new areas. Should NOAA decide to pursue boundary expansion, NOAA would prepare a DEIS and conduct extensive public review.

Comment 3. NOAA has not conducted socioeconomic studies to support sanctuary expansion or research only areas.
Activity 1.1 of the sanctuary expansion action plan in the final management plan states that NOAA will develop a DEIS to evaluate alternatives for incorporating additional reefs and banks in the northwestern Gulf of Mexico into FGBNMS. The DEIS will discuss the consequences of sanctuary expansion on the human environment or the socioeconomic resources of the region. The socioeconomic impact analysis will focus on the industries/user groups that depend on the resources of the current FGBNMS and the banks currently being evaluated for inclusion in FGBNMS through sanctuary expansion.

Comment 4. If sanctuary expansion occurs, NOAA should install mooring buoys at all new sites to enhance fishing and diving activities as anchoring will be prohibited.
NOAA agrees that mooring buoys are a useful tool to promote sanctuary use that is compatible with resource protection. Activity 3.1 of the visitor use action plan in the final management plan proposes to create a mooring buoy plan that will evaluate the need for additional buoys, both in the existing sanctuary and in the event any new areas are considered in a sanctuary expansion process. The sanctuary expansion action plan does not make any determination regarding the various options

for expanding the sanctuary or regulations within expansion areas. The action plan only lays out the framework for conducting a thorough environmental review required by NEPA and NMSA. Alteration to the boundaries of FGBNMS (or expanding the sanctuary) would necessitate a change to the FGBNMS terms of designation, regulations, and coordinates. Should NOAA decide to pursue boundary expansion, NOAA will prepare a draft environmental impact statement (DEIS) and conduct extensive public review. NOAA has yet to determine the areas to be potentially added to the sanctuary or what regulations are needed in possible new expansion areas. The management plan states that as an extension of the current sanctuary, it is assumed that if any areas are considered for future addition those new areas will be subject to the regulations of the current sanctuary; however, site specific regulations may be appropriate. The current FGBNMS management plan would apply or a new management plan would be written and applied to any new areas. Should NOAA decide to pursue boundary expansion, NOAA would prepare a DEIS and conduct extensive public review.

Comment 5. Designating new reefs and banks in the northwestern Gulf of Mexico as sanctuaries will increase visibility and activity by fishers and divers leading to increased impacts to the resources. Similarly, too much information about the habitats of the sanctuary and surrounding areas, and fishing sites, is provided on the FGBNMS website.
The criteria for evaluation of potential new sites were based on the primary NMSA mandate of resource protection. The benefits of a comprehensive management approach offered by sanctuary designation could outweigh any risk that might exist from increased visibility and activity by fishers and divers. Should NOAA decide to pursue boundary expansion, NOAA will prepare a DEIS that would include an analysis of the potential impacts of increased visibility and visitation.

Research results and information provided on both the FGBNMS website and the National Coastal Data Development Center (NCDDC) website are in the public domain and intended for use by sanctuary users and constituents. One of the purposes and policies of the NMSA is to enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environment, and the natural, historical, cultural, and archeological resources of the National Marine Sanctuary System. NOAA's goal is to make people aware of their impacts and give them the knowledge and skills to become good stewards of the sanctuary and the regional marine environment.

Fishing

Comment 6. NOAA's gear prohibition for fish harvesting in FGBNMS should be reconsidered. The impact of spearfishing on the sanctuary environment is minimal. What research has been done to support the current prohibition and why is spearfishing not allowed in the sanctuary?
NOAA is not proposing to change regulations associated with spearfishing, or any other type of fishing, at this time. If the boundary of FGBNMS is expanded, however, any regulations related to fishing, including spearfishing, would be evaluated through a public process for each new area under consideration.

Spearfishing has been prohibited in FGBNMS since its designation in 1992. The prohibition was due primarily to concerns raised by studies that demonstrated that spearfishing could be detrimental to fisheries resources through the selective removal of large predator species. Research conducted since sanctuary designation supports this concern and reinforces the rationale for a spearfishing prohibition. A summary of this research is available on the sanctuary website (http://flowergarden.noaa.gov)

Comment 7. NOAA should allow boaters to carry stowed spearguns on board vessels in FGBNMS to facilitate spearfishing in areas outside of the sanctuary before or after a sanctuary visit.
Sanctuary regulations prohibit the possession of any type of fishing equipment (including spearguns), except for conventional hook and line gear, unless passing through without interruption. The reason for this restriction is related to the ability to reasonably enforce the regulation. It is difficult to enforce a spearfishing prohibition if the possession of spearfishing equipment is allowed in the sanctuary. If only the use of such equipment is prohibited, it would require that direct observation of spearfishing activity be made by a law enforcement entity. In a remote location such as FGBNMS, where the activity would occur 70-100 feet below water, enforcement by observation only would be nearly impossible. The existing regulation has been in effect since designation 20 years ago, and it has not resulted in undue restriction on visitor use and activity. Therefore, the regulation will remain as written. If expansion is considered in future analysis, when regulations are considered for any potential new areas to be added to the sanctuary, the use and possession of spearguns would be evaluated on an individual area basis.

Comment 8. NOAA should limit the use of inappropriate fishing gear to protect sanctuary resources or prohibit fishing altogether in the existing sanctuary.
National marine sanctuaries are managed by NOAA to protect and conserve their resources, and to allow uses that are compatible with resource protection. Current FGBNMS regulations limit fishing within the sanctuary to conventional hook and line gear. Fishing by use of any other gear, including spearguns, is prohibited.

During the scoping process for the revised management plan and in response to the DMP, many commenters asked NOAA to consider closing all or portions of FGBNMS to fishing. Although fishing pressure is perceived to be moderate, the impact on local fish populations is not well known at this time. The spatial resolution of fishing data is currently not precise enough to quantitatively assess fishing pressure within the sanctuary. The research and monitoring action plan and the visitor use action plan in the final management plan lay out strategies to obtain information that would allow NOAA to evaluate compatible uses of the sanctuary. In addition, Activity 2.3 of the resource protection action plan addresses the need for additional measures to protect resources from impacts associated with inappropriate fishing gear.

Comment 9. NOAA has not presented evidence that further fishing restrictions are needed or that fish populations are declining. Why are fishing and diving impact studies necessary?
At this time, NOAA is not proposing any regulations that would further restrict fishing activity. It is well documented that most fishery stocks for which there are stock assessments in the northern Gulf

of Mexico have undergone or are still undergoing overfishing. Many species, such as snapper, some species of grouper, amberjack and others have declined significantly in the Gulf of Mexico since records have been kept. Although there are recent data to suggest that some species (such as red snapper) have shown limited recovery in population size, they are still much lower than historical levels. It is logical to assume that fish populations within FGBNMS have also been similarly affected by the general decline of fish stocks throughout the Gulf of Mexico. However, the data that do exist, such as fish landing survey information, have not been collected at a scale to adequately evaluate impacts on an area the size of the sanctuary. Therefore, NOAA believes that the fishing and diving impact studies would provide valuable information for the management of the sanctuary.

Diving

Comment 10. Through multiple DMP proposals, NOAA is pursuing policies that seem to discourage recreational diving. The recreational dive community should be embraced and encouraged to assist with resource protection.
ONMS embraces and welcomes diving at FGBNMS. The management strategies are not intended to discourage recreational diving within the sanctuary. Rather, NOAA is protecting the resource while enhancing visitor safety. Traditionally, recreational divers have been among the strongest supporters of the sanctuary—from leading the effort for sanctuary designation, to serving as naturalists on board charter boats, to reporting observations when visiting the sanctuary. NOAA intends that the changes in sanctuary management will not diminish the recreational diver's experience. By working together with sanctuary users, especially recreational divers, NOAA can more effectively meet its goals and protect sanctuary resources.

Comment 11. NOAA should adopt the "Blue Star" program for FGBNMS.
The Blue Star program was established by Florida Keys National Marine Sanctuary management to recognize charter boat operators who promote responsible, sustainable and educational diving and snorkeling practices. An activity to examine the implementation of the Blue Star program for FGBNMS was added to the Education and Outreach Action Plan (Activity 3.3).

Ray/Whale Shark Regulations

Comment 12. The proposed regulation prohibiting the disturbance of whale sharks and all species of rays is too broad. The prohibition should only apply to manta rays and whale sharks.
There are a variety of ray species that utilize the habitats within FGBNMS. In addition to the giant manta, there are other pelagic (free swimming) ray species commonly observed, including at least two species of *mobula* (devil) rays, the spotted eagle ray, and the cownose ray. Several species of bottom-dwelling rays also live within the sanctuary, including the southern stingray and roughtail stingray. NOAA believes that all species of rays should be included in the regulation that prohibits disturbance. It has been demonstrated in other areas of the world that stingrays and other rays can be subject to negative disturbance from visitor activities. See the programmatic environmental assessment for additional detail and references regarding impacts on ray species in FGBNMS.

Comment 13. The proposed regulation to protect rays and whale sharks relies on a definition of "disturb or disturbing a ray or whale shark" that includes any activity that "has the potential to disrupt." NOAA should revise this catch-all phrase in the definition which would potentially place every sanctuary visitor in violation of the proposed rule.
NOAA agrees. The definition has been revised to address this concern and additional information has been added to the preamble.

Comment 14. Using scientific studies from other locations (e.g. the Cayman Islands) to support regulations at FGBNMS is inappropriate because the interactions between sanctuary visitors and wildlife are different at the sanctuary than elsewhere. FGBNMS does not have heavy visitor use like other areas.
The purpose of the reference to the Cayman Island study on stingrays was to provide an example of an area that is experiencing visitor use that may be having potentially detrimental impacts on a species of ray. It is not anticipated or suggested that this particular issue is or will ever be a problem at FGBNMS. It is relevant, however, because stingrays are included in the proposed regulation for FGBNMS, and it clearly demonstrates that intense visitor activity can affect the behavior and health of a ray species, requiring management action to control potential impacts.

Comment 15. NOAA has not demonstrated that divers are causing physical harm to rays and whale sharks. The proposed regulation is excessive.
NOAA has supplemented the programmatic environmental assessment with additional information and references on the impacts of divers on rays and whale sharks.

Visitor Use

Comment 16. The proposed dive flag regulation should include the use of the red and white diver down or "sports diver" flag, because it is more widely recognized by divers. The proposed regulation also appears to be inconsistent with the existing requirement for use of the alpha flag in the USCG navigation rules.
NOAA agrees. The regulation has been revised to address this concern and make it consistent with USCG navigation rules.

Comment 17. NOAA should implement a vessel registration system for FGBNMS. Access to the sanctuary could be controlled by issuing visitation permits.
Although NOAA agrees that a vessel registration system would provide information on visitor use dynamics, establishing a visitation permitting system would be difficult. NOAA plans to evaluate the effectiveness of the voluntary registration system before considering a mandatory visitation permitting system. NOAA is gathering more information about sanctuary use and has asked visitors to use the voluntary trip report form available on the FGBNMS website. Activities 1.1 and 1.2 of the visitor use action plan describe the need for and benefits of voluntary vessel registration and a visitor use monitoring program.

Comment 18. NOAA should collaborate with other agencies and industry to increase enforcement efforts at FGBNMS. More enforcement is needed. Add surveillance equipment to platforms.
NOAA agrees. Currently, enforcement of sanctuary regulations is done with support from the U.S. Coast Guard and NOAA's Office of Law Enforcement. NOAA plans to increase collaboration with those entities as well as the Texas and Louisiana state law enforcement agencies. Enforcement at the sanctuary is logistically difficult due to the distance from shore. NOAA recognizes that partnering with industry to place monitoring or surveillance equipment on the production platform that lies within current sanctuary boundaries could greatly enhance enforcement capabilities. Therefore NOAA has added an activity to the resource protection action plan in the final management plan to consider this more thoroughly.

Discharge

Comment 19. NOAA should prohibit all discharges within the sanctuary, including treated sewage.
NOAA is not prepared to prohibit all discharges within the sanctuary at this time. Given the distance from shore, water depth, number and type of vessels currently operating in the area, and current scientific knowledge, NOAA feels that allowing clean discharges will provide adequate protection for sanctuary resources while still allowing compatible uses.

Comment 20. The new language in the proposed rule that prohibits "discharging or depositing from within or into the sanctuary" is too broad and open-ended and is cause for concern by the oil and gas industry, especially where entities are already permitted under a National Pollutant Discharge Elimination System (NPDES) general permit for the Gulf of Mexico.
By adding the words "or into," NOAA is clarifying that the prohibition does not only apply to discharges originating in the sanctuary, the prohibition also applies, for example, to immediate discharges and deposits into the sanctuary from aircraft, when waste is thrown into the sanctuary from a vessel, or from other similar activities.

This regulatory change will not have an effect on the existing oil and gas activities in the vicinity of the sanctuary. For example, the two existing platforms closest to the sanctuary are: (a) High Island 384, located 0.26 miles (1373 feet) from the boundary of West Flower Bank; and (b) High Island 376, located 0.22 miles (1162 feet) from East Flower Garden Bank. Because of the distance between those platforms and the sanctuary boundaries, NOAA does not foresee that either platform would be impacted by the new rule because NOAA does not envision conditions that would enable a discharge from these platforms to be considered a direct discharge under sanctuary regulations and consequently violate 15 CFR § 922.122(a)(3)(i).

The purpose of the regulation is not to create new restrictions on otherwise lawful activities occurring beyond, but adjacent to, the sanctuary boundaries. Rather, NOAA's goal is to ensure consistency among the regulations of other sanctuaries. Discharges or deposits originating from beyond the sanctuary would still remain subject to the regulations at 922.122(a)(3)(ii), which

requires proof of entry into the sanctuary and injury to sanctuary resources to constitute a violation.

Education and Outreach

Comment 21. NOAA should build constituency and numbers of sanctuary advocates by increasing volunteer recruitment.
NOAA agrees and recognizes the need for increased volunteer involvement. The strategy to increase public support and stewardship of the sanctuary in the final management plan (EO.3, Activity 3.2) includes an activity to enhance the FGBNMS volunteer program. The planned addition of a volunteer coordinator (OA.1, Activity 1.1), subject to budget allocations, would enable NOAA to fully develop the FGBNMS volunteer program.

Comment 22. NOAA should establish outreach programs in coastal area communities other than Galveston. It should establish a presence in Louisiana near recommended sanctuary expansion areas.
Due to limited budget for outreach, NOAA is currently focusing the majority of its sanctuary outreach efforts in the Galveston area in order to develop a strong local constituency in the region closest to the sanctuary. Nonetheless, NOAA agrees that outreach efforts should not be limited only to the Galveston area, and welcomes opportunities to work with partners throughout the region. For example, NOAA already has sanctuary outreach programs in the form of exhibits in the Audubon Aquarium of the Americas in New Orleans, LA, the Texas State Aquarium in Corpus Christi, TX and the Tennessee Aquarium in Chattanooga, TN. NOAA has also begun to develop avenues for communicating with fishermen and divers in Louisiana. In the event that the sanctuary is expanded to include banks off of Louisiana, education and outreach programs to reach that region would be developed at that time. The sanctuary expansion action plan does not make any determination regarding the various options for expanding the sanctuary or regulations within expansion areas. The action plan only lays out the framework for conducting a thorough environmental review required by NEPA and NMSA.

Comment 23. Education and outreach programs should emphasize how human activities impact marine habitats and the benefits of marine reserves.
NOAA education and outreach presentations, programs, and products routinely include information about human impacts on marine habitats. NOAA also recognizes the value and importance of educating people about a variety of marine management techniques, including marine reserves. For example, NOAA produces lesson plans and activities on topics such as watersheds and marine debris. In addition, information about human impacts is incorporated throughout the FGBNMS website.

Other

Comment 24. The FGBNMS management plan should thoroughly address the potential risks to FGBNMS associated with oil and gas industry operations in the Gulf of Mexico. NOAA should consider additional regulations due to the potential impact of oil spills.
FGBNMS is located within one of the most heavily developed offshore oil and gas exploration areas in the world. The potential for impact to the marine environment of the Flower Garden Banks from

an oil-related incident has been considered since before the area became a national marine sanctuary. Beginning in the 1970s, the Minerals Management Service (now reorganized into the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE)), identified the Flower Garden Banks and many other reefs and banks of the northwestern Gulf of Mexico as areas that warranted special protection. They developed a set of requirements, called stipulations, to help minimize the threat of impact from offshore oil and gas activities (Reference: Notice to Lessees, NTL No. 2009-G39, "Biologically-Sensitive Underwater Features and Areas," Effective Date: January 27, 2010). The earliest such stipulations were published in the Final Environmental Impact Statement for the Gulf of Mexico Outer Continental Shelf (OCS) lease sale 34 in May 1974. Since the time that these, and other stipulations, have been in place, they have shown to be very effective in protecting the sanctuary from routine operations associated with offshore oil and gas exploration and development.

Planning for an appropriate response to an oil spill or other hazardous material release in the vicinity of the Flower Garden Banks is of the highest priority for the sanctuary. The Oil Pollution Act of 1990 requires the U.S. Coast Guard to develop an Area Contingency Plan (ACP) for each region of coastal waters. NOAA continues to coordinate with the USCG on updating and refining the ACP for Texas and Louisiana offshore waters. In addition, NOAA will assist the USCG in the development of a specific sub-area contingency plan for oil spill response for the Flower Garden Banks National Marine Sanctuary area, as described in Activity 2.4 of the Resource Protection Action Plan.

Prior to the Deepwater Horizon event in April 2010, which occurred slightly east of the northwestern Gulf of Mexico, there had not been a significant hydrocarbon spill or other incident in the region since the designation of FGBNMS. However, a similar incident could potentially occur in an area that would threaten the health of sanctuary resources. For that reason, NOAA is working closely with BOEM and EPA in reviewing, and revising, if necessary, environmental policies related to offshore oil and gas leasing and development to ensure the highest level of protection of sensitive biological communities.

Given these various existing mechanisms geared toward protecting FGBNMS from the disastrous effects of a potential oil spill, NOAA did not include a specific action plan on this topic in the revised management plan. Rather, staff effort will focus on continuing to coordinate with other agencies. Similarly, NOAA did not revise the sanctuary regulations. NOAA believes the current regulations in place addressing disturbance of the seafloor and discharges in the sanctuary are adequate at this time.

Comment 25. Climate change is the biggest threat to sanctuary resources.
NOAA recognizes that climate change is a potential threat to sanctuary resources. In 2010, NOAA finalized a Climate Strategy for national marine sanctuaries and implemented a “Climate-Smart Sanctuaries” initiative. Language has been added to the operations and administration and education and outreach action plans to incorporate various aspects of this initiative. In addition, NOAA will develop a climate change site scenario and climate change action plan for FGBNMS and plans to pursue Climate-Smart Sanctuary certification as detailed in Activity 2.6 of the resource protection action plan in the final management plan.

Comment 26. Artificial reefs should be protected.
There are no artificial reefs in FGBNMS. If presented with opportunities to make recommendations during decommissioning processes for platforms within sanctuary boundaries, NOAA would examine the options on a case-by-case basis.

Comment 27. NOAA must take aggressive action to prevent the establishment of the invasive lionfish in FGBNMS.
Lionfish have been observed in sanctuary waters since July 2011. As stated in Activity 5.2 of the research and monitoring action plan in the final management plan, NOAA is currently developing research priorities and a response plan to study and manage the impacts of invasive species, including lionfish, on sanctuary resources.

At this time, NOAA's policy is to remove any lionfish encountered in sanctuary boundaries using prescribed protocols. Permits for the removal of lionfish have been issued to some dive masters of recreational dive charters that frequent the sanctuary to assist in this effort. The diving public is also encouraged to help monitor the situation by reporting any lionfish sightings, including date, time, location, size of the lionfish, and any other information about the habitat or the behavior of the fish to sanctuary staff.

Comment 28. The cost to implement the management plan is unreasonably high. NOAA should carefully consider availability of funds during the proposed sanctuary expansion and prioritize activities, which should include R/V *Manta* operations.
The budget estimates given in the draft management plan are those necessary to support all of the activities identified within the various action plans. While the plan was developed with realistic expectations, NOAA recognizes that not all of the activities can or will be carried out due to budgetary restrictions or other factors. Therefore NOAA agrees with the suggestion that activities should be prioritized in the plan, and this has been added to the document. However, over the years, NOAA has taken a number of steps to increase resources available for sanctuaries. These have included pursuing outside funding sources for critical operations such as grants, partner cost-sharing, donations, and special use permit fees. NOAA has also been successful in leveraging partner capabilities and in-kind support. For example, the U.S. Coast Guard has provided aerial overflights for surveillance and enforcement at FGBNMS.

During the preliminary evaluation of possible sanctuary expansion alternatives by the Sanctuary Advisory Council, budgetary factors were taken into consideration. For example, the areas presented for potential expansion by the Sanctuary Advisory Council were limited by the distance that could be serviced within the operational capabilities of the existing sanctuary vessel (approximately 200 miles from Galveston, TX), reducing the need for additional vessels or infrastructure. Priority consideration was also given to the anticipated amount of funds available in the sanctuary budget to operate the *R/V Manta* in other areas of the Gulf of Mexico. The effective operation of the *R/V Manta* is necessary in the implementation of almost all aspects of sanctuary management. As such, the continued maintenance of this asset is a high priority for NOAA, and will be given due consideration in the allocation of available resources.

4.3 Summary of Revisions

This section summarizes the significant changes made to the management plan between its draft and final versions. In general, changes reflect input received from public comments, revisions to update information, and corrections of minor typographical and technical errors. Changes are summarized by section. If a section had only minor editorial changes it is omitted from the list below. Substantive and technical revisions were made directly in the text.

General Changes
NOAA made the following changes wherever relevant throughout the document:

- Removed references to this document as a draft
- Replaced MMS (Minerals Management Service) with BOEM (Bureau of Ocean Energy Management)

Changes by Section

Front Piece

- Updated David Kennedy's title from Acting Assistant Administrator to Assistant Administrator on the title page
- Added a new section 4 Public Comments on Draft Management Plan to the Table of Contents
- Added BOEM, Bureau of Ocean Energy Management to the List of Acronyms
- Added reference to section 4, public comments, to the Organization of this Document
- Added Helene Scalliet to the Acknowledgements

3.1 Action Plans

- Added the subsection "How are they prioritized"
- Adjusted total costs in Table 1 to reflect changes made to Tables 5 (EOAP) and 13 (OAAP)

3.2 Sanctuary Expansion Action Plan

- Added priority levels to Table 3

3.3 Education and Outreach Action Plan

- Added reference to climate change as an outreach topic under Activity 2.1
- Added Activity 3.3, Implement NOAA's Blue Star Program
- Revised Table 5 by adding priority levels and Activity 3.3

3.4 Research and Monitoring Action Plan

- Deleted reference to Wahoo under Activity 1.1 "Investigate the reproductive ecology of marine organisms"
- Added information on invasive lionfish to Activity 5.2
- Added priority levels to Table 7

3.5 Resource Protection Action Plan

- Added Activity 1.4, Partnering with the oil and gas industry for monitoring or surveillance
- Revised Activity 2.2 to clarify the regulation to prohibit killing, injuring, attracting, touching, or disturbing rays or Whale Sharks
- Revised Activity 2.5 to clarify the regulatory amendments made to the sanctuary regulations as they pertain to discharges in the sanctuary
- Added information to Activity 2.6 on "Climate-Smart Sanctuaries"
- Revised Table 9 by adding priority levels and Activity 1.4

3.6 Visitor Use Action Plan

- Revised Activity 2.1, Revise FGBNMS regulations to require that all vessels in the sanctuary exhibit either the blue and white International Code flag "A" ("alpha" dive flag) or the red and white "sports diver" flag whenever diving activities are being conducted
- Added information to Activity 2.1 on U.S. Coast Guard recommendations for use of the "sports diver" flag
- Added priority levels to Table 11

3.7 Operations and Administration Action Plan

- Added Activity 2.3, Implement the "Climate-Smart Sanctuaries" Initiative
- Revised Table 13 by adding priority levels and Activity 2.3

Summary of the Programmatic Environmental Assessment

- Changed all references of the "Proposed Action" to the "Preferred Alternative"

Summary of the Programmatic Environmental Assessment

A programmatic environmental assessment (PEA) is a useful tool to understand the environmental consequences of the broad range of activities described under the final draft management plan for Flower Garden Banks National Marine Sanctuary (FGBNMS). The PEA provides the general analyses to inform the decision of approving the FGBNMS final management plan. It also establishes that as individual actions become ripe for decision, alternatives will be evaluated under the National Environmental Policy Act (NEPA) to meet the broader goals outlined in this draft management plan.

5.1 Description of Proposed Action and Alternatives

Awareness of new issues affecting sanctuary management and the fulfillment of many of the prior plan's objectives necessitated the revision to the management plan. Two alternatives are considered in the PEA: Alternative 1, leaving the current management plan and regulations in place (No Action); and Alternative 2, revising the management plan and regulations to address the changes described above (Preferred Alternative). A discussion of each of the alternatives follows.

Alternative 1 - No Action
Under the No Action alternative, NOAA would neither update the FGBNMS management plan nor revise the sanctuary regulations. The current situation described below would continue. This alternative would maintain the 1991 management plan despite its outdated format and content, inclusion of completed tasks, and the nominal list of goals and objectives. Management actions described in the existing management plan, including educational and research activities and enforcement actions, would continue.

Alternative 2 – Preferred Alternative
Under the Preferred Alternative, NOAA revises the FGBNMS management plan including updating the sanctuary mission, goals and objectives; removing completed tasks and incorporating new and planned management strategies and activities, including some minor regulatory actions (Chapter 3); laying out performance measures to better evaluate the effectiveness of sanctuary management; and laying the groundwork for potential future regulatory actions to address high priority issues.

5.2 Summary of Environmental Consequences

Actions taken to manage the sanctuary as proposed in Alternative 2, considered together with the stressors facing sanctuary resources, generally result in a cumulative beneficial impact to these resources, although the impact does not meet the threshold for significance under NEPA.

Alternative 1: No Action
Taking no action would result in no change of the current management regime of the sanctuary. The current management plan would remain in effect and the regulations would remain unchanged. The

environmental impact statement regarding the 1991 management plan contains a full analysis of the environmental impacts of that plan. Any future decisions made under the 1991 management regime would be reviewed for their NEPA compliance under either the existing environmental impact statement or under a separate NEPA analysis before a decision would be made.

As compared to Alternative 2, taking no action could result in negative impacts to the natural and human environments since the resource protection activities mentioned in the proposed action would not take place. For instance, rays and Whale Sharks would not be afforded additional protections from adverse human interactions (RPAP Activity 2.5), and improperly treated discharge would continue to be allowed (RPAP Activity 2.2). Taken alone, these activities do not rise to the level of a significant impact under the NEPA, but support the cumulative benefits of the final management plan.

Alternative 2: Preferred Alternative

The Preferred Alternative revises the FGBNMS management plan to reflect the six action plans, which include five substantive changes to the existing regulations. Technical corrections to the regulations would also be implemented.

It is important to note that the revised plan itself does not specifically enable any of the activities listed in the action plans to occur; activities could take place in the sanctuary under the current management plan without this revision (see Alternative 1: No Action). However, the revised management plan updates existing non-regulatory programs, describes minor regulatory amendments, calls for new programs to be developed, and includes a process to consider future regulatory actions[2]. Taken together, NOAA expects that the strategies and activities included in the final plan will have some positive environmental effects, both directly and by increasing protection of resources through interagency cooperation in research and management, and by reaching more people and expanding the stewardship message of the sanctuary. The potential environmental consequences of the Preferred Alternative are described in more detail below.

The final management plan details strategies and activities in six action plans, including five specific regulatory actions in the RPAP and VUAP. The plan also includes processes to consider future regulatory actions. If additional regulatory actions were initiated, the appropriate NEPA analysis and formal public input would occur at appropriate times in the future. However, the types of activities considered in the action plans are considered for their potential environmental consequences and can be examined in detail in the PEA.

Cumulative Effects Analysis and Conclusion

The programmatic environmental assessment (PEA) analyzes the anticipated administrative and programmatic activities associated with the Preferred Alternative (Alternative 2) which revises the FGBNMS management plan and takes regulatory actions. Administrative activities conducted within existing facilities, such as consultations, outreach, administrative frameworks, development of plans and guidelines, and data analysis would have little to no potential to significantly affect the quality of the human environment according to NEPA standards. Activities to manage the sanctuary as proposed in the final management plan, considered together with the many natural and human-

[2] If additional regulatory actions were initiated, the appropriate NEPA analysis and formal public input would occur at appropriate times in the future.

induced stressors to sanctuary resources, generally result in a cumulative beneficial impact to these resources. However, as with the administrative activities, the positive impacts do not meet the NEPA threshold for significance. This is because at a programmatic level, no single activity, when taken in consideration with others, would have significant beneficial or negative impacts on any individual or combined resource.

It is important to note that natural and human-induced stressors may somewhat lower the beneficial effects of implementing the Preferred Alternative. Such stressors include, for example: impacts of climate change, such as increased water temperatures and ocean acidification; major natural disasters, such as hurricanes; and major anthropogenic damage, such as oil spills and overfishing. However, the outcome of these external stressors is not expected to be altered significantly by the implementation of the Preferred Alternative. Therefore, cumulative impacts of this action are not considered significant under the NEPA.

To the extent that future activities considered under any of the action plans (which range from infrastructure construction, management measures to implement sanctuary expansion or establishment of an experimental closure to evaluate the impacts of diving and fishing) are conducted in the human environment, a NEPA review to analyze the impacts of alternatives would be conducted.

Therefore, this programmatic environmental assessment on the final management plan for FGBNMS results in a Finding of No Significant Impact. Accordingly, no environmental impact statement was prepared for the purposes of approving the final management plan. This does not preclude NOAA from analyzing specific activities (as described in the Environmental Consequences section above) under NEPA and analyzing the potential for significant effects of an action and its alternatives in a future environmental assessment or environmental impact statement, as necessary.

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Appendices

Appendix I: National Marine Sanctuaries Act

16 U.S.C. 1431 et seq., as amended by Public Law 106-513

Sec. 301. FINDINGS, PURPOSES, AND POLICIES; ESTABLISHMENT OF SYSTEM.

(a) FINDINGS.--The Congress finds that--

(1) this Nation historically has recognized the importance of protecting special areas of its public domain, but these efforts have been directed almost exclusively to land areas above the high-water mark;

(2) certain areas of the marine environment possess conservation, recreational, ecological, historical, scientific, educational, cultural, archeological, or esthetic qualities which give them special national, and in some instances, international, significance;

(3) while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of special areas of the marine environment; and

(4) a Federal program which establishes areas of the marine environment which have special conservation, recreational, ecological, historical, cultural, archeological, scientific, educational, or esthetic qualities as national marine sanctuaries managed as the National Marine Sanctuary System will-

(A) improve the conservation, understanding, management, and wise and sustainable use of marine resources;

(B) enhance public awareness, understanding, and appreciation of the marine environment; and

(C) maintain for future generations the habitat, and ecological services, of the natural assemblage of living resources that inhabit these areas.

(b) PURPOSES AND POLICIES.--The purposes and policies of this title are--

(1) to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance and to manage these areas as the National Marine Sanctuary System;

(2) to provide authority for comprehensive and coordinated conservation and management of these

marine areas, and activities affecting them, in a manner which complements existing regulatory authorities;

(3) to maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations, and ecological processes;

(4) to enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environment, and the natural, historical, cultural, and archeological resources of the National Marine Sanctuary System;

(5) to support, promote, and coordinate scientific research on, and long-term monitoring of, the resources of these marine areas;

(6) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;

(7) to develop and implement coordinated plans for the protection and management of these areas with appropriate Federal agencies, State and local governments, Native American tribes and organizations, international organizations, and other public and private interests concerned with the continuing health and resilience of these marine areas;

(8) to create models of, and incentives for, ways to conserve and manage these areas, including the application of innovative management techniques; and

(9) to cooperate with global programs encouraging conservation of marine resources.

(c) ESTABLISHMENT OF SYSTEM.-There is established the National Marine Sanctuary System, which shall consist of national marine sanctuaries designated by the Secretary in accordance with this title.

Sec. 302. DEFINITIONS

As used in this title, the term--

(1) "Draft management plan" means the plan described in section 304(a)(1)(C)(v);

(2) "Magnuson-Stevens Act" means the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.);

(3) "marine environment" means those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands over which the United States exercises jurisdiction, including the exclusive economic zone, consistent with international law;

(4) "Secretary" means the Secretary of Commerce;

(5) "State" means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, the Virgin Islands, Guam, and any other commonwealth, territory, or possession of the United States;

(6) "damages" includes--

(A) compensation for--

(i)(I) the cost of replacing, restoring, or acquiring the equivalent of a sanctuary resource; and (II) the value of the lost use of a sanctuary resource pending its restoration or replacement or the acquisition of an equivalent sanctuary resource; or

(ii) the value of a sanctuary resource if the sanctuary resource cannot be restored or replaced or if the equivalent of such resource cannot be acquired;

(B) the cost of damage assessments under section 312(b)(2);

(C) the reasonable cost of monitoring appropriate to the injured, restored, or replaced resources;

(D) the cost of curation and conservation of archeological, historical, and cultural sanctuary resources; and

(E) the cost of enforcement actions undertaken by the Secretary in response to the destruction or loss of, or injury to, a sanctuary resource;

(7) "response costs" means the costs of actions taken or authorized by the Secretary to minimize destruction or loss of, or injury to, sanctuary resources, or to minimize the imminent risks of such destruction, loss, or injury, including costs related to seizure forfeiture, storage, or disposal arising from liability under section 312;

(8) "sanctuary resource" means any living or nonliving resource of a national marine sanctuary that contributes to the conservation, recreational, ecological, historical, educational, cultural, archeological, scientific, or aesthetic value of the sanctuary;

(9) "exclusive economic zone" means the exclusive economic zone as defined in the Magnuson-Stevens Act; and

(10) ‘System’ means the National Marine Sanctuary System established by section 301.

Sec. 303. SANCTUARY DESIGNATION STANDARDS

(a) STANDARDS.--The Secretary may designate any discrete area of the marine environment as a national marine sanctuary and promulgate regulations implementing the designation if the Secretary determines that--

(1) the designation will fulfill the purposes and policies of this title;

(2) the area is of special national significance due to-

(A) its conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or esthetic qualities;

(B) the communities of living marine resources it harbors; or

(C) its resource or human-use values;

(3) existing State and Federal authorities are inadequate or should be supplemented to ensure coordinated and comprehensive conservation and management of the area, including resource protection, scientific research, and public education;

(4) designation of the area as a national marine sanctuary will facilitate the objectives in subparagraph (3); and

(5) the area is of a size and nature that will permit comprehensive and coordinated conservation and management.

(b) FACTORS AND CONSULTATIONS REQUIRED IN MAKING DETERMINATIONS AND FINDINGS.--

(1) Factors.--For purposes of determining if an area of the marine environment meets the standards set forth in subsection (a), the Secretary shall consider--

(A) the area's natural resource and ecological qualities, including its contribution to biological productivity, maintenance of ecosystem structure, maintenance of ecologically or commercially important or threatened species or species assemblages, maintenance of critical habitat of endangered species, and the biogeographic representation of the site;

(B) the area's historical, cultural, archaeological, or paleontological significance;

(C) the present and potential uses of the area that depend on maintenance of the area's resources, including commercial and recreational fishing, subsistence uses other commercial and recreational activities, and research and education;

(D) the present and potential activities that may adversely affect the factors identified in subparagraphs (A), (B), (C);

(E) the existing State and Federal regulatory and management authorities applicable to the area and the adequacy of those authorities to fulfill the purposes and policies of this title;

(F) the manageability of the area, including such factors as its size, its ability to be identified as a

discrete ecological unit with definable boundaries, its accessibility, and its suitability for monitoring and enforcement activities;

(G) the public benefits to be derived from sanctuary status, with emphasis on the benefits of long-term protection of nationally significant resources, vital habitats, and resources which generate tourism;
(H) the negative impacts produced by management restrictions on income- generating activities such as living and nonliving resources development;

(I) the socioeconomic effects of sanctuary designation;

(J) the area's scientific value and value for monitoring the resources and natural processes that occur there;

(K) the feasibility, where appropriate, of employing innovative management approaches to protect sanctuary resources or to manage compatible uses; and

(L) the value of the area as an addition to the System.

(2) Consultation.--In making determinations and findings, the Secretary shall consult with--

(A) the Committee on Resources of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate;

(B) the Secretaries of State, Defense, Transportation, and the Interior, the Administrator, and the heads of other interested Federal agencies;

(C) the responsible officials or relevant agency heads of the appropriate State and local government entities, including coastal zone management agencies, that will or are likely to be affected by the establishment of the area as a national marine sanctuary;

(D) the appropriate officials of any Regional Fishery Management Council established by section 302 of the Magnuson-Stevens Act (16 U.S.C. 1852) that may be affected by the proposed designation; and

(E) other interested persons.

Sec. 304. PROCEDURES FOR DESIGNATION AND IMPLEMENTATION

(a) SANCTUARY PROPOSAL.--

(1) Notice.--In proposing to designate a national marine sanctuary, the Secretary shall--

(A) issue, in the *Federal Register*, a notice of the proposal, proposed regulations that may be necessary and reasonable to implement the proposal, and a summary of the draft management plan;

(B) provide notice of the proposal in newspapers of general circulation or electronic media in the communities that may be affected by the proposal; and

(C) no later than the day on which the notice required under subparagraph (A) is submitted to Office of the *Federal Register*, submit a copy of that notice and the draft sanctuary designation documents prepared pursuant to section 304(a)(2), including an executive summary, to the Committee on Resources of the House of Representatives, the Committee on Commerce, Science, and Transportation of the Senate, and the Governor of each State in which any part of the proposed sanctuary would be located.

(2) Sanctuary Designation Documents.- The Secretary shall prepare and make available to the public sanctuary designation documents on the proposal that include the following:

(A) A draft environmental impact statement pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(B) A resource assessment that documents-

(i) present and potential uses of the area, including commercial and recreational fishing, research and education, minerals and energy development, subsistence uses, and other commercial, governmental, or recreational uses;

(ii) after consultation with the Secretary of the Interior, any commercial, governmental, or recreational resource uses in the areas that are subject to the primary jurisdiction of the Department of the Interior; and

(iii) information prepared in consultation with the Secretary of Defense, the Secretary of Energy, and the Administrator of the Environmental Protection Agency, on any past, present, or proposed future disposal or discharge of materials in the vicinity of the proposed sanctuary. Public disclosure by the Secretary of such information shall be consistent with national security regulations.

(C) A draft management plan for the proposed national marine sanctuary that includes the following:

(i) The terms of the proposed designation.

(ii) Proposed mechanisms to coordinate existing regulatory and management authorities within the area.

(iii) The proposed goals and objectives, management responsibilities, resource studies, and appropriate strategies for managing sanctuary resources of the proposed sanctuary, including interpretation and education, innovative management strategies, research, monitoring and assessment, resource protection, restoration, enforcement, and surveillance activities.

(iv) An evaluation of the advantages of cooperative State and Federal management if all or part of

the proposed sanctuary is within the territorial limits of any State or is superjacent to the subsoil and seabed within the seaward boundary of a State, as that boundary is established under the Submerged Lands Act (43 U.S.C. 1301 et seq.).

(v) An estimate of the annual cost to the Federal Government of the proposed designation, including costs of personnel, equipment and facilities, enforcement, research, and public education.

(vi) The proposed regulations referred to in paragraph (1)(A).
(D) Maps depicting the boundaries of the proposed sanctuary.

(E) The basis for the determinations made under section 303(a) with respect to the area.

(F) An assessment of the considerations under section 303(b)(1).

(3) Public Hearing.--No sooner than thirty days after issuing a notice under this subsection, the Secretary shall hold at least one public hearing in the coastal area or areas that will be most affected by the proposed designation of the area as a national marine sanctuary for the purpose of receiving the views of interested parties.

(4) Terms of Designation.--The terms of designation of a sanctuary shall include the geographic area proposed to be included within the sanctuary, the characteristics of the area that give it conservation, recreational, ecological, historical, research, educational, or esthetic value, and the types of activities that will be subject to regulation by the Secretary to protect those characteristics. The terms of designation may be modified only by the same procedures by which the original designation is made.

(5) Fishing Regulations.--The Secretary shall provide the appropriate Regional Fishery Management Council with the opportunity to prepare draft regulations for fishing within the Exclusive Economic Zone as the Council may deem necessary to implement the proposed designation. Draft regulations prepared by the Council, or a Council determination that regulations are not necessary pursuant to this paragraph, shall be accepted and issued as proposed regulations by the Secretary unless the Secretary finds that the Council's action fails to fulfill the purposes and policies of this title and the goals and objectives of the proposed designation. In preparing the draft regulations, a Regional Fishery Manage ment Council shall use as guidance the national standards of section 301(a) of the Magnuson-Stevens Act (16 U.S.C. 1851) to the extent that the standards are consistent and compatible with the goals and objectives of the proposed designation. The Secretary shall prepare the fishing regulations, if the Council declines to make a determination with respect to the need for regulations, makes a determination which is rejected by the Secretary, or fails to prepare the draft regulations in a timely manner. Any amendments to the fishing regulations shall be drafted, approved, and issued in the same manner as the original regulations. The Secretary shall also cooperate with other appropriate fishery management authorities with rights or responsibilities within a proposed sanctuary at the earliest practicable stage in drafting any sanctuary fishing regulations.

(6) Committee Action.--After receiving the documents under subsection (a)(l)(C), the Committee on Resources of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate may each hold hearings on the proposed designation and on the matters set forth in the documents. If within the forty-five day period of continuous session of Congress beginning on the date of submission of the documents, either Committee issues a report concerning matters addressed in the documents, the Secretary shall consider this report before publishing a notice to designate the national marine sanctuary.

(b) TAKING EFFECT OF DESIGNATIONS.--

(1) Notice.--In designating a national marine sanctuary, the Secretary shall publish in the *Federal Register* notice of the designation together with final regulations to implement the designation and any other matters required by law, and submit such notice to the Congress. The Secretary shall advise the public of the availability of the final management plan and the final environmental impact statement with respect to such sanctuary. The Secretary shall issue a notice of designation with respect to a proposed national marine sanctuary site not later than 30 months after the date a notice declaring the site to be an active candidate for sanctuary designation is published in the *Federal Register* under regulations issued under this Act, or shall publish not later than such date in the *Federal Register* findings regarding why such notice has not been published. No notice of designation may occur until the expiration of the period for Committee action under subsection (a)(6). The designation (and any of its terms not disapproved under this subsection) and regulations shall take effect and become final after the close of a review
period of forty-five days of continuous session of Congress beginning on the day on which such notice is published unless in the case of a natural [sic] marine sanctuary that is located partially or entirely within the seaward boundary of any State, the Governor affected certifies to the Secretary that the designation or any of its terms is unacceptable, in which case the designation or the unacceptable term shall not take effect in the area of the sanctuary lying within the seaward boundary of the State.

(2) Withdrawal of Designation.-- If the Secretary considers that actions taken under paragraph (1) will affect the designation of a national marine sanctuary in a manner that the goals and objectives of the sanctuary or System cannot be fulfilled, the Secretary may withdraw the entire designation. If the Secretary does not withdraw the designation, only those terms of the designation or not certified under paragraph (1) shall take effect.

(3) Procedures.-- In computing the forty-five-day periods of continuous session of Congress pursuant to subsection (a)(6) and paragraph (1) of this subsection--

(A) continuity of session is broken only by an adjournment of Congress sine die; and

(B) the days on which either House of Congress is not in session because of an adjournment of more than three days to a day certain are excluded.

(c) ACCESS AND VALID RIGHTS.—

(1) Nothing in this title shall be construed as terminating or granting to the Secretary the right to terminate any valid lease, permit, license, or right of subsistence use or of access that is in existence on the date of designation of any national marine sanctuary.

(2) The exercise of a lease, permit, license, or right is subject to regulation by the Secretary consistent with the purposes for which the sanctuary is designated.

(d) INTERAGENCY COOPERATION.--

(1) Review of Agency Actions.--

(A) In General.--Federal agency actions internal or external to a national marine sanctuary, including private activities authorized by licenses, leases, or permits, that are likely to destroy, cause the loss of, or injure any sanctuary resource are subject to consultation with the Secretary.

(B) Agency Statements Required.-- Subject to any regulations the Secretary may establish each Federal agency proposing an action described in subparagraph (A) shall provide the Secretary with a written statement describing the action and its potential effects on sanctuary resources at the earliest practicable time, but in no case later than 45 days before the final approval of the action unless such Federal agency and the Secretary agree to a different schedule.

(2) Secretary's Recommended Alternatives.--If the Secretary finds that a Federal agency action is likely to destroy, cause the loss of, or injure a sanctuary resource, the Secretary shall (within 45 days of receipt of complete information on the proposed agency action) recommend reasonable and prudent alternatives, which may include conduct of the action elsewhere, which can be taken by the Federal agency in implementing the agency action that will protect sanctuary resources.

(3) Response to Recommendations.--The agency head who receives the Secretary's recommended alternatives under paragraph (2) shall promptly consult with the Secretary on the alternatives. If the agency head decides not to follow the alternatives, the agency head shall provide the Secretary with a written statement explaining the reasons for that decision.

(4) FAILURE TO FOLLOW ALTERNATIVE.- If the head of a Federal agency takes an action other than an alternative recommended by the Secretary and such action results in the destruction of, loss of, or injury to a sanctuary resource, the head of the agency shall promptly prevent and mitigate further damage and restore or replace the sanctuary resource in a manner approved by the Secretary.

(e) REVIEW OF MANAGEMENT PLANS.--Not more than 5 years after the date of designation of any national marine sanctuary, and thereafter at intervals not exceeding 5 years, the Secretary shall evaluate the substantive progress toward implementing the management plan and goals for the sanctuary, especially the effectiveness of site-specific management techniques and strategies, and shall revise the management plan and regulations as necessary to fulfill the purposes and policies of this title. This review shall include a prioritization of management objectives.

(f) LIMITATION ON DESIGNATION OF NEW SANCTUARIES.-

(1) FINDING REQUIRED.- The Secretary may not publish in the *Federal Register* any sanctuary designation notice or regulations proposing to designate a new sanctuary, unless the Secretary has published a finding that--

(A) the addition of a new sanctuary will not have a negative impact on the System; and

(B) sufficient resources were available in the fiscal year in which the finding is made to--

(i) effectively implement sanctuary management plans for each sanctuary in the System; and

(ii) complete site characterization studies and inventory known sanctuary resources, including cultural resources, for each sanctuary in the System within 10 years after the date that the finding is made if the resources available for those activities are maintained at the same level for each fiscal year in that 10 year period.

(2) DEADLINE- If the Secretary does not submit the findings required by paragraph (1) before February 1, 2004, the Secretary shall submit to the Congress before October 1, 2004, a finding with respect to whether the requirements of subparagraphs (A) and (B) of paragraph 1 have been met by all existing sanctuaries.

(3) LIMITATION ON APPLICATION- Paragraph (1) does not apply to any sanctuary designation documents for--

(A) a Thunder Bay National Marine Sanctuary; or

(B) a Northwestern Hawaiian Islands National Marine Sanctuary.

[[(g) NORTHWESTERN HAWAIIAN ISLANDS CORAL REEF RESERVE*.-

(1) PRESIDENTIAL DESIGNATION.- The President, after consultation with the Governor of the State of Hawaii, may designate any Northwestern Hawaiian Islands coral reef or coral reef ecosystem as a coral reef reserve to be managed by the Secretary of Commerce.

(2) SECRETARIAL ACTION.- Upon the designation of a reserve under paragraph (1) by the President, the Secretary shall--

(A) take action to initiate the designation of the reserve as a National Marine Sanctuary under sections 303 and 304 of the National Marine Sanctuaries Act (16 U.S.C. 1433);

(B) establish a Northwestern Hawaiian Islands Reserve Advisory Council under section 315 of that Act (16 U.S.C. 1445a), the membership of which shall include at least 1 representative from Native Hawaiian groups; and

(C) until the reserve is designated as a National Marine Sanctuary, manage the reserve in a manner consistent with the purposes and policies of that Act.

(3) PUBLIC COMMENT- Notwithstanding any other provision of law, no closure areas around the Northwestern Hawaiian Islands shall become permanent without adequate review and comment.

(4) COORDINATION- The Secretary shall work with other Federal agencies and the Director of the National Science Foundation, to develop a coordinated plan to make vessels and other resources available for conservation or research activities for the reserve.

(5) REVIEW- If the Secretary has not designated a national marine sanctuary in the Northwestern Hawaiian Islands under sections 303 and 304 of the National Marine Sanctuaries Act (16 U.S.C. 1433, 1434) before October 1, 2005, the Secretary shall conduct a review of the management of the reserve under section 304(e) of that Act (16 U.S.C. 1434(e)).

(6) REPORT- No later than 6 months after the date of enactment of this Act, the Secretary shall submit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Resources, describing actions taken to implement this subsection, including costs of monitoring, enforcing, and addressing marine debris, and the extent to which the fiscal or other resources necessary to carry out this subsection are reflected in the Budget of the United States Government submitted by the President under section 1104 of title 31, United States Code.

(7) AUTHORIZATION OF APPROPRIATIONS- There are authorized to be appropriated to the Secretary of Commerce to carry out the provisions of this subsection such sums, not exceeding $4,000,000 for each of fiscal years 2001, 2002, 2003, 2004, and 2005, as are reported under paragraph (6) to be reflected in the Budget of the United States Government.]]

Sec. 305. APPLICATION OF REGULATIONS AND INTERNATIONAL NEGOTIATIONS

(a) REGULATIONS.--This title and the regulations issued under section 304 shall be applied in accordance with generally recognized principles of international law, and in accordance with the treaties, conventions, and other agreements to which the United States is a party. No regulation shall apply to or be enforced against a person who is not a citizen, national, or resident alien of the United States, unless in accordance with--

(1) generally recognized principles of international law;

(2) an agreement between the United States and the foreign state of which the person is a citizen; or

(3) an agreement between the United States and the flag state of a foreign vessel, if the person is a crewmember of the vessel.

(b) NEGOTIATIONS.--The Secretary of State, in consultation with the Secretary, shall take

appropriate action to enter into negotiations with other governments to make necessary arrangements for the protection of any national marine sanctuary and to promote the purposes for which the sanctuary is established.

(c) INTERNATIONAL COOPERATION.--The Secretary, in consultation with the Secretary of State and other appropriate Federal agencies, shall cooperate with other governments and international organizations in the furtherance of the purposes and policies of this title and consistent with applicable regional and multilateral arrangements for the protection and management of special marine areas.

Sec. 306. PROHIBITED ACTIVITIES

It is unlawful for any person to--

(1) destroy, cause the loss of, or injure any sanctuary resource managed under law or regulations for that sanctuary;

(2) possess, sell, offer for sale, purchase, import, export, deliver, carry, transport, or ship by any means any sanctuary resource taken in violation of this section;

(3) interfere with the enforcement of this title by--

(A) refusing to permit any officer authorized to enforce this title to board a vessel, other than a vessel operated by the Department of Defense or United States Coast Guard, subject to such person's control for the purposes of conducting any search or inspection in connection with the enforcement of this title;

(B) resisting, opposing, impeding, intimidating, harassing, bribing, interfering with, or forcibly assaulting any person authorized by the Secretary to implement this title or any such authorized officer in the conduct of any search or inspection performed under this title; or

(C) knowingly and willfully submitting false information to the Secretary or any officer authorized to enforce this title in connection with any search or inspection conducted under this title; or

(4) violate any provision of this title or any regulation or permit issued pursuant to this title.

Sec. 307. ENFORCEMENT

(a) IN GENERAL.--The Secretary shall conduct such enforcement activities as are necessary and reasonable to carry out this title.

(b) POWERS OF AUTHORIZED OFFICERS.--Any person who is authorized to enforce this title may--

(1) board. search, inspect, and seize any vessel suspected of being used to violate this title or any regulation or permit issued under this title and any equipment, stores, and cargo of such vessel;

(2) seize wherever found any sanctuary resource taken or retained in violation of this title or any regulation or permit issued under this title;

(3) seize any evidence of a violation of this title or of any regulation or permit issued under this title;

(4) execute any warrant or other process issued by any court of competent jurisdiction;

(5) exercise any other lawful authority; and

(6) arrest any person, if there is reasonable cause to believe that such a person has committed an act prohibited by section 306(3).

(c) CRIMINAL OFFENSES-

(1) OFFENSES.- A person is guilty of an offense under this subsection if the person commits any act prohibited by section 306(3).

(2) PUNISHMENT.- Any person that is guilty of an offense under this subsection--

(A) except as provided in subparagraph (B), shall be fined under title 18, United States Code, imprisoned for not more than 6 months, or both; or
(B) in the case of a person who in the commission of such an offense uses a dangerous weapon, engages in conduct that causes bodily injury to any person authorized to enforce this title or any person authorized to implement the provisions of this title, or places any such person in fear of imminent bodily injury, shall be fined under title 18, United States Code, imprisoned for not more than 10 years, or both.

(d) CIVIL PENALTIES.--

(1) Civil penalty.--Any person subject to the jurisdiction of the United States who violates this title or any regulation or permit issued under this title shall be liable to the United States for a civil penalty of not more than $100,000 for each such violation, to be assessed by the Secretary. Each day of a continuing violation shall constitute a separate violation.

(2) Notice.--No penalty shall be assessed under this subsection until after the person charged has been given notice and an opportunity for a hearing.

(3) In Rem Jurisdiction.--A vessel used in violating this title or any regulation or permit issued under this title shall be liable in rem for any civil penalty assessed for such violation. Such penalty shall constitute a maritime lien on the vessel and may be recovered in an action in rem in the district court of the United States having jurisdiction over the vessel.

(4) Review of Civil Penalty.--Any person against whom a civil penalty is assessed under this subsection may obtain review in the United States district court for the appropriate district by filing a complaint in such court not later than 30 days after the date of such order.

(5) Collection of Penalties.--If any person fails to pay an assessment of a civil penalty under this section after it has become a final and unappealable order, or after the appropriate court has entered final judgment in favor of the Secretary, the Secretary shall refer the matter to the Attorney General, who shall recover the amount assessed in any appropriate district court of the United States. In such action, the validity and appropriateness of the final order imposing the civil penalty shall not be subject to review.

(6) Compromise or Other Action by Secretary.--The Secretary may compromise, modify, or remit, with or without conditions, any civil penalty which is or may be imposed under this section.

(e) FORFEITURE.--

(1) In General.--Any vessel (including the vessel's equipment, stores, and cargo) and other item used, and any sanctuary resource taken or retained, in any manner, in connection with or as a result of any violation of this title or of any regulation or permit issued under this title shall be subject to forfeiture to the United States pursuant to a civil proceeding under this subsection. The proceeds from forfeiture actions under this subsection shall constitute a separate recovery in addition to any amounts recovered as civil penalties under this section or as civil damages under section 312. None of those proceeds shall be subject to set-off.

(2) Application of the Customs Laws.--The Secretary may exercise the authority of any United States official granted by any relevant customs law relating to the seizure, forfeiture, condemnation, disposition, remission, and mitigation of property in enforcing this title.

(3) Disposal of Sanctuary Resources.--Any sanctuary resource seized pursuant to this title may be disposed of pursuant to an order of the appropriate court or, if perishable, in a manner prescribed by regulations promulgated by the Secretary. Any proceeds from the sale of such sanctuary resource shall for all purposes represent the sanctuary resource so disposed of in any subsequent legal proceedings.

(4) Presumption.--For the purposes of this section there is a rebuttable presumption that all sanctuary resources found on board a vessel that is used or seized in connection with a violation of this title or of any regulation or permit issued under this title were taken or retained in violation of this title or of a regulation or permit issued under this title.

(f) PAYMENT OF STORAGE, CARE, AND OTHER COSTS.--

(1) Expenditures.--

(A) Notwithstanding any other law, amounts received by the United States as civil penalties,

forfeitures of property, and costs imposed under paragraph (2) shall be retained by the Secretary in the manner provided for in section 107(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980.

(B) Amounts received under this section for forfeitures and costs imposed under paragraph (2) shall be used to pay the reasonable and necessary costs incurred by the Secretary to provide temporary storage, care, maintenance, and disposal of any sanctuary resource or other property seized in connection with a violation of this title or any regulation or permit issued under this title.

(C) Amounts received under this section as civil penalties and any amounts remaining after the operation of subparagraph (B) shall be used, in order of priority, to--

(i) manage and improve the national marine sanctuary with respect to which the violation occurred that resulted in the penalty or forfeiture;

(ii) pay a reward to any person who furnishes information leading to an assessment of a civil penalty, or to a forfeiture of property, for a violation of this title or any regulation or permit issued under this title; and

(iii) manage and improve any other national marine sanctuary.

(2) Liability for Costs.--Any person assessed a civil penalty for a violation of this title or of any regulation or permit issued under this title, and any claimant in a forfeiture action brought for such a violation, shall be liable for the reasonable costs incurred by the Secretary in storage, care, and maintenance of any sanctuary resource or other property seized in connection with the violation.

(g) SUBPOENAS.--In the case of any hearing under this section which is determined on the record in accordance with the procedures provided for under section 554 of title 5, United States Code, the Secretary may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, electronic files, and documents, and may administer oaths.

(h) USE OF RESOURCES OF STATE AND OTHER FEDERAL AGENCIES.—The Secretary shall, whenever appropriate, use by agreement the personnel, services, and facilities of State and other Federal departments, agencies, and instrumentalities, on a reimbursable or nonreimbursable basis, to carry out the Secretary's responsibilities under this section.

(i) COAST GUARD AUTHORITY NOT LIMITED.--Nothing in this section shall be considered to limit the authority of the Coast Guard to enforce this or any other Federal law under section 89 of title 14, United States Code.

(j) INJUNCTIVE RELIEF.--If the Secretary determines that there is an imminent risk of destruction or loss of or injury to a sanctuary resource, or that there has been actual destruction or loss of, or injury to, a sanctuary resource which may give rise to liability under section 312, the Attorney General, upon request of the Secretary, shall seek to obtain such relief as may be necessary to abate

such risk or actual destruction, loss, or injury, or to restore or replace the sanctuary resource, or both. The district courts of the United States shall have jurisdiction in such a case to order such relief as the public interest and the equities of the case may require.

(k) AREA OF APPLICATION AND ENFORCEABILITY.--The area of application and enforceability of this title includes the territorial sea of the United States, as described in Presidential Proclamation 5928 of December 27, 1988, which is subject to the sovereignty of the United States, and the United States exclusive economic zone, consistent with international law.

(l) NATIONWIDE SERVICE OF PROCESS.- In any action by the United States under this title, process may be served in any district where the defendant is found, resides, transacts business, or has appointed an agent for the service of process.

Sec. 308. REGULATIONS.

The Secretary may issue such regulations as may be necessary to carry out this title.

Sec. 309. RESEARCH, MONITORING, AND EDUCATION.

(a) IN GENERAL- The Secretary shall conduct, support, or coordinate research, monitoring, evaluation, and education programs consistent with subsections (b) and (c) and the purposes and policies of this title.

(b) RESEARCH AND MONITORING.-

(1) IN GENERAL.- The Secretary may--

(A) support, promote, and coordinate research on, and long-term monitoring of, sanctuary resources and natural processes that occur in national marine sanctuaries, including exploration, mapping, and environmental and socioeconomic assessment;

(B) develop and test methods to enhance degraded habitats or restore damaged, injured, or lost sanctuary resources; and

(C) support, promote, and coordinate research on, and the conservation, curation, and public display of, the cultural, archeological, and historical resources of national marine sanctuaries.

(2) AVAILABILITY OF RESULTS.- The results of research and monitoring conducted, supported, or permitted by the Secretary under this subsection shall be made available to the public.

(c) EDUCATION-

(1) IN GENERAL.- The Secretary may support, promote, and coordinate efforts to enhance public awareness, understanding, and appreciation of national marine sanctuaries and the System. Efforts

supported, promoted, or coordinated under this subsection must emphasize the conservation goals and sustainable public uses of national marine sanctuaries and the System.

(2) EDUCATIONAL ACTIVITIES.- Activities under this subsection may include education of the general public, teachers, students, national marine sanctuary users, and ocean and coastal resource managers.

(d) INTERPRETIVE FACILITIES.-

(1) IN GENERAL.- The Secretary may develop interpretive facilities near any national marine sanctuary.

(2) FACILITY REQUIREMENT.- Any facility developed under this subsection must emphasize the conservation goals and sustainable public uses of national marine sanctuaries by providing the public with information about the conservation, recreational, ecological, historical, cultural, archeological, scientific, educational, or esthetic qualities of the national marine sanctuary.

(e) CONSULTATION AND COORDINATION.- In conducting, supporting, and coordinating research, monitoring, evaluation, and education programs under subsection (a) and developing interpretive facilities under subsection (d), the Secretary may consult or coordinate with Federal, interstate, or regional agencies, States or local governments.

Sec. 310. SPECIAL USE PERMITS

(a) ISSUANCE OF PERMITS.--The Secretary may issue special use permits which authorize the conduct of specific activities in a national marine 201 (1) to establish conditions of access to and use of any sanctuary resource; or

(2) to promote public use and understanding of a sanctuary resource.

(b) PUBLIC NOTICE REQUIRED.- The Secretary shall provide appropriate public notice before identifying any category of activity subject to a special use permit under subsection (a).

(c) PERMIT TERMS.--A permit issued under this section--

(1) shall authorize the conduct of an activity only if that activity is compatible with the purposes for which the sanctuary is designated and with protection of sanctuary resources;

(2) shall not authorize the conduct of any activity for a period of more than 5 years unless renewed by the Secretary;

(3) shall require that activities carried out under the permit be conducted in a manner that does not destroy, cause the loss of, or injure sanctuary resources; and

(4) shall require the permittee to purchase and maintain comprehensive general liability insurance, or post an equivalent bond, against claims arising out of activities conducted under the permit and to agree to hold the United States harmless against such claims.

(d) FEES.--

(1) Assessment and Collection.--The Secretary may assess and collect fees for the conduct of any activity under a permit issued under this section.

(2) Amount.--The amount of a fee under this subsection shall be equal to the sum of--

(A) costs incurred, or expected to be incurred, by the Secretary in issuing the permit;

(B) costs incurred, or expected to be incurred, by the Secretary as a direct result of the conduct of the activity for which the permit is issued, including costs of monitoring the conduct of the activity; and

(C) an amount which represents the fair market value of the use of the sanctuary resource.

(3) Use of Fees.--Amounts collected by the Secretary in the form of fees under this section may be used by the Secretary--

(A) for issuing and administering permits under this section; and

(B) for expenses of managing national marine sanctuaries.

(4) WAIVER OR REDUCTION OF FEES.- The Secretary may accept in-kind contributions in lieu of a fee under paragraph (2)(C), or waive or reduce any fee assessed under this subsection for any activity that does not derive a profit from the access to or use of sanctuary resources.

(e) VIOLATIONS.--Upon violation of a term or condition of a permit issued under this section, the Secretary may--

(1) suspend or revoke the permit without compensation to the permittee and without liability to the United States;

(2) assess a civil penalty in accordance with section 307; or

(3) both.

(f) REPORTS.--Each person issued a permit under this section shall submit an annual report to the Secretary not later than December 31 of each year which describes activities conducted under that permit and revenues derived from such activities during the year.

(g) FISHING.--Nothing in this section shall be considered to require a person to obtain a permit

under this section for the conduct of any fishing activities in a national marine sanctuary.

Sec. 311. COOPERATIVE AGREEMENTS, DONATIONS, AND ACQUISITIONS

(a) AGREEMENTS AND GRANTS- The Secretary may enter into cooperative agreements, contracts, or other agreements with, or make grants to, States, local governments, regional agencies, interstate agencies, or other persons to carry out the purposes and policies of this title.

(b) AUTHORIZATION TO SOLICIT DONATIONS.--The Secretary may enter into such agreements with any nonprofit organization authorizing the organization to solicit private donations to carry out the purposes and policies of this title.

(c) DONATIONS.--The Secretary may accept donations of funds, property, and services for use in designating and administering national marine sanctuaries under this title. Donations accepted under this section shall be considered as a gift or bequest 203

(d) ACQUISITIONS.--The Secretary may acquire by purchase, lease, or exchange, any land, facilities, or other property necessary and appropriate to carry out the purposes and policies of this title

(e) USE OF RESOURCES OF OTHER GOVERNMENT AGENCIES.- The Secretary may, whenever appropriate, enter into an agreement with a State or other Federal agency to use the personnel, services, or facilities of such agency on a reimbursable or nonreimbursable basis, to assist in carrying out the purposes and policies of this title.

(f) AUTHORITY TO OBTAIN GRANTS.- Notwithstanding any other provision of law that prohibits a Federal agency from receiving assistance, the Secretary may apply for, accept, and use grants from other Federal agencies, States, local governments, regional agencies, interstate agencies, foundations, or other persons, to carry out the purposes and policies of this title.

Sec. 312. DESTRUCTION OR LOSS OF, OR INJURY TO, SANCTUARY RESOURCES

(a) LIABILITY FOR INTEREST.--

(1) Liability to UNITED STATES.--Any person who destroys, causes the loss of, or injures any sanctuary resource is liable to the United States for an amount equal to the sum of--

(A) the amount of response costs and damages resulting from the destruction, loss, or injury; and

(B) interests on that amount calculated in the manner described under section 1005 of the Oil Pollution Act of 1990.

(2) Liability In Rem.--Any vessel used to destroy, cause the loss of, or injure any sanctuary resource shall be liable in rem to the United States for response costs and damages resulting from such destruction, loss, or injury. The amount of that liability shall constitute a maritime lien on the vessel

over the vessel.

(3) Defenses.--A person is not liable under this subsection if that person establishes that--

(A) the destruction or loss of, or injury to, the sanctuary resource was caused solely by an act of God, an act of war, or an act or omission of a third party, and the person acted with due care;

(B) the destruction, loss, or injury was caused by an activity authorized by Federal or State law; or

(C) the destruction, loss, or injury was negligible.

(4) Limits to Liability.-- Nothing in sections 4281-4289 of the Revised Statutes of the United States or section 3 of the Act of February 13, 1893, shall limit the liability of any person under this title.

(b) RESPONSE ACTIONS AND DAMAGE ASSESSMENT.-

(1) Response Actions.--The Secretary may undertake or authorize all necessary actions to prevent or minimize the destruction or loss of, or injury to, sanctuary resources, or to minimize the imminent risk of such destruction, loss, or injury.

(2) Damage Assessment.--The Secretary shall assess damages to sanctuary resources in accordance with section 302(6).

(c) CIVIL ACTIONS FOR RESPONSE COSTS AND DAMAGES.—

(1) The Attorney General, upon request of the Secretary, may commence a civil action against any person or vessel who may be liable under subsection (a) for response costs and damages. The Secretary, acting as trustee for sanctuary resources for the United States, shall submit a request for such an action to the Attorney General whenever a person may be liable for such costs or damages.

(2) An action under this subsection may be brought in the United States district court for any district in which-

(A) the defendant is located, resides, or is doing business, in the case of an action against a person;

(B) the vessel is located, in the case of an action against a vessel; or

(C) the destruction of, loss of, or injury to a sanctuary resource occurred.

(d) USE OF RECOVERED AMOUNTS.--Response costs and damages recovered by the Secretary under this section shall be retained by the Secretary in the manner provided for in section 107(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. 9607(f)(1)), and used as follows:

(1) RESPONSE COSTS.- Amounts recovered by the United States for costs of response actions and damage assessments under this section shall be used, as the Secretary considers appropriate—

(A) to reimburse the Secretary or any other Federal or State agency that conducted those activities; and

(B) after reimbursement of such costs, to restore, replace, or acquire the equivalent of any sanctuary resource.

(2) OTHER AMOUNTS.-All other amounts recovered shall be used, in order of priority--

(A) to restore, replace, or acquire the equivalent of the sanctuary resources that were the subject of the action, including for costs of monitoring and the costs of curation and conservation of archeological, historical, and cultural sanctuary resources;

(B) to restore degraded sanctuary resources of the national marine sanctuary that was the subject of the action, giving priority to sanctuary resources and habitats that are comparable to the sanctuary resources that were the subject of the action; and

(C) to restore degraded sanctuary resources of other national marine sanctuaries.

(3) Federal-State Coordination.--Amounts recovered under this section with respect to sanctuary resources lying within the jurisdiction of a State shall be used under paragraphs (2)(A) and (B) in accordance with the court decree or settlement agreement and an agreement entered into by the Secretary and the Governor of that State.

(e) STATUTE OF LIMITATIONS- An action for response costs or damages under subsection (c) shall be barred unless the complaint is filed within 3 years after the date on which the Secretary completes a damage assessment and restoration plan for the sanctuary resources to which the action relates.

SEC. 313. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary--

(1) to carry out this title--

(A) $32,000,000 for fiscal year 2001;

(B) $34,000,000 for fiscal year 2002;

(C) $36,000,000 for fiscal year 2003;

(D) $38,000,000 for fiscal year 2004;

(E) $40,000,000 for fiscal year 2005; and

(2) for construction projects at national marine sanctuaries, $6,000,000 for each of fiscal years 2001, 2002, 2003, 2004, and 2005.

Sec. 314. U.S.S. MONITOR ARTIFACTS AND MATERIALS

(a) CONGRESSIONAL POLICY. -- In recognition of the historical significance of the wreck of the United States ship Monitor to coastal North Carolina and to the area off the coast of North Carolina known as the Graveyard of the Atlantic, the Congress directs that a suitable display of artifacts and materials from the United States ship Monitor be maintained permanently at an appropriate site in coastal North Carolina. [P.L. 102-587 authorized a grant for the acquisition of space in Hatteras Village, NC, for display of artifacts and administration and operations of the Monitor National Marine Sanctuary.

(b) DISCLAIMER. --This section shall not affect the following:

(1) Responsibilities Of Secretary.--The responsibilities of the Secretary to provide for the protection, conservation, and display of artifacts and materials from the United States ship Monitor.

(2) Authority Of Secretary.--The authority of the Secretary to designate the Mariner's Museum, located at Newport News, Virginia, as the principal museum for coordination of activities referred to in paragraph (1).

Sec. 315. ADVISORY COUNCILS

(a) ESTABLISHMENT.--The Secretary may establish one or more advisory councils (in this section referred to as an 'Advisory Council') to advise and make recommendations to the Secretary regarding the designation and management of national marine sanctuaries. The Advisory Councils shall be exempt from the Federal Advisory Committee Act.

(b) MEMBERSHIP--Members of the Advisory Councils may be appointed from among--

(1) persons employed by Federal or State agencies with expertise in management of natural resources;

(2) members of relevant Regional Fishery Management Councils established under section 302 of the Magnuson-Stevens Act; and

(3) representatives of local user groups, conservation and other public interest organizations, scientific organizations, educational organizations, or others interested in the protection and multiple use management of sanctuary resources.

(c) LIMITS ON MEMBERSHIP.--For sanctuaries designated after the date of enactment of the

National Marine Sanctuaries Program Amendments Act of 1992, the membership of Advisory Councils shall be limited to no more than 15 members.

(d) STAFFING AND ASSISTANCE.--The Secretary may make available to an Advisory Council any staff, information, administrative services, or assistance the Secretary determines are reasonably required to enable the Advisory Council to carry out its functions.

(e) PUBLIC PARTICIPATION AND PROCEDURAL MATTERS.--The following guidelines apply with respect to the conduct of business meetings of an Advisory Council:

(1) Each meeting shall be open to the public, and interested persons shall be permitted to present oral or written statements on items on the agenda.

(2) Emergency meetings may be held at the call of the chairman or presiding officer.

(3) Timely notice of each meeting, including the time, place, and agenda of the meeting, shall be published locally and in the *Federal Register*, except that in the case of a meeting of an Advisory Council established to provide assistance regarding any individual national marine sanctuary the notice is not required to be published in the *Federal Register*.

(4) Minutes of each meeting shall be kept and contain a summary of the attendees and matters discussed.

Sec. 316. ENHANCING SUPPORT FOR NATIONAL MARINE SANCTUARIES

(a) AUTHORITY.- The Secretary may establish a program consisting of--

(1) the creation, adoption, and publication in the *Federal Register* by the Secretary of a symbol for the national marine sanctuary program, or for individual national marine sanctuaries or the System;

(2) the solicitation of persons to be designated as official sponsors of the national marine sanctuary program or of individual national marine sanctuaries;

(3) the designation of persons by the Secretary as official sponsors of the national marine sanctuary program or of individual sanctuaries;

(4) the authorization by the Secretary of the manufacture, reproduction, or other use of any symbol published under paragraph (1), including the sale of items bearing such a symbol, by official sponsors of the national marine sanctuary program or of individual national marine sanctuaries;

(5) the creation, marketing, and selling of products to promote the national marine sanctuary program, and entering into exclusive or nonexclusive agreements authorizing entities to create, market or sell on the Secretary's
behalf;

(6) the solicitation and collection by the Secretary of monetary or in-kind contributions from official sponsors for the manufacture, reproduction or use of the symbols published under paragraph (1);

(7) the retention of any monetary or in-kind contributions collected under paragraphs (5) and (6) by the Secretary; and

(8) the expenditure and use of any monetary and in-kind contributions, without appropriation, by the Secretary to designate and manage national marine sanctuaries.

Monetary and in-kind contributions raised through the sale, marketing, or use of symbols and products related to an individual national marine sanctuary shall be used to support that sanctuary.

(b) CONTRACT AUTHORITY.-- The Secretary may contract with any person for the creation of symbols or the solicitation of official sponsors under subsection (a).

(c) RESTRICTIONS.-- The Secretary may restrict the use of the symbols published under subsection (a), and the designation of official sponsors of the national marine sanctuary program or of individual national marine sanctuaries to ensure compatibility with the goals of the national marine sanctuary program.

(d) PROPERTY OF UNITED STATES.-- Any symbol which is adopted by the Secretary and published in the *Federal Register* under subsection (a) is deemed to be the property of the United States.

(e) PROHIBITED ACTIVITIES.-- It is unlawful for any person--

(1) designated as an official sponsor to influence or seek to influence any decision by the Secretary or any other Federal official related to the designation or management of a national marine sanctuary, except to the extent that a person who is not so designated may do so;

(2) to represent himself or herself to be an official sponsor absent a designation by the Secretary;

(3) to manufacture, reproduce, or otherwise use any symbol adopted by the Secretary under subsection (a)(1), including to sell any item bearing such a symbol, unless authorized by the Secretary under subsection (a)(4) or subsection (f); or

(4) to violate any regulation promulgated by the Secretary under this section.

(f) COLLABORATIONS- The Secretary may authorize the use of a symbol adopted by the Secretary under subsection (a)(1) by any person engaged in a collaborative effort with the Secretary to carry out the purposes and policies of this title and to benefit a national marine sanctuary or the System.

(g) AUTHORIZATION FOR NON-PROFIT PARTNER ORGANIZATION TO SOLICIT

SPONSORS.-

(1) IN GENERAL.- The Secretary may enter into an agreement with a non- profit partner organization authorizing it to assist in the administration of the sponsorship program established under this section. Under an agreement entered into under this paragraph, the Secretary may authorize the non-profit partner organization to solicit persons to be official sponsors of the national marine sanctuary system or of individual national marine sanctuaries, upon such terms as the Secretary deems reasonable and will contribute to the successful administration of the sanctuary system. The Secretary may also authorize the non-profit partner organization to collect the statutory contribution from the sponsor, and, subject to paragraph (2), transfer the contribution to the Secretary.

(2) REIMBURSEMENT FOR ADMINISTRATIVE COSTS.- Under the agreement entered into under paragraph (1), the Secretary may authorize the non-profit partner organization to retain not more than 5 percent of the amount of monetary contributions it receives from official sponsors under the agreement to offset the administrative costs of the organization in soliciting sponsors.

(3) PARTNER ORGANIZATION DEFINED.- In this subsection, the term `partner organization' means an organization that--

(A) draws its membership from individuals, private organizations, corporation, academic institutions, or State and local governments; and

(B) is established to promote the understanding of, education relating to, and the conservation of the resources of a particular sanctuary or 2 or more related sanctuaries.

SEC. 318. DR. NANCY FOSTER SCHOLARSHIP PROGRAM.

(a) ESTABLISHMENT.- The Secretary shall establish and administer through the National Ocean Service the Dr. Nancy Foster Scholarship Program. Under the program, the Secretary shall award graduate education scholarships in oceanography, marine biology or maritime archeology, to be known as Dr. Nancy Foster Scholarships.

(b) PURPOSES- The purposes of the Dr. Nancy Foster Scholarship Program are--

(1) to recognize outstanding scholarship in oceanography, marine biology, or maritime archeology, particularly by women and members of minority groups ; and

(2) to encourage independent graduate level research in oceanography, marine biology, or maritime archeology.

(c) AWARD.- Each Dr. Nancy Foster Scholarship--

(1) shall be used to support graduate studies in oceanography, marine biology, or maritime

archeology at a graduate level institution of higher education; and

(2) shall be awarded in accordance with guidelines issued by the Secretary.

(d) DISTRIBUTION OF FUNDS.- The amount of each Dr. Nancy Foster Scholarship shall be provided directly to a recipient selected by the Secretary upon receipt of certification that the recipient will adhere to a specific and detailed plan of study and research approved by a graduate level institution of higher education.

(e) FUNDING- Of the amount available each fiscal year to carry out this title, the Secretary shall award 1 percent as Dr. Nancy Foster Scholarships.

(f) SCHOLARSHIP REPAYMENT REQUIREMENT- The Secretary shall require an individual receiving a scholarship under this section to repay the full amount of the scholarship to the Secretary if the Secretary determines that the individual, in obtaining or using the scholarship, engaged in fraudulent conduct or failed to comply with any term or condition of the scholarship.

(g) MARITIME ARCHEOLOGY DEFINED- In this section the term `maritime archeology' includes the curation, preservation, and display of maritime artifacts

Appendix II: Flower Garden Banks National Marine Sanctuary Regulations

This version of the FGBNMS regulations is the version published in the Federal Register in April 2012.

Title 15: Commerce and Foreign Trade
PART 922—NATIONAL MARINE SANCTUARY PROGRAM REGULATIONS
Subpart L—Flower Garden Banks National Marine Sanctuary

§ 922.120 Boundary.

The Flower Garden Banks National Marine Sanctuary (the Sanctuary) consists of three separate areas of ocean waters over and surrounding the East and West Flower Garden Banks and Stetson Bank, 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 (nmi) south-southwest of Cameron, Louisiana, and encompasses 19.20 nmi2. The area designated at the West Bank is located approximately 110 nmi southeast of Galveston, Texas, and encompasses 22.50 nmi2. The area designated at Stetson Bank is located approximately 70 nmi southeast of Galveston, Texas, and encompasses 0.64 nmi2. The three areas encompass a total of 42.34 nmi2 (145.09 square kilometers). The boundary coordinates for each area are listed in appendix A to this subpart.

§ 922.121 Definitions.

Attract or attracting means the conduct of any activity that lures or may lure any animal in the Sanctuary by using food, bait, chum, dyes, decoys (e.g., surfboards or body boards used as decoys), acoustics or any other means, except the mere presence of human beings (e.g., swimmers, divers, boaters, kayakers, surfers).

Clean means not containing detectable levels of harmful matter.

Disturb or disturbing a ray or whale shark means to, or attempt to touch, handle, ride, pursue, chase away, hunt, restrain, detain (no matter how temporarily), capture, collect, or conduct any other activity that disrupts or has the potential to disrupt any ray or whale shark in the Sanctuary by any means. Notwithstanding the above, the mere presence of human beings (e.g., swimmers, divers, boaters, kayakers) is exempted from this definition.

Harmful matter means any substance, or combination of substances, that because of its quantity, concentration, or physical, chemical, or infectious characteristics may pose a present or potential threat to Sanctuary resources or qualities, including but not limited to: fishing nets, fishing line, hooks, fuel, oil, and those contaminants (regardless of quantity) listed at 40 C.F.R. 302.4 pursuant to 42 U.S.C. 9601(14) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended.

No-activity zone means 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,

and the geographic area delineated by the Department of the Interior in stipulations for OCS lease sale 171 over and surrounding Stetson Bank, as areas in which activities associated with exploration for, development of, or production of hydrocarbons are prohibited. The precise aliquot part description of these areas around the East and West Flower Garden Banks are provided in appendix B of this subpart; the no-activity zone around Stetson Bank is defined as the 52 meter isobath. These particular aliquot part descriptions for the East and West Flower Garden Banks, and the 52 meter isobath around Stetson Bank, define the geographic scope of the “no-activity zones” for purposes of the regulations in this subpart. The descriptions for the East and West Flower Garden Banks no-activity zones are based on the “1/41/41/4” 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.

§ 922.122 Prohibited or otherwise regulated activities

(a) Except as specified in paragraphs (c) through (h) of this section, the following activities are prohibited and thus are unlawful for any person to conduct or to cause to be conducted:
(1) Exploring for, developing, or producing oil, gas, or minerals except outside of all no-activity zones and provided all drilling cuttings and drilling fluids are shunted to the seabed through a downpipe that terminates an appropriate distance, but no more than ten meters, from the seabed.
(2) (i) Anchoring any vessel within the Sanctuary.
(ii) Mooring any vessel within the Sanctuary, except that vessels 100 feet (30.48 meters) or less in registered length may moor to a Sanctuary mooring buoy.
(iii) Mooring a vessel in the Sanctuary without clearly displaying the blue and white International Code flag "A" (“alpha” dive flag) or the red and white “sports diver” flag whenever a SCUBA diver from that vessel is in the water and removing the “alpha” dive flag or “sports diver” flag after all SCUBA divers exit the water and return back on board the vessel, consistent with U.S. Coast Guard guidelines relating to sports diving as contained within "Special Notice to Mariners" (00-208) for the Gulf of Mexico.
(3)(i) Discharging or depositing from within or into the Sanctuary any material or other matter except:
(A) Fish, fish parts, chumming materials, or bait used in or resulting from fishing with conventional hook and line gear in the Sanctuary, provided that such discharge or deposit occurs during the conduct of such fishing within the Sanctuary;
(B) Clean effluent generated incidental to vessel use by an operable Type I or Type II marine sanitation device (U.S. Coast Guard classification) approved in accordance with section 312 of the Federal Water Pollution Control Act, as amended (FWPCA), 33 U.S.C. 1322. Vessel operators must lock marine sanitation devices in a manner that prevents discharge or deposit of untreated sewage;
(C) Clean vessel deck wash down, clean vessel engine cooling water, clean vessel generator cooling water, clean bilge water, or anchor wash;
(D) Engine exhaust;
(E) In areas of the Sanctuary outside the no-activity zones, drilling cuttings and drilling fluids necessarily discharged incidental to the exploration for, development of, or production of oil or gas in those areas and in accordance with the shunting requirements of paragraph (a)(1) unless such discharge injures a Sanctuary resource or quality.
(ii) Discharging or depositing, from beyond the boundaries of the Sanctuary, any material or other

matter, except those listed in paragraphs (a)(3)(i) (A) through (D) of this section, that subsequently enters the Sanctuary and injures a Sanctuary resource or quality.
(4) Drilling into, dredging, or otherwise altering the seabed of the Sanctuary (except as allowed under § 922.122(c)); or constructing, placing, or abandoning any structure, material, or other matter on the seabed of the Sanctuary.
(5) 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.
(6) 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.
(7) Killing, injuring, attracting, touching, or disturbing a ray or whale shark in the Sanctuary. Notwithstanding the above, the incidental and unintentional injury to a ray or whale shark as a result of fishing with conventional hook and line gear is exempted from this prohibition.
(8) 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.
(9) 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).
(10) 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.
(11) Possessing, except for valid law enforcement purposes, or using explosives or releasing electrical charges within the Sanctuary.
(b) 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 as more protective of Sanctuary resources and qualities shall govern.
(c) The prohibitions in paragraphs (a)(2)(i), (a)(4), and (a)(11) of this section 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 paragraphs (a) (2) through (11) of this section do not apply to activities necessary to respond to emergencies threatening life, property, or the environment.
(e)(1) The prohibitions in paragraphs (a) (2) through (11) of this section do not apply to activities being carried out by the Department of Defense as of the effective date of Sanctuary designation (January 18, 1994). Such activities shall be carried out in a manner that minimizes any adverse impact on Sanctuary resources and qualities. The prohibitions in paragraphs (a) (2) through (11) of this section 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 paragraphs (a) (2) through (11) of this section by the Director after consultation between the Director 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 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 paragraphs (a) (2) through (11) of this section 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 §922.48 and §922.123 or a Special Use permit issued pursuant to section 310 of the Act.
(g) The prohibitions in paragraphs (a) (2) through (11) of this section do not apply to any activity authorized by any lease, permit, license, approval or other authorization issued after January 18, 1994, provided that the applicant complies with §922.49, the Director 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 deems necessary to protect Sanctuary resources and qualities.
(h) Notwithstanding paragraphs (f) and (g) of this section, in no event may the Director issue a National Marine Sanctuary permit under §922.48 and §922.123 or a Special Use permit under section 10 of the Act authorizing, or otherwise approve, the exploration for, development of, or production of oil, gas, or minerals in a no-activity zone. Any leases, 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 January 18, 1994 shall be invalid.

§ 922.123 Permit procedures and criteria.
(a) A person may conduct an activity prohibited by §922.122(a)(2) through (11) if conducted in accordance with the scope, purpose, terms, and conditions of a permit issued under this section and §922.48.
(b) Applications for such permits should be addressed to the Director, Office of National Marine Sanctuaries; ATTN: Superintendent, Flower Garden Banks National Marine Sanctuary, 4700 Avenue U, Building 216, Galveston, TX 77551.
(c) The Director, 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 §922.122(a) (2) through (11), if the Director 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 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 may consider such other factors as he or she deems appropriate.
(d) 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.

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

Appendix A to Subpart L of Part 922—Flower Garden Banks National Marine Sanctuary Boundary

Coordinates
This appendix contains a second set of boundary coordinates using the geographic positions of the North American Datum of 1983 (NAD 83). FGBNMS coordinates are now provided in both North American Datum of 1927 (NAD 27) and NAD 83.

Point Latitude (N) Longitude (W)
East Flower Garden Bank: (NAD 27)
E–1 27 deg. 52' 53.82718" 93 deg. 37' 41.30310"
E–2 27 deg. 53' 34.83434" 93 deg. 38' 23.35445"
E–3 27 deg. 55' 13.64286" 93 deg. 38' 40.34368"
E–4 27 deg. 57' 30.71927" 93 deg. 38' 33.26982"
E–5 27 deg. 58' 27.66896" 93 deg. 37' 46.12447"
E–6 27 deg. 59' 01.41554" 93 deg. 35' 31.74954"
E–7 27 deg. 59' 00.50888" 93 deg. 35' 09.69198"
E–8 27 deg. 55' 22.38258" 93 deg. 34' 14.79162"
E–9 27 deg. 54' 04.05605" 93 deg. 34' 18.88720"
E–10 27 deg. 53' 26.70972" 93 deg. 35' 05.00978"
E–11 27 deg. 52' 52.06998" 93 deg. 36' 57.23078"

West Flower Garden Bank: (NAD 27)
W–1 27 deg. 49' 10.16324" 93 deg. 50' 45.27154"
W–2 27 deg. 50' 12.35976" 93 deg. 52' 10.47158"
W–3 27 deg. 51' 12.82777" 93 deg. 52' 51.63488"
W–4 27 deg. 51' 32.41145" 93 deg. 52' 50.66983"
W–5 27 deg. 52' 49.88791" 93 deg. 52' 24.77053"
W–6 27 deg. 55' 00.93450" 93 deg. 49' 43.68090"
W–7 27 deg. 54' 58.33040" 93 deg. 48' 37.54501"
W–8 27 deg. 54' 35.26067" 93 deg. 47' 10.34866"
W–9 27 deg. 54' 14.80334" 93 deg. 46' 49.28963"
W–10 27 deg. 53' 35.63704" 93 deg. 46' 51.25825"
W–11 27 deg. 52' 57.34474" 93 deg. 47' 15.26428"
W–12 27 deg. 50' 40.26361" 93 deg. 47' 22.14179"
W–13 27 deg. 49' 10.89894" 93 deg. 48' 42.72307"

Stetson Bank: (NAD 27)
S–1 28 deg. 09' 30.06738" 94 deg. 18' 31.34461"
S–2 28 deg. 10' 09.24374" 94 deg. 18' 29.57042"
S–3 28 deg. 10' 06.88036" 94 deg. 17' 23.26201"
S–4 28 deg. 09' 27.70425" 94 deg. 17' 25.04315"

East Flower Garden Bank: (NAD 83)
E–1 27 deg. 52' 54.84288" 93 deg. 37' 41.84187"
E–2 27 deg. 53' 35.80428" 93 deg. 38' 23.89520"
E–3 27 deg. 55' 14.61048" 93 deg. 38' 40.88638"
E–4 27 deg. 57' 31.68349" 93 deg. 38' 33.81421"
E–5 27 deg. 58' 28.63153" 93 deg. 37' 46.66809"
E–6 27 deg. 59' 02.37658" 93 deg. 35' 32.28918"
E–7 27 deg. 59' 01.46983" 93 deg. 35' 10.23088"
E–8 27 deg. 55' 23.34849" 93 deg. 34' 15.32560"
E–9 27 deg. 54' 05.02387" 93 deg. 34' 19.42020"
E–10 27 deg. 53' 27.67871" 93 deg. 35' 05.54379"
E–11 27 deg. 52' 53.04047" 93 deg. 36' 57.76805"

West Flower Garden Bank: (NAD 83)
W–1 27 deg. 49' 11.14452" 93 deg. 50' 45.83401"
W–2 27 deg. 50' 13.34001" 93 deg. 52' 11.03791"
W–3 27 deg. 51' 13.80672" 93 deg. 52' 52.20349"
W–4 27 deg. 51' 33.38988" 93 deg. 52' 51.23867"
W–5 27 deg. 52' 50.86415" 93 deg. 52' 25.33954"
W–6 27 deg. 55' 01.90633" 93 deg. 49' 44.24605"
W–7 27 deg. 54' 59.30189" 93 deg. 48' 38.10780"
W–8 27 deg. 54' 36.23221" 93 deg. 47' 10.90806"
W–9 27 deg. 54' 15.77527" 93 deg. 46' 49.84801"
W–10 27 deg. 53' 36.60997" 93 deg. 46' 51.81616"
W–11 27 deg. 52' 58.31880" 93 deg. 47' 15.82251"
W–12 27 deg. 50' 41.24120" 93 deg. 47' 22.69837"
W–13 27 deg. 49' 11.87936" 93 deg. 48' 43.28125"

Stetson Bank: (NAD 83)
S–1 28 deg. 09' 31.02671" 94 deg. 18' 31.98164"
S–2 28 deg. 10' 10.20196" 94 deg. 18' 30.20776"
S–3 28 deg. 10' 07.83821" 94 deg. 17' 23.89688"
S–4 28 deg. 09' 28.66320" 94 deg. 17' 25.67770"
[65 FR 81178, Dec. 22, 2000]

Appendix B to Subpart L of Part 922—Coordinates for the Department of the Interior Topographic Lease Stipulations for OCS Lease Sale 171

Aliquot Part Description of Biological Stipulation Area East Garden Bank

Block A–366 Texas Leasing Map No. 7C (High Island Area East Addition South Extension)

SE1/4, SW1/4; S1/2, NE1/4, SE1/4; SE1/4, NW1/4, SE1/4; S1/2, SE1/4.

Block A–376

W1/2, NW1/4, SW1/4; SW1/4, SW1/4, SW1/4.

Block A–374

W1/2, NW1/4, NW1/4; W1/2, SW1/4, NW1/4; SE1/4, SW1/4, NW1/4; SW1/4, NE1/4, SW1/4, W1/2, SW1/4; W1/2, SE1/4, SW1/4; SE1/4, SE1/4, SW1/4.

Block A–375

E1/2; E1/2, NW1/4; E1/2, NW1/4, NW1/4; SW1/4, NW1/4, NW1/4; E1/2, SW1/4, NW1/4; NW1/4, SW1/4, NW1/4; SW1/4.

Block A–388

NE1/4; E1/2, NW1/4; E1/2, NW1/4, NW1/4; NE1/4, SW1/4, NW1/4; E1/2, NE1/4, SW1/4; NW1/4, NE1/4, SW1/4; NE1/4, NW1/4, SW1/4; NE1/4, SE1/4, SW1/4, NE1/4; NE1/4, NE1/4, SE1/4; W1/2, NE1/4, SE1/4; NW1/4,

Block A–389

NE1/4, NW1/4; NW1/4, NW1/4; SW1/4, NW1/4; NE1/4, SE1/4, NW1/4; W1/2, SE1/4, NW1/4; N1/2, NW1/4, SW1/4.

Aliquot Part Description of Biological Stipulation Area West Garden Bank

Block A–383 Texas Leasing Map No. 7C (High Island Area East Addition South Extension)

E1/2, SE1/4, SE1/4; SW1/4, SE1/4, SE1/4.

Block A–384

W1/2, SW1/4, NE1/4; SE1/4, SW1/4, NE1/4; S1/2, SE1/4, NE1/4; SE1/4, NW1/4; E1/2, SW1/4; E1/2, NW1/4, SW1/4, SW1/4, NW1/4, SW1/4; SW1/4, SW1/4; SE1/4.

Block A–385

SW1/4, SW1/4, NW1/4; NW1/4, SW1/4; NW1/4, SW1/4, SW1/4.

Block A–397

W1/2, W1/2, NW1/4; W1/2, NW1/4, SW1/4; NW1/4; SW1/4, SW1/4.

Block A–398

Entire block.

Block A–399

E1/2, SE1/4, NE1/4, NW1/4; E1/2, SE1/4, NW1/4; E1/2, NE1/4, SW1/4; SW1/4, NE1/4, SW1/4; NE1/4, SE1/4, SW1/4.

Block A–401

NE1/4, NE1/4; N1/2, NW1/4, NE1/4; NE1/4, SE1/4, NE1/4.

Block 134 Official Protraction Diagram NG15–02 (Garden Banks)