

Florida Keys National Marine Sanctuary Revised Management Plan



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This document is the revised management plan for the Florida Keys National Marine Sanctuary. It replaces the management plan that was implemented in 1996 and will serve as the primary management document for the Sanctuary during the next five years.

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Note to Reader

In an effort to make this document more user-friendly, we have included references to the Florida Keys National Marine Sanctuary Web site rather than including the entire text of many bulky attachments or appendices that are traditionally included in management plans. Readers who do not have access to the Internet may call the Sanctuary office at (305) 809-4700 to request copies of any documents that are on the Sanctuary's Web site. For readers with Internet access, the Sanctuary's Web site can be found at floridakeys.noaa.gov.

ABOUT THIS DOCUMENT

This document is a report on the results of NOAA's five-year review of the strategies and activities detailed in the 1996 *Final Management Plan and Environmental Impact Statement* for the Florida Keys National Marine Sanctuary. It serves two primary purposes: 1) to update readers on the outcomes of successfully implemented strategies - in short, accomplishments that were merely plans on paper in 1996; and, 2) to disseminate useful information about the Sanctuary and its management strategies, activities and products. The hope is that this information, which charts the next 5 years of Sanctuary management, will enhance the communication and cooperation so vital to protecting important national resources.

Sanctuary Characteristics

The Florida Keys National Marine Sanctuary extends approximately 220 nautical miles southwest from the southern tip of the Florida peninsula. The Sanctuary's marine ecosystem supports over 6,000 species of plants, fishes, and invertebrates, including the nation's only living coral reef that lies adjacent to the continent. The area includes one of the largest seagrass communities in this hemisphere. Attracted by this tropical diversity, tourists spend more than thirteen million visitor days in the Florida Keys each year. In addition, the region's natural and man-made resources provide recreation and livelihoods for approximately 80,000 residents.

The Sanctuary is 2,900 square nautical miles of coastal waters, including the 2001 addition of the Tortugas Ecological Reserve. The Sanctuary overlaps four national wildlife refuges, six state parks, three state aquatic preserves and has incorporated two of the earliest national marine sanctuaries to be designated, Key Largo and Looe Key National Marine Sanctuaries. Three national parks have separate jurisdictions, and share a boundary with the Sanctuary. The region also has some of the most significant maritime heritage and historical resources of any coastal community in the nation.

The Sanctuary faces specific threats, including direct human impacts such as vessel groundings, pollution, and overfishing. Threats to the Sanctuary also include indirect human impacts, which are harder to identify but are reflected in coral declines and increases in macroalgae and turbidity. More information about the Sanctuary can be found in this document and at the Sanctuary's Web site.

Management Plan Organization

Within this document, the tools that the Sanctuary uses to achieve its goals are presented in five management divisions: 1) Science; 2) Education, Outreach & Stewardship; 3) Enforcement & Resource Protection; 4) Resource Threat Reduction; and 5) Administration, Community Relations, & Policy Coordination. Each management division contains two or more *action plans*, which are implemented through supporting *strategies* and *activities*. The strategies described in the 1996 *Management Plan* generally retain their designations in this document. As in the 1996 plan, two or more action plans may share a strategy where their goals and aims converge. The 1996 plan can be accessed on the Sanctuary's Web site floridakeys.noaa.gov

Accomplishments and Highlights

The Sanctuary's programs and projects have made significant progress since the original management plan was implemented 1996. An overview of these accomplishments is provided in the Introduction. In addition, each action plan contains bulleted lists of accomplishments since the 1996 management plan was adopted.

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Acronyms

ACHP	Advisory Council on Historic Preservation
AGRRA	Atlantic and Gulf Rapid Reef Assessment Program
ASA	Abandoned Shipwreck Act
ATBA	Areas to Be Avoided
AWT	Advanced Wastewater Treatment
CAD	Computer Automated Dispatch
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERP	Comprehensive Everglades Restoration Plan
CFR	Code of Federal Regulations
CRCP	Coral Reef Conservation Program
DARP	Damage Assessment and Restoration Program
DEP	Florida Department of Environmental Protection
DTNP	Dry Tortugas National Park
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
F.S.	Florida Statutes
FAC	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDCA	Florida Department of Community Affairs
FDHR	Florida Division of Historical Resources
FDOT	Florida Department of Transportation
FKNMS	Florida Keys National Marine Sanctuary
FKNMSPA	Florida Keys National Marine Sanctuary Protection Act
FPS	Florida Park Service
FR	Federal Register
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
FY	Federal Fiscal Year
GIS	Geographic Information System
GMD	Growth Management Division (Monroe County)
GMFMC	Gulf of Mexico Fishery Management Council
GPS	Global Positioning System
HAZMAT	Hazardous Materials
ICS	Incident Command Structure
ICW	Intra-coastal Waterway
IMO	International Maritime Organization
MBTA	Migratory Bird Treaty Act
MEERA	Marine Ecosystem Event Response and Assessment
MHR	Maritime Heritage Resources
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding

MRD	Marine Resources Division (Monroe County)
NCCOS	National Centers for Coastal Ocean Science
NEPA	National Environmental Policy Act
NGO	Non-governmental Organization
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NMS	National Marine Sanctuary
NMSA	National Marine Sanctuary Act
NMSF	National Marine Sanctuary Foundation
NMSP	National Marine Sanctuary Program
NOAA	National Oceanic and Atmospheric Administration
NOAA/OLE	NOAA Office of Law Enforcement
NOS	National Ocean Service
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRDA	Natural Resource Damage Assessment Claims
NURC	National Undersea Research Center
OFW	Outstanding Florida Waters
OSDS	On-Site Disposal System
OSTDS	On-Site Sewage Treatment and Disposal System
PREP	National Prepared for Response Exercise Program
PSSA	Particularly Sensitive Sea Area
RECON	Reef Ecosystem Condition Program
REEF	Reef Environmental Education Foundation
RNA	Research Natural Area
RSMAS	University of Miami/Rosenstiel School of Marine and Atmospheric Science
SAFMC	South Atlantic Fishery Management Council
SAP	Science Advisory Panel
SAV	Submerged Aquatic Vegetation
SCR	Submerged Cultural Resources
SEFSC	Southeast Fisheries Science Center
SFWMD	South Florida Water Management District
SHIELDS	Sanctuary Hazardous Incident Emergency Logistics Database System
SPA	Sanctuary Preservation Area
SWIM	Surface Water Improvement and Management Act
SWM	Stormwater Management
TAC	Technical Advisory Committee
TNC	The Nature Conservancy
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDOC	U.S. Department of Commerce
USDOI	U.S. Department of Interior
USDOS	U.S. Department of State
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WAMS	Waterway Assessment and Marking System

WMA Wildlife Management Area
WQPP Water Quality Protection Program
WQSC Water Quality Steering Committee



1.0 INTRODUCTION

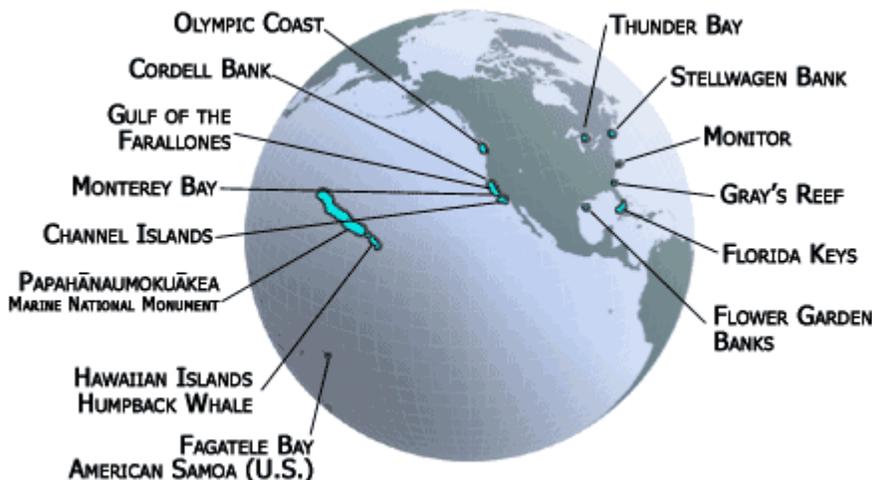
1.1 The National Marine Sanctuary Program (NMSP)

The National Marine Sanctuary Program (NMSP) is a network of 14 marine protected areas (Figure 1.1), encompassing marine resources from Washington State to the Florida Keys, and Lake Huron to American Samoa. The National Oceanic and Atmospheric Administration's (NOAA) National Ocean Service (NOS) has managed the nation's marine sanctuary system since passage of the Marine Protection, Research and Sanctuaries Act of 1972. Title III of that Act is now called the National Marine Sanctuaries Act (NMSA), which is found in Appendix A.

Today, the national marine sanctuary system contains deep-ocean gardens, near-shore coral reefs, whale migration corridors, deep-sea canyons, and underwater archaeological sites. They range in size from one-quarter square mile in Fagatele Bay, American Samoa, to almost 138,000 square miles of Pacific Ocean including the Northwest Hawaiian Islands - the largest marine protected area in the world. Together, these sites protect nearly 150,000 square miles of coastal and open ocean waters and habitats. While some activities are managed to protect resources, certain multiple uses, such as recreation, commercial fishing, and shipping are allowed to the extent that they are consistent with each site's resource protection mandates. Research, education, outreach, and enforcement activities are major components in each site's program of resource protection.

The NMSP is recognized around the world for its commitment to management of marine protected areas within which primary emphasis is placed on the protection of living marine resources and our nation's maritime heritage resources.

Figure 1.1. The National Marine Sanctuary System



The NMSP Vision:
People value marine sanctuaries as treasured places protected for future generations.

The NMSP Mission:
To serve as the trustee for the national system of marine protected areas to conserve, protect, and enhance their biodiversity, ecological integrity and cultural legacy.

1.2 The Florida Keys National Marine Sanctuary (FKNMS)

Historical Setting

Warning signs of the fragility and finite nature of the region's marine resources have been present in the Florida Keys for years. In 1957, a group of conservationists and scientists met at Everglades National Park to discuss the demise of the coral reef resources at the hands of those attracted by its beauty and uniqueness. The conference resulted in the 1960 creation of the world's first underwater park, John Pennekamp Coral Reef State Park. However, in the following decade, public outcry continued over pollution, overfishing, physical impacts, overuse, and user conflicts. The concerns continued to be voiced by environmentalists and scientists alike throughout the 1970s and into the 1990s.

As a result, additional management efforts were instituted to protect the Keys' coral reefs. In the Upper Keys, Key Largo National Marine Sanctuary was established in 1975 to protect 103 square nautical miles of coral reef habitat from north of Carysfort Lighthouse to south of Molasses Reef. In the Lower Keys, the 5.32 square nautical mile Looe Key National Marine Sanctuary was established in 1981.

Despite these efforts, oil drilling proposals and reports of deteriorating water quality occurred throughout the 1980s. At the same time, scientists were assessing coral bleaching and diseases, long-spined urchin die-offs, loss of living coral cover, a major seagrass die-off, and declining reef fish populations. Such threats prompted Congress to act. In 1988, Congress reauthorized the National Marine Sanctuary Program and ordered a feasibility study for possible expansion of Sanctuary sites in the Florida Keys - a directive that signaled that the health of the Keys ecosystem was of national concern and an endorsement of the NMSP's management successes at Key Largo and Looe Key National Marine Sanctuaries.

The feasibility studies near Alligator Reef, Sombrero Key, and westward from American Shoal were overshadowed by several natural events and ship groundings that precipitated the designation of the Florida Keys National Marine Sanctuary (FKNMS). Three large ships ran aground on the coral reef during one 18-day period in the fall of 1989. Although people cite the ship groundings as the issue triggering Congressional action, it was, in fact, the cumulative degradation and the threat of oil drilling, along with the groundings. These multiple threats prompted the late Congressman Dante Fascell to introduce a bill into the House of Representatives in November of 1989. Congressman Fascell had long been an environmental supporter of South Florida and his action was very timely. Senator Bob Graham, also known for his support of environmental issues in Washington and as a Florida Governor, sponsored the bill in the Senate. Congress gave its bipartisan support, and on November 16, 1990, President George H.W. Bush signed the bill into law.

With designation of the Florida Keys National Marine Sanctuary in 1990, several protective measures were implemented immediately, such as prohibiting oil and hydrocarbon exploration, mining or otherwise altering the seabed, and restricting large shipping traffic by establishing an Area To Be Avoided (ATBA). Additionally, protection to coral reef resources was extended by restricting anchoring on coral, touching coral, and collecting coral and live rock (a product of the aquarium

trade). Discharges from within the Sanctuary and from areas outside the Sanctuary that could potentially enter and affect local resources were also restricted in an effort to comprehensively address water quality concerns.

Administration and Legislation

The Sanctuary uses an ecosystem approach to comprehensively address the variety of impacts, pressures, and threats to the Florida Keys marine ecosystem. It is only through this inclusive approach that the complex problems facing the coral reef community can be adequately addressed.

The goal of the Sanctuary is to protect the marine resources of the Florida Keys. It also aims to interpret the Florida Keys marine environment for the public and to facilitate human uses of the Sanctuary that are consistent with the primary objective of sanctuary resource protection. The Sanctuary was created and exists under federal law, and became effective in state waters with the consent of the State of Florida. It is administered by NOAA and is jointly managed with the State of Florida under a co-trustee agreement. The Florida Governor and Cabinet, sitting as the Board of Trustees for the State of Florida, designated the Florida Department of Environmental Protection (DEP) as the state partner for Sanctuary management. The Florida Fish and Wildlife Conservation Commission (FWC), created in 1999, enforces Sanctuary regulations in partnership with Sanctuary managers and the NOAA Office of Law Enforcement. Throughout this document when the term FKNMS managers is used in reference to a responsible or responsive entity it refers to the NOAA and State of Florida co-trustees and their designated representatives from the NMSP, DEP and FWC working cooperatively to implement the strategies outlined in this plan.

NOAA, DEP and FWC are large and diverse organizations. In some cases we have identified specific organizations we work closely with within the broader agencies but are generally separate from the direct organizational chain of the staff working at the Sanctuary. For instance, FWC also houses the Fish and Wildlife Research Institute (FWRI), which conducts and coordinates scientific research and monitoring. In addition, the Sanctuary works cooperatively with multiple state and federal agencies, numerous universities and non-governmental organizations. The relationship with some, like the US Environmental Protection Agency (EPA), is based in the legislation creating the Florida Keys National Marine Sanctuary. Other relationships have evolved through cooperative agreements and information arrangements based upon shared boundaries, shared mission and goals, and/or shared interests.

National marine sanctuaries are typically designated by the Secretary of Commerce through an administrative process established by the National Marine Sanctuary Act (NMSA). However, recognizing the importance of the Florida Keys ecosystem and the degradation of the ecosystem due to direct and indirect physical impacts, Congress passed the Florida Keys National Marine Sanctuary and Protection Act (FKNMSPA) in 1990, (P.L. 101-605) (Appendix B) designating the Florida Keys National Marine Sanctuary to be managed as a national marine sanctuary under the NMSA. President George H. W. Bush signed the FKNMSPA into law on November 16, 1990.

The FKNMSPA and NMSA require the preparation of a comprehensive management plan and implementing regulations to protect Sanctuary resources. This *Revised Management Plan* responds to the requirements of the FKNMSPA and NMSA. The implementing regulations, effective as of 1 July

1997, are found at 15CFR922 and in Appendix C. The designation document¹ for the FKNMS is found in Appendix D.

Sanctuary Boundaries

The Sanctuary's enabling legislation designated 2,800-square-nautical miles of coastal waters surrounding the Florida Keys as the Florida Keys National Marine Sanctuary. The Sanctuary's boundary was amended in 2001 when the Tortugas Ecological Reserve was designated, significantly increasing the marine resources requiring protection.

Currently, the boundary encompasses approximately 2,900 square nautical miles (9,800 square kilometers) of coastal and ocean waters and submerged land (Figure 1.2). The boundary extends southward on the Atlantic Ocean side of the Keys, from the northeastern-most point of the Biscayne National Park along the approximate 300-foot isobath for over 220 nautical miles to the Dry Tortugas National Park. The boundary extends more than 10 nautical miles to the west of the Park boundary, where it turns north and east. The northern boundary of the Sanctuary extends to the east where it intersects the boundary of the Everglades National Park. The Sanctuary waters on the north side of the Keys encompass a large area of the Gulf of Mexico and western Florida Bay. The boundary follows the Everglades National Park boundary and continues along the western shore of Manatee Bay, Barnes Sound, and Card Sound. The boundary then follows the southern boundary of Biscayne National Park and up its eastern boundary along the reef tract at a depth of approximately 60 feet until its northeastern-most point.

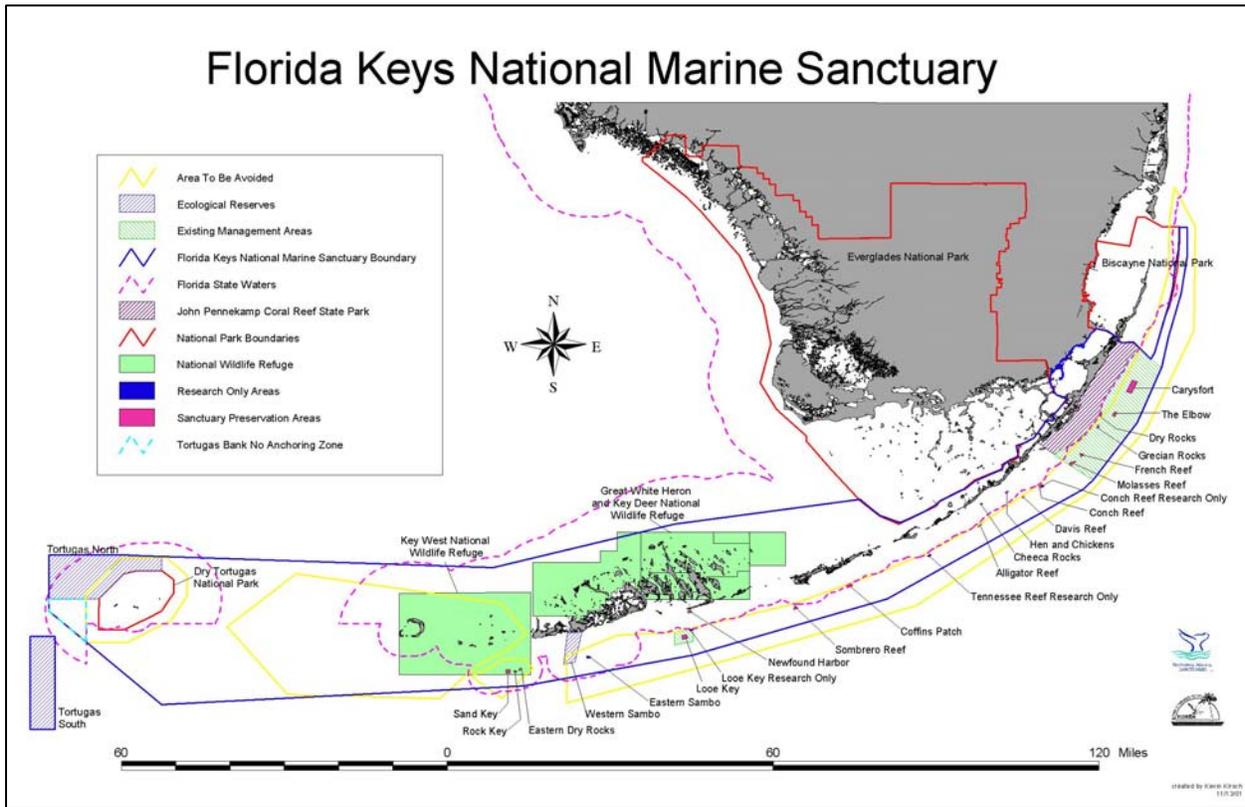
A separate, non-contiguous, 60 square nautical mile area off the westernmost portion of the Sanctuary is called the Tortugas Ecological Reserve South. The area's shallowest feature is Riley's Hump which rises to a depth of only 90 feet of water.

The Sanctuary boundary overlaps two previously existing national marine sanctuaries (Key Largo and Looe Key); four U.S. Fish and Wildlife Service (USFWS) refuges; six state parks, including John Pennekamp Coral Reef State Park; three state aquatic preserves; and other jurisdictions. Everglades National Park, Biscayne National Park and Dry Tortugas National Park are excluded from Sanctuary waters, but each shares a contiguous boundary with the Sanctuary.

The shoreward boundary of the Sanctuary is the mean high-water mark, except around the Dry Tortugas where it is the boundary of Dry Tortugas National Park. The Sanctuary boundary encompasses nearly the entire reef tract, all of the mangrove islands of the Keys, and a good portion of the region's seagrass meadows.

¹ The NMSA defines the term designation (also known as the designation document) of a sanctuary as the geographic area of 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 to protect those characteristics.

Figure 1.2. The Florida Keys National Marine Sanctuary Boundaries



Socio-Economic Context

The environment and the economy are inextricably linked in the Florida Keys, making management and protection of existing resources and reducing impacts critical if the economy is to be sustained. Tourism is the number one industry in the Florida Keys, with over \$1.2 billion dollars being spent annually by over 3 million visitors. The majority of visitors participate in activities such as snorkeling, SCUBA diving, recreational fishing, viewing wildlife and studying nature. Recreational and commercial fishing are the next most important sectors of the local economy, annually contributing an estimated \$500 million and \$57 million respectively (marineeconomics.noaa.gov).

Because of the recreational and commercial importance of the marine resources of the Florida Keys, protecting these Sanctuary resources is valuable not only for the environment but also for the economy. The special marine resources of the region, which led to the area’s designation as a national marine sanctuary, contribute to the high quality of life for residents and visitors. Without these unique marine resources, the quality of life and the economy of the Keys would decline.

1.3 The Management Plan Review Process

What is management plan review?

In 1992, when Congress reauthorized the NMSA, it required all national marine sanctuaries to review their management plans every five years in order to monitor and evaluate the progress of the national mission to protect national resources. The Florida Governor and Cabinet, as trustees for the state, also mandated a five-year review of the Florida Keys National Marine Sanctuary Management Plan in their January 28, 1997 resolution.

The Sanctuary's management plan review creates a road map for future actions based on past experience and outcomes. The review reevaluates the goals and objectives, management techniques, strategies, and actions identified in the existing management plan. It provides the opportunity to take a close and comprehensive look at outcomes and plan for future management of the Sanctuary.

The 1996 Florida Keys National Marine Sanctuary Management Plan

After the initial six-year FKNMS planning process, a comprehensive management plan for the Sanctuary was implemented in July 1997. The management plan focused on ten action plans which were largely non-regulatory in nature and involved educating citizens and visitors, using volunteers to build stewardship for local marine resources, appropriately marking channels and waterways, installing and maintaining mooring buoys to prevent anchor damage to coral and seagrass, surveying maritime heritage resources, and protecting water quality. In addition to action plans, the 1996 management plan designated five types of marine zones to reduce pressures in heavily used areas, protect critical habitats and species, and reduce user conflicts. The efficacy of the marine zones is monitored Sanctuary-wide under the Research and Monitoring Action Plan.

The implementing regulations for the FKNMS became effective July 1, 1997. The 1996 management plan was published in three volumes: Volume I is the Sanctuary management plan itself (which this document updates); Volume II characterizes the natural and social environmental setting of the Sanctuary and describes the process used to develop the draft management alternatives, including environmental and socioeconomic impact analyses of the alternatives, and the environmental impact statement; Volume III contains appendices, including the texts of federal and state legislation that designate and implement the Sanctuary. All three volumes of the 1996 management plan are available on the Sanctuary Web site (floridakeys.noaa.gov) and from the Sanctuary's Key West office. Volume II is not being revised as part of this review. After public input, government review and final adoption of this five-year review and revised Management Plan, this document will replace Volumes I and III.

How does management plan review work?

Review of the 1996 management plan began in early 2001 with a meeting in Tallahassee, Florida, among federal and state partners responsible for Sanctuary management and various FKNMS and NMSP staff. The review included the FKNMS Sanctuary Advisory Council and the general public in every step of the process.

In the late spring and summer of 2001, FKNMS staff, working closely with the Sanctuary Advisory Council, held scoping meetings and re-convened action plan working groups that had been created during development of the 1996 plan. The scoping meetings were held in Marathon, Key Largo, and

Key West, and gave the public the opportunity to meet with Sanctuary Advisory Council members, Sanctuary managers, and FKNMS staff. The meetings included round-table discussions on every action plan, and participants had the opportunity to move freely between the various topics being discussed at each table.

The scoping period for the revised management plan lasted from June 8 through July 20, 2001. Approximately 30 comments were received - a sharp contrast to the more than 6000 public comments received during the comment period for the 1996 plan. In addition, the working groups held more than three dozen meetings between June and September 2001 to discuss, evaluate, revise and update action plans. Sanctuary Advisory Council members and FKNMS staff who had served on the working groups presented the proposed revisions to the Sanctuary Advisory Council at three meetings in October 2001. The full advisory council recommended minor changes and approved each action plan in this document. The Sanctuary Advisory Council membership and Action Plan Working Group membership lists are included in Appendix E.

Between 2001 - 2004, numerous drafts of each action plan and strategy were prepared and reviewed by the FKNMS Management Team, Action Plan Leads and National Marine Sanctuary Program Headquarters staff. In February 2005 the *Draft Revised Management Plan* was published and distributed for public review and comment. A notice was placed in the Federal Register. A series of three public meetings were held in the Florida Keys including a meeting in each of Key Largo, Marathon and Key West. This formal comment period extended from February 15, 2005 to April 15, 2005. Responses were received from approximately 20 commenters. Between May 2005 and February 2006 the comments were reviewed, consolidated into a single document and distributed for review and response to the FKNMS Management Team and Action Plan Leads. The responses to the comments were incorporated into the *Draft Revised Management Plan*, as appropriate. Between August 2006 and May 2007 FKNMS staff and staff in the NMSP and the FL Department of Environmental Protection headquarters units worked together to review, refine and ensure the *Draft Revised Management Plan* reflected the most recent and up-to-date information and management practices and policies.

The Role of Sanctuary Management as Facilitators

A sanctuary management plan is designed to identify the best and most practical strategies to achieve common goals, while getting the most out of public investment. Achieving this aim cannot be accomplished solely through the authorities and resources of an individual sanctuary management authority. It requires a broad partnership of programs, authorities, and resources, coordinated to meet the needs of both the sanctuary site and the broader region of which it is a part.

Consequently, the management plan review process first focuses on finding the most effective strategies to accomplish common goals. These strategies are the product of a process that brings together constituents, institutions, and interested parties in directed working groups to address specified problem areas. How these strategies are to be implemented – with whose authorities, investments, and personnel – is determined subsequent to developing the best strategies. While the Sanctuary program commits to carrying out specific strategies as budgets allow, in many cases implementation becomes the responsibility of other institutions such as state, federal, or local partners, that have the authorities, the appropriate program, and/or the resources required. The intent of identifying these responsibilities is not to create unfunded mandates for other agencies, but rather to integrate management actions so as to maximize protection of Sanctuary resources.

In this process, the sanctuary management plan becomes a framework in which the role of all partners is clarified. The sanctuary assumes the role of facilitator and integrator of a far larger body of activities and outcomes than are within the scope of its immediate authorities, programs, and resources. This facilitation role provides the mechanism for continued implementation, evaluation, and adaptation of the partnership activities documented by the plan, ensuring its continuity and overall success.

1.4 Accomplishments

There have been many accomplishments in the sanctuary beginning with the authority established under the Florida Keys National Marine Sanctuary and Protection Act of 1990 and the implementation of the management plan in 1997. An overview of the Sanctuary’s accomplishments is given here, and more details are provided within each Action Plan.

1. Area To Be Avoided. The “Area To Be Avoided” (ATBA) designation in 1990 has resulted in a significant decrease in the number of major ship groundings on the coral reefs. As Figure 1.3 illustrates, prior to 1990 there was a major ship grounding involving vessels greater than 50 m in length, nearly every year, while only two have occurred since the implementation of the ATBA. The United Nations International Maritime Organization (IMO) agreed that the ATBA should be given additional strength as a Particularly Sensitive Sea Area (PSSA) in 2002 (see Accomplishment 5 below). The ATBA regulations are at 15 CFR Part 922, Subpart P, Appendix VII. Figure 1.4 shows the ATBA, the PSSA and the Sanctuary boundary.

Figure 1.3. Reef groundings of vessels greater than 50m before & after ATBA designation.

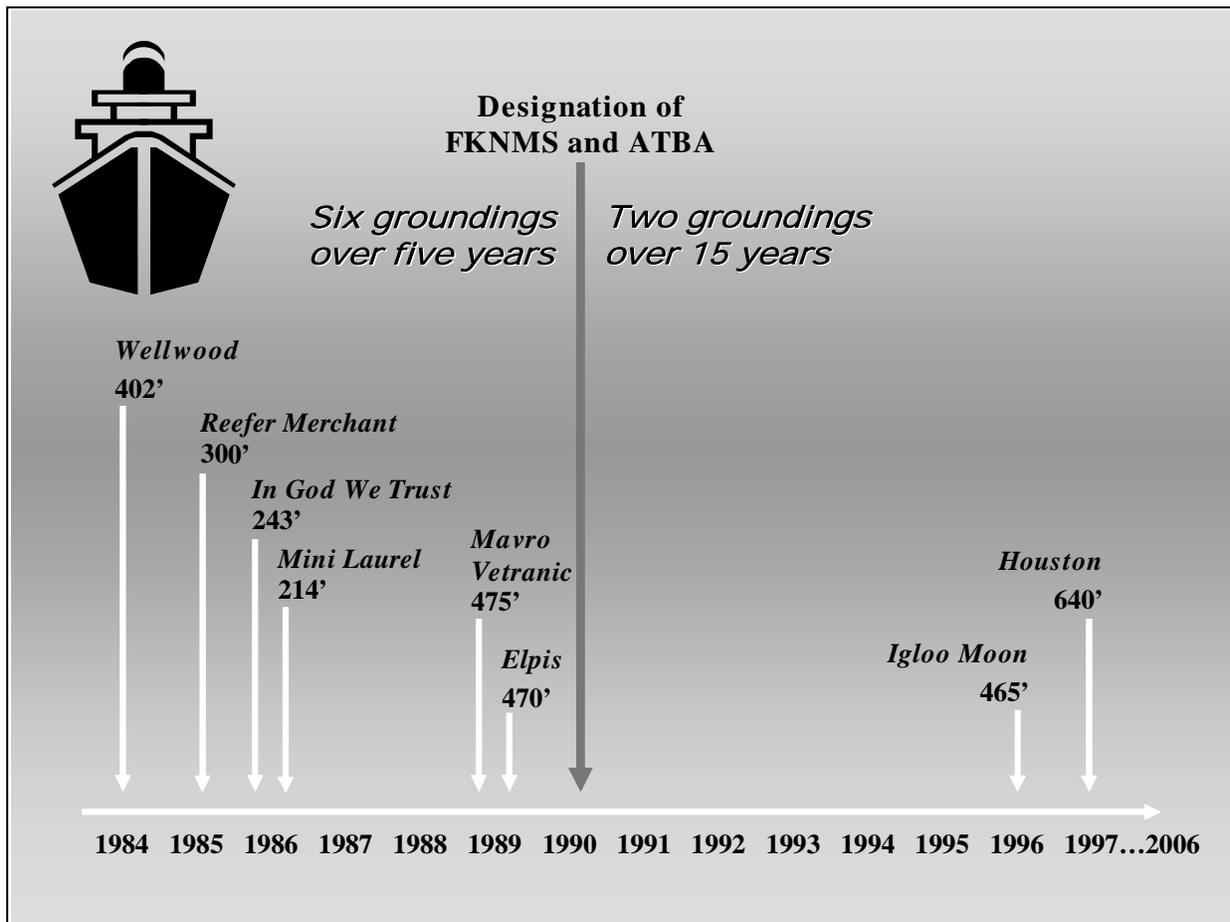
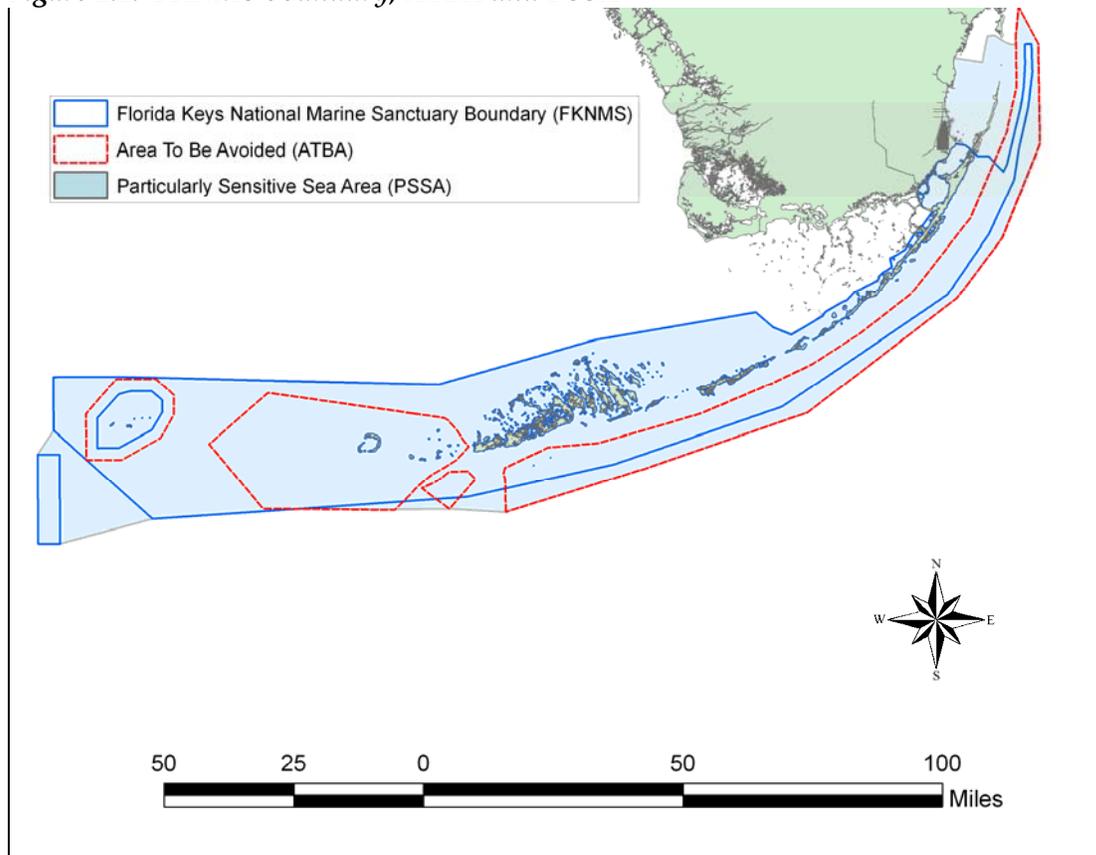


Figure 1.4. FKNMS boundary, ATBA and PSSA



2. Oil Drilling and Hard Mineral Mining Ban. A ban on these activities was established when the Sanctuary was created, and has prevented these activities from occurring in the Sanctuary.

3. The Water Quality Protection Program. This program has produced the first Water Quality Protection Program for a national marine sanctuary and has fully implemented 26 of 49 high-priority activities, many of which are carried out in cooperation with other action plans.

4. The Comprehensive Everglades Restoration Plan. The Sanctuary continues to participate in the implementation of the Comprehensive Everglades Restoration Plan (CERP). Sanctuary staff have been active on this project since 1993, including chairing a working group for the South Florida Ecosystem Restoration Task Force and staffing its science and education committees. The Sanctuary's participation seeks to protect the ecosystem's water quality by eliminating catastrophic releases of freshwater along the coastal waters of South Florida including Florida Bay following rain events. One of the goals of the CERP is to restore the water quality, quantity, timing and distribution to the South Florida ecosystem.

5. Designation of the Florida Keys as a Particularly Sensitive Sea Area. In November 2002, the United Nations International Maritime Organization approved designation of the Florida Keys as a PSSA. The designation is not accompanied by additional rules and regulations, but seeks to elevate public awareness of the threat of oil spills and hazardous materials to sensitive marine environments

and will ensure that the previously mentioned ATBA is noted not only on U.S. charts but also on nautical charts worldwide.

6. Long-term and continuing progress in the Research and Monitoring and Zoning action plans.

Research and monitoring has produced significant scientific data, hypothesis testing, mapping, trend documentation, and wide dissemination of these findings. Especially notable is the Keys-wide benthic map which provides valuable information for Sanctuary managers. In addition to the new protected zone in the Tortugas Ecological Reserve, the Sanctuary's zoning programs continue to provide invaluable data that demonstrate the success of the marine zoning program.

7. Education, Public Outreach, Sanctuary Stewardship, and Volunteerism. Through these inter-related efforts, information is flowing from scientists to managers and then to educators, who reach the next generation. More than 180,000 volunteer hours, an estimated \$2.9 million value, were donated to the Sanctuary between 1996 and 2006. Even more valuable than the dollar worth of the program is the stewardship created through volunteerism, which uniquely contributes to the long-term effectiveness of the Sanctuary.

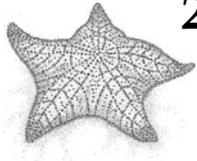
8. Enforcement and Regulations. Both the city of Key West and the State of Florida have declared Florida Keys waters under their jurisdictions as "no-discharge" zones. Additional accomplishments in implementing the Enforcement and Regulatory Action Plans are largely a tribute to the cooperative efforts among the Florida Fish and Wildlife Conservation Commission, the Florida Park Service, the U.S. Coast Guard (USCG), and NOAA. Notable among these is the cross-deputization of state-certified law enforcement officers, which allows them to enforce numerous federal laws, including fisheries regulations, the Endangered Species Act, the National Marine Mammal Act, the Lacey Act, etc.

9. Damage Assessment and Restoration. The Damage Assessment and Restoration Action Plan is new to this document but is based on accumulated data and lessons learned since 1982. The cross-disciplinary strategies will prove useful in reducing the number of vessel groundings in Sanctuary waters as well as restoring Sanctuary resources damaged by vessels.

10. Maritime Heritage Resources. The Maritime Heritage Resources Action Plan includes a close partnership of the state, NOAA, and the Florida Advisory Council on Historic Preservation described in a programmatic agreement for resource management that was originally signed in 1998 and then renewed in 2004 (see Appendix F for more information and a Web site link for the full document). Additionally, the 2002 discovery of a previously unknown wreck within the Sanctuary has brought about a community-endorsed research and interpretation plan for the site. Overall, the Action Plan represents excellent progress in balancing resource protection, investigation and interpretation.

11. Mooring Buoys and Waterway Management (formerly Channel Marking). The Mooring Buoy and Waterway Management Action Plans have implemented simple but effective strategies for reducing vessel damage to the coral reef and to seagrass beds. The long-term success of these programs – mooring buoy strategies have been used in local Sanctuary waters since 1981 when they were introduced at the Key Largo National Marine Sanctuary – has largely been due to a unique interface of education, outreach, enforcement and research and monitoring activities.

12. Operations. Since 1997, the Sanctuary has integrated the administrative functions of two former sanctuaries – at Key Largo and Looe Key – into a single headquarters umbrella with two regional offices. This integration streamlined delivery of human resources, community relations, and policy development. It also resulted in a series of accomplishments, ranging from an updated electronic financial reporting system to the 180+-episode television series, *Waterways*.



2.0 THE SANCTUARY ENVIRONMENT: A SUBTROPICAL ECOSYSTEM

2.1 Introduction

Adjacent to the Keys' land mass is a complex marine ecosystem that supports a variety of spectacular, unique, and nationally significant mangrove islands, seagrass meadows and extensive living coral reefs. This ecosystem is the marine equivalent of a tropical rain forest in that it supports high levels of biological diversity, is fragile and easily susceptible to damage from human activities, and possesses great value to humans if properly conserved. The ecosystem supports over 6,000 species of plants, fishes, and invertebrates, including the nation's only coral reef that lies adjacent to the continent, and one of the largest seagrass communities in this hemisphere.

2.2 Living Marine Resources

The Florida Keys ecosystem contains one of North America's most diverse assemblages of flora and fauna. The Florida Keys serve as a partial barrier between the temperate waters of the Gulf of Mexico and the tropical to subtropical waters of the Western Atlantic Ocean, resulting in a unique distribution of marine organisms.

The coral reef tract, arching in a southwesterly direction for 220 miles from the southern tip of Florida, is one of the largest systems of coral reefs in the world and a unique system of coral reefs in the continental U.S. All but the northernmost extent of the reef tract lies within the Sanctuary.

The coral reef tract is a bank-barrier system with seaward-facing, shallow-water spur-and-groove formations that are connected by a linear transitional reef from Miami to west of the Marquesas Keys. Over 6000 patch reefs occur in nearshore and offshore environments.

The ecosystem includes one of the world's largest seagrass beds, which are among the richest, most productive, and most important submerged coastal habitats. Seagrasses provide food and habitat for commercially and recreationally important species of fish and invertebrates, and are an integral component of tropical coastal environments.

Mangroves comprise the third important component of the Florida Keys ecosystem, with red mangrove trees fringing the 1600 islands and 1800 miles of shoreline within the Sanctuary. Mangroves provide habitat for juvenile fishes and invertebrates, stabilize sediments, and produce prop-root surfaces for attached organisms such as oysters, sponges, and algae.

The Florida Keys coral reef ecosystem is highly biologically diverse, and includes:

- 520 species of fish, including over 260 species of reef fish
- 367 species of algae

- 5 species of seagrasses
- 117 species of sponges
- 89 species of polychaete worms
- 128 species of echinoderms
- 2 species of fire coral
- 55 species of soft corals
- 65 species of stony corals

Coral Reefs and Coral Health

The reefs of Florida have undergone change for millennia due to sea-level changes, storms, and other natural occurrences. More recently, human impacts have directly and indirectly affected reef structure and reef communities, and as a result coral reefs are under increased levels of stress.

In the Florida Keys, a decrease in coral cover and site-specific species diversity and an increase in coral diseases and coral bleaching have been recorded as part of a project by Florida's Fish and Wildlife Research Institute (FWRI). The project records biodiversity, coral condition (including diseases and bleaching), and coral cover at stations in four habitat types. Since 1996, over 79 percent of 105 monitored stations have exhibited losses in stony coral diversity, 14 percent showed increases and 6 percent remained unchanged. Significant gains and losses of several stony coral species have occurred both between years and over the entire sampling period, indicating fluctuations in coral species richness but no loss of species Sanctuary-wide. More information can be found at floridamarine.org/features/category_sub.asp?id=2360.

In addition, FWRI monitoring showed an overall decline in stony coral cover from 1996 to 1999, associated with the 1997-1998 mass coral bleaching event, tropical storms, and Hurricane Georges (1998). Coral cover has remained at approximately the same level since that time. As with species diversity, coral cover variables among both habitat types and regions.

Recruitment (settlement of new individuals) of stony corals is an important factor in overall community dynamics. Two monitoring programs that are evaluating coral recruitment trends find that differences exist in coral recruitment among habitat types and regions. Juvenile corals in the Lower Keys suffered significant mortality in 1998 that was likely associated with a severe two-year coral bleaching event and a direct strike from Hurricane Georges.

Coral diseases increasingly threaten the health and vitality of reef systems in the Sanctuary and worldwide, but only a few pathogens have been positively identified. Between 1996 and 2002, the FWRI monitoring project documented increases in the number of stations that contain diseased coral, the number of coral species with disease, and the number of diseases themselves. However, between 2003 and 2004 the number of stations with diseased coral and the number diseased coral species decreased.

Over the past 20 years, coral bleaching events in the Sanctuary have increased in frequency and duration. Large-scale coral bleaching was first recorded in the Lower Keys in 1983 along the outer reef tract, where shallow fore-reef habitats were the most affected areas. Bleaching expanded and intensified with events in 1987 and 1990, and culminated with mass coral bleaching event in 1997 and 1998 that targeted inshore and offshore reefs throughout the Keys. Coral bleaching is undoubtedly responsible for some of the dramatic declines in stony coral cover observed Sanctuary-wide in the last

two decades. Similar observations of bleaching have been made regionally and internationally since 1983, and it is widely recognized that 1997 and 1998 were the worst coral bleaching years on record, causing significant loss of corals worldwide.

Algae, Seagrasses, and Other Benthic Organisms

Monitoring of benthic, or bottom, communities by the National Undersea Research Center (NURC) and the University of North Carolina at Wilmington has documented that algae of various species dominate bottom habitats at all sites throughout the Sanctuary. Sponges and soft corals cover a much smaller percentage of the sea floor (about 10 percent to 20 percent of total area). Like algae, they are highly variable, depending on the region being surveyed and the time of year.

Seagrasses are comprehensively monitored by Florida International University as part of the Sanctuary's Water Quality Protection Program. Data indicate approximately 12,800 square kilometers of seagrass beds lie within and adjacent to the Sanctuary. Some variability in seagrass cover and abundance has been identified, although populations seem relatively stable. Continued monitoring will be invaluable for detecting human impacts on the seagrass communities. For example, ecological and chemical changes consistent with increased nutrient availability have been documented at sites relatively close to shore in the Middle and Lower Keys. For more information go to fiu.edu/~seagrass/.

Reef Fish

Monitoring of fish populations occurred for many years before the Sanctuary's designation and continues to this day. From 1979 through 1998, a total of 263 fish species representing 54 families were observed. Over half of all fish observed were from just ten species. Relatively few fish of legal size have been seen, which is consistent with several studies that indicate reef fish in the Florida Keys are highly overexploited.

Despite population declines throughout much of the Sanctuary, fish numbers in fully protected zones (Sanctuary Preservation Areas, Ecological Reserves, and Special-use and Research-only areas) have increased for several commercially important species since implementation of the zones in 1997. Years of data from one monitoring program show that the numbers of individuals of three exploited species are higher in protected zones than in fished sites. Researchers have also seen an increase in the abundance of snapper species at several sites after the sites were protected.

Similar increases in grouper and snapper abundance and size have also been documented in the Tortugas North Ecological Reserve since its implementation in 2001.

Mobile Invertebrates

FWRI monitors mobile invertebrates, such as spiny lobster and queen conch. Spiny lobsters have become more abundant in fully protected Sanctuary Preservation Areas and Ecological Reserves than outside these areas. Researchers have found size increases over time for spiny lobsters in the Western Sambo Ecological Reserve.

Queen conch populations have remained low despite a prohibition on their collection since 1985 but numbers have started to increase steadily over the last several years. Individuals in nearshore waters do not reproduce compared to reproductive conch aggregations at offshore sites, apparently because

of an undetermined environmental effect. Nearshore conch are being transplanted offshore, where they become reproductive and may help rebuild local populations.

Sea urchins are also in very low abundances, especially the long-spined urchin, suggesting poor recovery of this species in the Keys since its severe Caribbean-wide die-off in 1983. Research efforts are exploring means by which populations of this key species may be restored.

Complete Characterization of Biotic and Abiotic Environments

A detailed description of the biota found in the Sanctuary, as well as a description of their habitats, is contained in the "Description of the Affected Environment," of the Environmental Impact Statement (EIS) of the original 1996 Florida Keys National Marine Sanctuary Management Plan. The EIS is found in Volume II of the management plan and can be accessed at floridakeys.noaa.gov. An atlas of benthic habitats of the Florida Keys was published by FWRI in collaboration with NOAA in 1998 and can be accessed at flkeysbenthicmaps.noaa.gov/welcome.html. NOAA is heading an effort to complete a new, more complete set of maps (ccma.nos.noaa.gov/ecosystems/coralreef/flmapping.html).

2.3 Non-living Marine Resources

Maritime Heritage Resources

The waters of the Florida Keys have some of the most significant maritime heritage and historical resources of any coastal community in the nation. Because of its unique geographical position on the European and American trade routes, shipwrecks in the Keys contain a record of the 500-year history of the Americas. Key West has been the crossroads of the Caribbean, and the sea has remained the common thread through the region's cultural and historic sites. The relative inaccessibility of underwater cultural sites has ensured that many delicate artifacts remain undisturbed. The importance of the region's maritime heritage resources is great, and the possibility exists for discovering some of the earliest archaeological sites in North America. A detailed description of the cultural and historical resources of the Florida Keys is contained in the "Description of the Affected Environment," of the Environmental Impact Statement (EIS) (see Volume II of the Florida Keys Management Plan at floridakeys.noaa.gov).

Water Quality

Many water-quality parameters have been monitored Sanctuary wide by Florida International University's Southeast Environmental Research Center since 1995 as part of the Water Quality Protection Program. Thus far, results indicate that some elements (dissolved oxygen, total organic nitrogen, and total organic carbon) are present in higher concentrations in surface waters, while other indicators (salinity, turbidity, nitrite, nitrate, ammonium, and total phosphorus) are higher in bottom waters.

Geographic differences in water quality include higher nutrient concentrations in the Middle and Lower Keys and lower nutrient concentrations in the Upper Keys and Dry Tortugas. Also, declining inshore-to-offshore trends across Hawk Channel have been noted for some parameters (nitrate, ammonium, silicate, total organic carbon and nitrogen, and turbidity).

Probably the most interesting findings thus far show increases over time in total phosphorus for the Dry Tortugas, Marquesas Keys, Lower Keys, and portions of the Middle and Upper Keys, and increases in nitrate in the Southwest Florida Shelf, Dry Tortugas, Marquesas Keys, and the Lower and Upper Keys. In contrast, total organic nitrogen decreased somewhat, mostly in the Southwest Florida Shelf, the Sluiceway, and the Lower and Upper Keys. These trends may be driven by regional circulation patterns arising from the Loop Current and Florida Current, and have changed as the period of record has increased.

Stationary instruments along the reef tract continuously monitor seawater parameters and ocean states as part of a local ocean observing system. The data are analyzed by Florida Institute of Oceanography's SEAKEYS program and periodically transmitted to satellites and made available on the Internet. Additionally, water temperature data are recorded every two hours from a series of thermographs that the Sanctuary has maintained for over fifteen years.

2.4 Threats to the Ecosystem

The deterioration of the marine ecosystem in South Florida is no longer a matter of debate. Visitors, residents and scientists alike have noted the precipitous decline in the health of the coral reef ecosystem. The threats causing these visible signs of decline are numerous and often complex, ranging from direct human impacts to global climate changes.

Direct human impacts include vessel groundings, anchor damage, destructive fishing, and damage to corals as a result of divers and snorkelers touching and standing on them. Boat propellers and large ships have damaged over 30,000 acres of seagrasses and more than 20 acres of coral reef habitat in the Sanctuary.

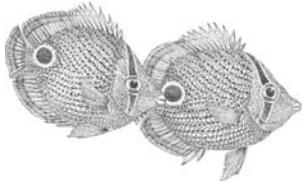
Most pressures stem from the 5 million annual visitors and approximately 80,000 year-round residents of Monroe County. Their high levels of use in the Sanctuary have significant direct and indirect effects on the ecosystem. Sanctuary visitors primarily seek water-related recreation, including diving, snorkeling, fishing and boating.

Although less immediate than direct physical damage to the corals, other stressors also significantly affect the Florida Keys ecosystem. Overfishing has dramatically altered fish and other animal populations on the coral reef, contributing to an imbalance in ecological relationships that are critical to sustaining a diversity of organisms. Eutrophication (an outcome of excess nutrients in the water, such as fertilizers) of nearshore waters is a documented problem. Wastewater and stormwater treatment and solid-waste disposal facilities are highly inadequate, directly affecting nearshore water quality. Some solutions to water quality problems are being implemented, but given the scope of the problem, more action is required.

In Florida Bay, reduced freshwater flow has increased plankton blooms, sponge and seagrass die-offs, and fish kills. Since Florida Bay and nearshore waters provide important nursery and juvenile habitat for a variety of reef species, the declines in these areas affect the overall health and structure of offshore coral reefs. Therefore, regional strategies to address the quantity, quality, timing, and

distribution of freshwater flows through the South Florida ecosystem into Florida Bay and the estuaries of South Florida contained in the Comprehensive Everglades Restoration Plan are critical.

In addition, seasonal and yearly seawater temperature fluctuations, increasing solar radiation and atmospheric changes all affect the ecosystem. The impacts are seen in coral disease and bleaching, which have increased in frequency, duration and range, coinciding with the ten warmest years on record. Under normal conditions, corals and reef organisms would be expected to tolerate and recover from sporadic events such as temperature variation. However, additional human-induced stresses are likely affecting the ability of these organisms to adequately recover from climate fluctuations.



3.0 ACTION PLANS

What Are The Action Plans In This Document?

The following chapters are the action plans that guide every aspect of sanctuary management. Readers should note that the 1996 *Final Management Plan* for the Sanctuary included ten action plans, presented in alphabetical order to address management needs related to:

- Channel/Reef Marking
- Education and Outreach
- Enforcement
- Mooring Buoys
- Regulatory
- Research and Monitoring
- Submerged Cultural Resources
- Water Quality
- Volunteer
- Zoning

In this revised management plan, four new action plans have been added: Science Management and Administration Action Plan, Damage Assessment and Restoration Action Plan, Operations Action Plan and Evaluation Action Plan. The Submerged Cultural Resources Action Plan has been changed to the Maritime Heritage Resources Action Plan, while the Channel/Reef Marking Action Plan has been renamed to more accurately reflect the intent, which is “Waterway Management”, and the word “Marine” has been added to the Zoning Action Plan to clarify the title.

In addition to these new action plans, considerable attention was given to the strategies and activities within each action plan. A deliberate effort was made to simplify and streamline this revised management plan through:

1. Reducing the number of action plans a strategy is located under. While many strategies have relevance to multiple actions plans, each has been placed in the action plan(s) that are of greatest relevance
2. Refining the approach of strategies.
 - a. In the 1996 document many strategies were designed to be “task” or “outcome” specific. In the 2007 document a broader approach-style strategy was often adopted for use often incorporating former task specific strategies as activities under the new strategy
 - b. In the 1996 document many strategies had very specific focuses. In the 2007 document a broader, more integrated approach has been adopted resulting in the combining of one or most related strategies into a single, coordinated “umbrella” approach.
3. Removing strategies that were either completed or not likely to be addressed during the timeline for this revised management plan from action plans.

Table 3.0 provides a crosswalk of Action Plans and Strategies additions, removals or title changes from the 1996 *Management Plan* to the 2007 *Revised Management Plan*.

Management Divisions

In this revised management plan, the individual action plans have been grouped into five management divisions. This was done to both improve the organization of the plan as well as to highlight the management goals for each of the plans. The individual action plans for the Sanctuary are organized in the following divisions:

Sanctuary Science

- Science Management and Administration Action Plan
- Research and Monitoring Action Plan

Education, Outreach and Stewardship

- Education and Outreach Action Pan
- Volunteer Action Plan

Enforcement and Resource Protection

- Regulatory Action Plan
- Enforcement Action Plan
- Damage Assessment and Restoration Action Plan
- Maritime Heritage Resources Action Plan

Resource Threat Reduction

- Marine Zoning Action Plan
- Mooring Buoy Action Plan
- Waterway Management Action Plan
- Water Quality Action Plan

Administration, Community Relations and Policy Coordination

- Operations Action Plan
- Evaluation Action Plan

Table 3.0: Crosswalk of 1996 Management Plan and 2007 Revised Management Plan

ACTION PLANS AND STRATEGIES

	1996 Management Plan	2007 Revised Management Plan	Status
Sanctuary Science			
Science Management and Administration Action Plan (SMA AP)			
Strategy B.11 - Issuance of Sanctuary Research Permits	●	●	On-going (prioritized from R&M AP)

		1996 Management Plan	2007 Revised Management Plan	Status
	Strategy W.29 – Dissemination of Findings	●	●	On-going (prioritized from R&M AP)
	Strategy W.32 – Maintaining a Technical Advisory Committee	●	●	On-going (prioritized from R&M and WQ AP)
	Strategy W.34 – Regional Science Partnerships and Reviews		●	New Strategy
	Strategy W.35 – Data Management		●	New Strategy (prioritized and incorporated WQ and R&M AP Strategy W.28)
Research and Monitoring Action Plan (R&M AP)				
	Strategy B.2 – Habitat Restoration	●		Incorporated in DAR AP Strategy B.22
	Strategy B.11 – National Marine Sanctuary Permits	●		Deferred to SMA AP
	Strategy F.3 – Researching Queen Conch Population Enhancement Methods	●	●	On-going (Refocused/re-titled)
	Strategy F.4 – Aquaculture Alternatives	●		Not included due to low likelihood of implementation (addressed as activating in Reg AP Strategy R.2)
	Strategy F.6 – Fisheries Sampling	●	●	On-going
	Strategy F.7 – Researching Impacts from Artificial Reefs	●	●	On-going (incorporates info from Vol AP)
	Strategy F.10 – Bycatch	●		Not included due to low likelihood of implementation
	Strategy F.11 – Evaluating Fishing Gear/Method Impacts	●	●	On-going
	Strategy F.14 – Spearfishing	●		Not included due to low likelihood of implementation (addressed as activating in Reg AP Strategy R.2)
	Strategy F.15 – Assessing Sponge Fishery Impacts	●	●	On-going (Refocused/retitled)
	Strategy R.5 – Carrying Capacity	●		Not included due to low likelihood of implementation
	Strategy W.5 – Water Quality Standards	●		Deferred to WQ AP
	Strategy W.18 – Conducting Pesticide Research	●	●	On-going (prioritized from WQ AP)
	Strategy W.20 – Monitoring	●		Incorporated into R&M AP Strategy W.33
	Strategy W.21 – Developing Predictive Models	●	●	On-going (prioritized from WQ AP)
	Strategy W.22 – Assessing Wastewater Pollutants Impacts		●	Existing Strategy (moved from WQ AP)
	Strategy W.23 – Researching Other Pollutants and Water Quality Issues		●	Existing Strategy (moved from WQ AP)
	Strategy W.24 – Researching Florida Bay Influences	●	●	On-going (prioritized from WQ AP)
	Strategy W.28 – Regional Database	●		Incorporated into SMA AP

		1996 Management Plan	2007 Revised Management Plan	Status
				Strategy W.35
	Strategy W.29 - Dissemination of findings	●		Deferred to SMA AP
	Strategy W.32 - Technical Advisory Committee	●		Deferred to SMA AP
	Strategy W.33 - Ecological Research and Monitoring	●	●	On-going (Prioritized from Vol and WQ APs) incorporates R&M AP Strategy W.20
	Strategy W.36 - Conducting Socioeconomic Research		●	New Strategy
	Strategy Z.2 - Ecological Reserves	●		Deferred to MZ AP
	Strategy Z.3 - Sanctuary Preservation Areas	●		Deferred to MZ AP
	Strategy Z.5 - Special-use Areas	●		Deferred to MZ AP
	Strategy Z.6 - Marine Zone Monitoring		●	New Strategy
Education, Outreach and Stewardship				
Outreach and Education Action Plan (EOS AP)				
	Strategy E.1 - Printed Product Development and Distribution	●	●	On-going (prioritized from Vol AP)
	Strategy E.2 - Continued Distribution of Audio-Visual Materials	●	●	On-going (prioritized from Vol AP)
	Strategy E.3 - Continue Development of Signs, Displays, Exhibits, and Visitor Centers	●	●	On-going (prioritized from Vol AP) incorporates EOS AP Strategy E.7
	Strategy E.4 - Developing Training, Workshops and School Programs	●	●	On-going (prioritized from Vol AP)
	Strategy E.5 - Applying Various Technologies	●	●	On-going (prioritized from Vol AP)
	Strategy E.6 - Continuing the Education Working Group	●	●	On-going
	Strategy E.7 - Promotionals/Education Materials	●		Incorporated into EOS AP Strategy E.3
	Strategy E.10 - Establishing Public Forums	●	●	On-going (prioritized from Vol AP)
	Strategy E.11 - Participating in Special Events	●	●	On-going (prioritized from Vol AP)
	Strategy E.12 - Professional Development of Outreach and Education Staff	●	●	On-going
Volunteer Action Plan (Vol AP)				
	Strategy B.1 - Boat Access	●		Moved to WM AP
	Strategy B.2 - Habitat Restoration	●		Incorporated into DAR AP Strategy B.22
	Strategy B.3 - Derelict Vessels	●		Incorporated into WM AP Strategy B.4 as an activity
	Strategy B.4 - Channel/Reef Marking	●		Moved to WM AP
	Strategy B.9 - Visitor Registration	●		Incorporated as an aspect of multiple EOS AP strategies.
	Strategy B.10 - Damage Assessment	●		Incorporated into DAR AP

		1996 Management Plan	2007 Revised Management Plan	Status
				Strategy B.20
	Strategy E.1 - Printed Materials	●		Prioritized to EOS AP
	Strategy E.2 - Audio-Visual Materials	●		Prioritized to EOS AP
	Strategy E.3 - Signs/Displays/Exhibits	●		Prioritized to EOS AP
	Strategy E.4 - Training/Workshops/Schools	●		Prioritized to EOS AP
	Strategy E.5 - PSAs	●		Prioritized to EOS AP
	Strategy E.7 - Promotionals/Educational Materials	●		Prioritized to EOS AP and incorporated into Strategy E.3
	Strategy E.10 - Public Forum	●		Prioritized to EOS AP
	Strategy E.11 - Special Events	●		Prioritized to EOS AP
	Strategy F.7 - Artificial Reefs	●		Prioritized into R&M AP
	Strategy F.9 - Gear Removal	●		Incorporated into WM AP Strategy B.4 as an activity
	Strategy F.11 - Gear/Methods Impacts	●		Prioritized into R&M AP
	Strategy R.1 - SCR Management	●		Incorporated Reg AP Strategy R.1
	Strategy R.2 - Recreation Survey	●		Refocused and prioritized to Reg AP
	Strategy V.1 - Maintaining Volunteer Programs		●	New Strategy
	Strategy V.2 - Working with Other Organization/Agency Volunteer Programs		●	New Strategy
	Strategy V.3 - Providing Support for Volunteer Activities		●	New Strategy
	Strategy W.20 - Water Quality Monitoring	●		Incorporated into R&M AP Strategy W.33
	Strategy W.33 - Ecological Monitoring	●		Prioritized to R&M AP
Enforcement and Research Protection				
Regulatory Action Plan (Reg AP)				
	Strategy B.4 - Channel/Reef Marking	●		Prioritized to WM AP
	Strategy B.7 - Pollution Discharge	●		Prioritized to WQ AP
	Strategy B.11 - Special-use Permits	●		Incorporated as Activity into Reg AP Strategy R.2
	Strategy B.13 - Salvage/Towing	●		Incorporated as Activity into Reg AP Strategy R.2
	Strategy B.17 - Vessel Operations/PWC Management	●		Incorporated as Activity into Reg AP Strategy R.2
	Strategy F.1 - Consistent Fishing Regulations	●		Incorporated as Activity into Reg AP Strategy R.2
	Strategy F.4 - Aquaculture Alternatives	●		Not included due to low likelihood of implementation (addressed as Activity in Reg AP Strategy R.2)
	Strategy F.7 - Artificial Reefs	●		Incorporated as Activity into Reg AP Strategy R.2
	Strategy F.8 - Exotic Species	●		Incorporated as Activity into

		1996 Management Plan	2007 Revised Management Plan	Status
				Reg AP Strategy R.2
	Strategy F.11 – Gear/Method Impacts	●		Incorporated as Activity into Reg AP Strategy R.2
	Strategy F.14 – Spearfishing	●		Not included due to low likelihood of implementation (addressed as Activity in Reg AP Strategy R.2)
	Strategy L.14 – Dredging prohibition	●		Incorporated as Activity into Reg AP Strategy R.2
	Strategy L.15 – Dredging Regulation	●		Incorporated as Activity into Reg AP Strategy R.2
	Strategy R.1 – SCR Management	●		Revised/Retitled and Incorporated into (new) Reg AP Strategy R.1
	Strategy R.1 – Maintaining the Existing Permit Program		●	Revised/Retitled and incorporates original Strategy R.1
	Strategy R.2 – Regulatory Review		●	New “umbrella” strategy, incorporates numbers Reg AP Strategies above
	Strategy Z.1 – Wildlife Management Areas	●		Prioritized to MZ AP
	Strategy Z.2 – Ecological Reserves	●		Prioritized to MZ AP
	Strategy Z.3 – Sanctuary Preservation Areas	●		Prioritized to MZ AP
	Strategy Z.4 – Existing Management Areas	●		Prioritized to MZ AP
	Strategy Z.5 – Special-use Areas	●		Prioritized to MZ AP
Enforcement Action Plan (Enf AP)				
	Strategy B.6 – Acquiring Additional Enforcement Personnel		●	New Strategy
	Strategy B.12 – Cross-deputization	●		Incorporated as Activity into Enf AP Strategy B.6
Damage Assessment and Restoration Action Plan (DAR AP)				
	Strategy B.18 – Injury Prevention		●	New Strategy
	Strategy B.19 – Implementing DARP Notification and Response Protocols		●	New Strategy
	Strategy B.20 – Damage Assessment and Documentation		●	New Strategy, incorporates Vol AP Strategy B.10
	Strategy B.21 – Case Management		●	New Strategy
	Strategy B.22 – Habitat Restoration		●	New Strategy, incorporates Vol and R&M APs Strategy B.2
	Strategy B.23 – Data Management		●	New Strategy
Maritime Heritage Resources Action Plan (MHR AP)				
	Strategy MHR.1 – MHR Permitting		●	New Strategy
	Strategy MHR.2 – Establishing an MHR Inventory		●	New Strategy
	Strategy MHR.3 – MHR Research and Education		●	New Strategy

		1996 Management Plan	2007 Revised Management Plan	Status
	Strategy MHR.4 - Ensuring Permit Compliance through Enforcement		●	New Strategy
	Strategy MHR.5 - Ensuring Interagency Coordination		●	New Strategy
	Strategy R.1 -SCR Management	●		Incorporated into Reg AP new Strategy R.1
Resource Threat Reduction				
Marine Zoning Action Plan (MZ AP)				
	Strategy Z.1 - Wildlife Management Areas	●	●	On-going (prioritized from R&M and Reg APs)
	Strategy Z.2 - Ecological Reserves	●	●	On-going (prioritized from R&M and Reg APs)
	Strategy Z.3 - Sanctuary Preservation Areas	●	●	On-going (prioritized from R&M and Reg APs)
	Strategy Z.4 - Existing Management Areas	●	●	On-going (prioritized from R&M and Reg APs)
	Strategy Z.5 - Special-use Areas	●	●	On-going (prioritized from R&M, Reg and WQ APs)
Mooring Buoy Action Plan (MB AP)				
	Strategy B.1 - Boat Access	●		Prioritized to WM AP
	Strategy B.15 - Mooring Buoy Management	●	●	On-going
Waterway Management Action Plan (WM AP)				
	Strategy B.1 - Boat Access	●	●	Prioritized from Vol and MB APs
	Strategy B.4 - Waterway Management/Marking	●	●	Prioritized from Vol and Reg APs
Water Quality Action Plan (WQ AP)				
	Strategy B.7 - Pollution Discharges	●	●	Prioritized from Reg AP
	Strategy E.4 - Training/Workshops/Schools	●		Prioritized to EOS AP
	Strategy L.1 - Elimination of Wastewater Discharge from Vessels	●	●	On-going, incorporates WQ AP Strategy L.6 as an Activity
	Strategy L.2 - Marina Citing & Design	●		On-going
	Strategy L.3 - Marina Operations	●	●	On-going
	Strategy L.6 - Mobil Pumpout	●		Incorporated into WQ AP Strategy L.6 as an Activity
	Strategy L.7 - Assessing Solid Waste Disposal Problem Sites	●	●	On-going
	Strategy L.10 - HAZMAT Training	●	●	On-going
	Strategy W.1 - OSDS Demonstration Project	●		Completed
	Strategy W.2 - AWT Demonstration Project	●		Completed
	Strategy W.3 - Addressing Wastewater Management Systems	●	●	On-going
	Strategy W.4 - Wastewater Disposal, Key West	●		Completed
	Strategy W.5 - Developing and Implementing Water Quality Standards	●	●	On-going

		1996 Management Plan	2007 Revised Management Plan	Status
	Strategy W.6 – NPDES Program Delegation	●		Incorporated into WQ AP Strategy W.7
	Strategy W.7 – Resource Monitoring of Surface Discharges	●	●	On-going
	Strategy W.8 – OSDS Permitting	●		Completed
	Strategy W.9 – Laboratory Facilities	●		Not included due to low likelihood of implementation
	Strategy W.10 – Addressing Canal Water Quality	●	●	On-going
	Strategy W.11 – Stormwater Retrofitting	●	●	On-going
	Strategy W.12 – Stormwater Permitting	●		Completed
	Strategy W.13 – Stormwater Management	●		Completed
	Strategy W.14 – Instituting Best Management Practices	●	●	On-going
	Strategy W.15 – HAZMAT Response	●	●	On-going
	Strategy W.16 – Spill Reporting	●	●	On-going
	Strategy W.17 – Refining the Mosquito Spraying Program	●	●	On-going
	Strategy W.18 – Pesticide Research	●		Prioritized to R&M AP
	Strategy W.19 – Florida Bay Freshwater Flow	●	●	On-going
	Strategy W.20 – Monitoring	●		Incorporated into R&M AP Strategy W.33
	Strategy W.21 – Predictive Models	●		Prioritized to R&M AP
	Strategy W.22 – Wastewater Pollutants	●		Moved to R&M AP
	Strategy W.23 – Special Studies	●		Moved to R&M AP
	Strategy W.24 – Florida Bay Influences	●		Prioritized to R&M AP
	Strategy W.28 – Regional Database	●		Prioritized to and incorporated into SMA AP Strategy W.35
	Strategy W.32 – Technical Advisory Committee	●		Committee established, on-going management prioritized to SMA AP
	Strategy W.33 – Ecological Monitoring	●		Prioritized to R&M AP
	Strategy Z.5 – Special-use Areas	●		Prioritized to MZ AP
Administration				
Operations Action Plan (Ops AP)				
	Strategy OP.1 – Addressing Administrative Policy Issues		●	New Strategy
	Strategy OP.2 – Addressing Resource Policy Issues		●	New Strategy
	Strategy OP.3 – Addressing Legal Issues		●	New Strategy
Evaluation Action Plan (Eval AP)				
	Strategy EV.1 – Measuring Sanctuary Performance Over Time		●	New Strategy

Implementing Action Plans

The FKNMS defines a place where many governmental and non-governmental organizations work in partnership to achieve the Sanctuary’s goals: protect resources and their conservation, recreational, ecological, historical, research, educational, or aesthetic values through comprehensive long-term management. This management plan describes these collective efforts, and its implementation relies on resources and efforts from a variety of partners. Table 3.1 describes the extent to which each of the action plans and strategies within this revised management plan can be implemented under three funding scenarios. Funding from both NOAA and other partners, (e.g. EPA, Monroe County, etc.) is considered in ranking the level of implementation.

Table 3.1 Action Strategy Implementation Over Five Years Under Three Funding Scenarios

Implementation* with NOAA Funding	Implementation* with Partner Funding	Scenario 1: Level Funding	Scenario 2: 5% per year increase	Scenario 3: 10% per year increase
● - High ⊙ - Medium ○ - Low	◆ - High ◇ - Medium ◇ - Low			
Sanctuary Science				
Science Management and Administration Action Plan				
		●	●	●
		⊙◆	⊙◆	●
		●	●	●
		⊙	⊙	●
		⊙◆	⊙◆	◆
Research and Monitoring Action Plan				
		⊙◆	⊙◆	●◆
		⊙	⊙	●
		●	●	●
		●◆	●◆	●◆
		⊙◆	⊙◆	●◆
		⊙◆	⊙◆	●◆
		○◇	○◇	⊙◆
		⊙◆	⊙◆	●◆
		○◇	○◇	⊙◆
		●◆	●◆	●◆
		⊙◆	⊙◆	●◆
		⊙◆	⊙◆	●◆
		⊙◆	⊙◆	●◆
Education, Outreach and Stewardship				
Outreach and Education Action Plan				

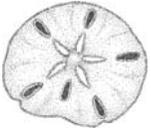
* Implementation ranking considers the priority of each strategy as well as the percentage of activities that could be initiated, maintained, and/or completed under differing funding scenarios.

Implementation* with NOAA Funding	Implementation* with Partner Funding	Scenario 1: Level Funding	Scenario 2: 5% per year increase	Scenario 3: 10% per year increase
● - High ⊙ - Medium ○ - Low	◆ - High ◇ - Medium ◇ - Low			
	Strategy E.4 - Developing Training, Workshops and School Programs	○	⊙	⊙
	Strategy E.6 - Continuing the Education Working Group	●	●	●
	Strategy E.10 - Establishing Public Forums	⊙	⊙	●
	Strategy E.11 - Participating in Special Events	⊙	⊙	●
	Strategy E.1 - Printed Product Development and Distribution	○	○	⊙
	Strategy E.2 - Continued Distribution of Audio-Visual Materials	⊙	●	●
	Strategy E.3 - Continue Development of Signs, Displays, Exhibits, and Visitor Centers	⊙	⊙	⊙
	Strategy E.5 - Applying Various Technologies	⊙	⊙	⊙
	Strategy E.12 - Professional Development of Outreach and Education Staff	○	○	⊙
Volunteer Action Plan				
	Strategy V.1 - Maintaining Volunteer Programs	⊙	⊙	⊙
	Strategy V.2 - Working with Other Organization/ Agency Volunteer Programs	○	○	○
	Strategy V.3 - Providing Support for Volunteer Activities	○	○	⊙
Enforcement and Research Protection				
Regulatory Action Plan				
	Strategy R.1 - Maintaining the Existing Permit Program	⊙	⊙	●
	Strategy R.2 - Regulatory Review	⊙	⊙	●
Enforcement Action Plan				
	Strategy B.6 - Acquiring Additional Enforcement Personnel	●	●	●
Damage Assessment and Restoration Action Plan				
	Strategy B.18 - Injury Prevention	○	○	⊙
	Strategy B.19 - Implementing DARP Notification and Response Protocols	○	○	⊙
	Strategy B.20 - Damage Assessment and Documentation	⊙◇	⊙◇	●◇
	Strategy B.21 - Case Management	◆	◆	◆
	Strategy B.22 - Habitat Restoration	◇	◇	◆
	Strategy B.23 - Data Management	○	⊙	⊙
Maritime Heritage Resources Action Plan				
	Strategy MHR.1 - MHR Permitting	●◇	●◇	●◇
	Strategy MHR.2 - Establishing an MHR Inventory	○◇	○◇	⊙◇
	Strategy MHR.3 - MHR Research and Education	○◇	○◇	⊙◇
	Strategy MHR.4 - Ensuring Permit Compliance through Enforcement	●◇	●◇	●◇
	Strategy MHR.5 - Ensuring Interagency Coordination	●◇	●◇	●◇
Resource Threat Reduction				
Marine Zoning Action Plan				
	Strategy Z.1 - Wildlife Management Areas	○	⊙	●
	Strategy Z.2 - Ecological Reserves	⊙	●	●

Implementation* with NOAA Funding	Implementation* with Partner Funding	Scenario 1: Level Funding	Scenario 2: 5% per year increase	Scenario 3: 10% per year increase
● - High ⊙ - Medium ○ - Low	◆ - High ◇ - Medium ◇ - Low			
	Strategy Z.3 - Sanctuary Preservation Areas	○	⊙	●
	Strategy Z.4 - Existing Management Areas	●	●	●
	Strategy Z.5 - Special-use Areas	○	⊙	●
Mooring Buoy Action Plan				
	Strategy B.15 - Mooring Buoy Management	●	●	●
Waterway Management Action Plan				
	Strategy B.1 - Boat Access	◆	◆	◆
	Strategy B.4 - Waterway Management/Marking	◇	◇	◆
Water Quality Action Plan				
	Strategy W.19 - Florida Bay Freshwater Flow	●◆	●◆	●◆
	Strategy W.3 - Addressing Wastewater Management Systems	◇	◇	◇
	Strategy W.5 - Developing and Implementing Water Quality Standards	◇	◇	◇
	Strategy W.7 - Resource Monitoring of Surface Discharges	◆	◆	◆
	Strategy W.11 - Stormwater Retrofitting	◇	◇	◇
	Strategy W.14 - Instituting Best Management Practices	◇	◇	◆
	Strategy B.7 - Pollution Discharges	⊙◇	⊙◇	●◆
	Strategy L.1 - Elimination of Wastewater Discharge from Vessels	⊙◇	⊙◇	●◆
	Strategy L.3 - Marina Operations	◇	◇	◆
	Strategy L.7 - Assessing Solid Waste Disposal Problem Sites	◇	◇	◇
	Strategy W.15 - HAZMAT Response	○◇	○◇	⊙◇
	Strategy W.16 - Spill Reporting	○◇	○◇	⊙◇
	Strategy L.10 - HAZMAT Handling	◇	◇	◇
	Strategy W.17 - Refining the Mosquito Spraying Program	◇	◇	◇
	Strategy W.10 - Addressing Canal Water Quality	◇	◇	◇
Administration				
Operations Action Plan				
	Strategy OP.1 - Addressing Administrative Policy Issues	⊙	⊙	⊙
	Strategy OP.2 - Addressing Resource Policy Issues	⊙	⊙	⊙
	Strategy OP.3 - Addressing Legal Issues	⊙	⊙	●
Evaluation Action Plan				
	Strategy EV.1 - Measuring Sanctuary Performance Over Time	●	●	●

Action Plan Implementation Costs

Each of the Action Plans contains a cost implementation table that provides an estimate of potential costs for implementing each of the strategies contained within the Action Plan for each of the years of the Plan. These costs are low-end estimates only and the ability to afford the costs are highly dependent upon the availability of funds obtained through sources such as legislative (federal and state) appropriations, support from partner agencies, and/or external funding opportunities such as grants. Depending on the specific Action Plan and strategy, the costs can include staff, facilities, contracts, equipment, etc.



3.1 Sanctuary Science

The Sanctuary Science management division consists of two action plans: 1) Science Management and Administration and 2) Research and Monitoring. An effective science program requires management and administration that focuses on coordinating research and monitoring projects, working with partners to secure funding and other support, communicating findings of the program, advising Sanctuary managers of relevant findings both by the program and from other sources, and engaging in other regional science efforts. This coordination role is substantial because of participation by a large number of governmental, academic and non-governmental scientists. Permitting is a component of this action plan, along with other critical aspects of administering an effective and comprehensive science program.

The monitoring component of the Research and Monitoring Action Plan has established a baseline of information on spatial patterns and temporal trends in natural resources and other components of the ecosystem. Monitoring accrues value over time and requires long-term commitments of support. To improve our understanding of patterns and trends such as those documented by monitoring, research elucidates:

- Cause-and-effect relationships of specific ecological interactions;
- Processes that shape ecosystem structure and function; and,
- How management actions or other factors modify ecosystem processes.

Research and monitoring projects investigate fundamental processes and specific topics in support of science-based management. The resulting scientific findings are used to:

- Evaluate the effectiveness of the Sanctuary and its management actions;
- Distinguish between the effects of human activities and natural variability;
- Develop hypotheses about causal relationships that can then be investigated further; and,
- Validate models that guide management actions.

3.1.1 Science Management & Administration Action Plan

Introduction

Scientific research and monitoring in the FKNMS involves dozens of projects conducted by a wide range of academic institutions, state and federal agencies, and other organizations. It is essential to maintain overall coordination and management of this complex set of activities and the information it generates to achieve science-based management of Sanctuary resources and to effectively communicate findings of the science program to interested parties. In addition, many scientific studies require Sanctuary permits in order to proceed as they involve temporarily placing sampling apparatus on the sea floor.

Sanctuary managers regularly require technical advice on best-management practices of natural resources and other issues, and obtain this advice from a Technical Advisory Committee (TAC) comprised mainly of scientists conducting projects in the FKNMS. This advice has been of great value to managers. For instance comments from the TAC were essential to Sanctuary managers as they developed the FKNMS *Comprehensive Science Plan* (see Research and Monitoring Action Plan).

The Florida Reef Tract is a nationally significant ecosystem that lies at the southernmost margin of the greater South Florida ecosystem. "Upstream" management actions may impact Sanctuary resources, and FKNMS staff is responsible for including such considerations at a host of meetings and discussions. These include several major efforts in South Florida that are highly relevant to Sanctuary management such as the South Florida Ecosystem Restoration Task Force, the Comprehensive Everglades Restoration Plan, and the Florida Bay and Adjacent Marine Systems Science Program, which require participation by Sanctuary staff.

Goals and Objectives

The goal of the Science Management and Administration Action Plan is to define the elements of a coordinated science program that meets management objectives, informs the public about the state of Sanctuary resources, and provides relevant information for regional efforts such as Everglades restoration.

The objectives of this action plan are to:

- Facilitate and manage scientific and educational projects that entail prohibited activities;
- Broadly disseminate findings of the science program and use this information in regional science efforts;
- Utilize the technical expertise of the regional scientific community in Sanctuary decision-making; and
- Define the elements of a distributed data management strategy.

Implementation

The Science Management and Administration Action Plan will be implemented by the FKNMS, EPA, FWC, and DEP.

Accomplishments

There have been substantive accomplishments in scientific coordination, data collection and dissemination of findings since the 1996 management plan. Examples include:

- An independent Science Advisory Panel, convened in December 2000, to review the science program and make recommendations about future directions.
- *Florida Keys National Marine Sanctuary Comprehensive Science Plan*, addressing the Science Advisory Panel's recommendations and identifying research and monitoring priorities in support of specific management objectives (posted at the FKNMS Web site floridakeys.noaa.gov).
- In January 1998, a workshop of 50 social scientists and stakeholders was held to design the Socioeconomic Research & Monitoring Program. Go to marineeconomics.noaa.gov/SocmonFK/keys.html for Goals and Objectives and products developed to date.
- The Tortugas 2000 process for designing the Tortugas Ecological Reserve relied heavily on compilation of existing research and new characterization studies in physical oceanography, natural resources, and human dimensions (floridakeys.noaa.gov/tortugas/welcome.html).
- A symposium at NOAA headquarters in 2001, conducted to present findings of the monitoring programs and associated projects to a broad audience of managers, scientists, and other interested parties.
- A session on marine ecosystems of the Florida Keys at the 2003 *Greater Everglades Ecosystem Restoration Science Conference*. The half-day session included 10 oral presentations covering a wide range of topics.
- A 2004 colloquium, "Connectivity: Science, People, and Policy in the Florida Keys National Marine Sanctuary," to engage the public about recent scientific findings regarding resource condition and linkages between natural resources, socio-economic use, and management challenges. A proceedings volume of presentations and panel discussions at the two-and-a-half-day meeting will be published in the National Marine Sanctuary Program's Conservation Series (sanctuaries.nos.noaa.gov/science/conservation/welcome.html).
- Staff helped organize a special symposium on Caribbean Connectivity at the 2006 annual meeting of the Gulf and Caribbean Fisheries Institute, which included a day of scientific presentations and a hands-on workshop on remote-sensing tools for managers. A set of papers will be published in the National Marine Sanctuary Program's Conservation Series (sanctuaries.nos.noaa.gov/science/conservation/welcome.html).
- Reports on findings of the Science Program including the Water Quality Protection and Marine Zone Monitoring Programs (posted at the FKNMS Web site floridakeys.noaa.gov). The 2002-03 report was published in the National Marine Sanctuary Program's Conservation Series (sanctuaries.nos.noaa.gov/science/conservation/welcome.html).
- Participation in South Florida, National, and International committees including the South Florida Ecosystem Restoration Task Force's Working Group, Florida Bay and Adjacent Marine Systems Program Management Committee, Southern Florida Shallow-Water Coral Ecosystem Mapping Implementation Team's Steering Committee, Comprehensive Everglades Restoration Plan Project Delivery Teams, Florida Reef Resilience Program's Steering Committee, Florida Oceans and Coastal Resources Council, Atlantic *Acropora* Biological Review Team and Recovery Team, U.S. Coral Reef Task Force, U.S. Climate Change Science Program's Synthesis and Assessment Product 4.4 (Preliminary Review of Adaptation Options for Climate-Sensitive Ecosystems and Resources), CORALINA International Advisory Board, and Organizing Committee for the 11th International Coral Reef Symposium.

- Presentations at regional, national and international conferences and workshops.
- Publications in peer-reviewed journals, books, and conference proceedings.

Strategies

There are five strategies in this Action Plan:

- B.11 Issuance of Sanctuary Research Permits
- W.29 Dissemination of Findings
- W.32 Maintaining a Technical Advisory Committee
- W.34 Regional Science Partnerships and Reviews
- W.35 Data Management

Each of these strategies is detailed below. Table 3.2 provides estimated costs for implementation of each strategy over the next five years.

Table 3.2 Estimated Costs of the Science Management and Administration Action Plan

Science Management and Administration Action Plan Strategies	Estimated Annual Cost (in thousands)*					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
B.11: Issuance of Sanctuary Research Permits	20	20	20	20	25	105
W.29: Dissemination of Findings	15	15	15	15	20	80
W.32: Maintaining a Technical Advisory Committee	10	10	10	10	15	55
W.34: Regional Science Partnerships and Reviews	60	60	65	65	70	320
W.35: Data Management	60	60	65	65	70	320
Total Estimated Annual Cost	<i>165</i>	<i>165</i>	<i>175</i>	<i>175</i>	<i>200</i>	880

* Contributions from outside funding sources also anticipated.

STRATEGY B.11 **ISSUANCE OF SANCTUARY RESEARCH PERMITS**

Strategy Summary

This strategy allows researchers to conduct prohibited activities if these activities further highly beneficial research and monitoring in the Sanctuary. Research activities that are not prohibited are maintained in a voluntary research registry. Permits are monitored and their provisions enforced (see also Strategy R.1 in the Regulatory Action Plan, 15 CFR 922.166, and the Sanctuary Web site floridakeys.noaa.gov/research_monitoring/permits.html).

Activities (1)

(1) Continue Research Permitting Program. Sanctuary staff continues to manage, authorize, and enforce the permitting program and review all permit applications. Strategy R.1 in the Regulatory Action Plan further describes the full permitting program. The FWC and Monroe County also issue permits for certain activities within their jurisdictions and staff coordinates with these programs.

Status: On-going.

Implementation: When determining whether to issue a research permit, the potential for damage is compared to expected benefits. Research that may result in resource alteration must be of the highest quality and be considered highly beneficial. Staff may request a committee of coral experts to review applications to collect live coral. Information and forms required for a research permit request are posted at the Sanctuary's Web site (floridakeys.noaa.gov/research_monitoring/permits.html). The results of permitted research are evaluated through a peer review. The Sanctuary is the lead agency, in collaboration with the DEP, FWC and Monroe County.

STRATEGY W.29 **DISSEMINATION OF FINDINGS**

Strategy Summary

This strategy will develop a program to synthesize and disseminate scientific research and monitoring results, including an information exchange network, conferences, and support for the publication of research findings in peer-reviewed scientific journals. It will help disseminate research findings among scientists, resource managers, and the general public.

Activities (5)

(1) Develop Periodic Reports on Sanctuary Health. This activity will create Florida Keys National Marine Sanctuary Condition reports for the general public. The reports will include up-to-date information on the status and trends of water quality, critical habitats, and species of particular interest. The reports will review the effectiveness of marine zoning in protecting biodiversity, sensitive habitats, fisheries resources and in modifying use patterns and user perceptions. The reports will also consider the state of the Sanctuary in the context of other tropical marine ecosystems at regional and global scales. Reports will be prepared periodically as the Science Program produces significant new information.

Status: Work on the first FKNMS Condition Report will begin in 2007. In addition, periodic science reports are posted on the Sanctuary's internet site.

Implementation: FKNMS is the lead agency.

(2) Continue to Communicate Findings of the Science Program. Staff conducts symposia and prepares newsletter articles, public presentations, annual reports, and other written and oral materials.

Status: On-going.

Implementation: FKNMS staff publish a newsletter (*Sounding Line*) (refer to the Outreach and Education Action Plan) and make frequent public presentations. Reports of findings of the science program are posted at the FKNMS Web site (floridakeys.noaa.gov). FKNMS is the lead agency. Collaborating organizations have primary roles.

(3) Establish an Information Exchange Network. This activity would develop a compendium of on-going and planned research to be updated periodically.

Status: No action has been taken to develop a compendium; however, a summary of on-going monitoring and research is posted at the FKNMS internet site.

Implementation: A FKNMS Science Advisory Panel (December 2000) reviewed existing science projects and recommended future action. Based on that review, a *Final Draft Comprehensive Science Plan* has been developed and the Technical Advisory Committee has provided further comment and review. The plan is posted at the FKNMS Web site (floridakeys.noaa.gov). A second review of the FKNMS science program will take place in 2007. FKNMS is the lead agency; the EPA has a primary role.

(4) Sponsor Conferences. This activity involves sponsoring conferences to keep scientists and managers informed on research and monitoring results and existing or planned management actions.

Status: On-going.

Implementation: FKNMS and EPA staff convened a meeting in December 2000 at which principal investigators presented all elements of the science program to an independent panel for peer review. In December 2001, FKNMS, EPA, State of Florida, and other agency partners hosted a symposium in the NOAA Main Auditorium entitled "The Florida Keys National Marine Sanctuary: An Ecosystem Report Card." This one-day symposium presented results from status and trends monitoring of coral reefs, seagrasses, and water quality, and also reviewed performance of fully protected marine zones on benthic communities and fishery populations. Principal investigators from each monitoring project were present to discuss their findings and answer questions.

In August 2004, FKNMS hosted a colloquium in Key West entitled "Connectivity: Science, People and Policy in the Florida Keys National Marine Sanctuary." This two-and-a-half-day meeting included five plenary talks and panels on the topics of regional connections, connectivity between people and marine fishery resources, climate change, resource conditions, water quality, coral and seagrass habitats, human perspectives, and management tools. A proceedings volume will be published.

The FKNMS helped to organize a special symposium, "Caribbean Connectivity," at the annual meeting of the Gulf and Caribbean Fisheries Institute in November 2006. The special symposium included a full day of presentations and a day-long, hands-on workshop designed to train resource managers in the use of remote sensing tools.

FKNMS is the lead agency; the EPA and FWC have primary roles.

(5) Support Journal Publication. This activity involves funding the publication of research and monitoring findings in peer-reviewed scientific and management journals, as needed. Some publications have no associated fees.

Status: On-going.

Implementation: Recent publications have appeared in *Gulf and Caribbean Research*, *Marine Technology Society Journal*, *Proceedings of the 2003 Georgia Basin/Puget Sound Research Conference*, *Ecological Restoration*, a chapter in *Estuarine Indicators*, *Bulletin of Marine Science*, *Journal of Environmental Management*, *Journal of Leisure Research*, *New Zealand Journal of Marine and Freshwater Research* and *Ocean and Coastal Management*. NOAA is the lead agency; the EPA and FWC have primary roles.

STRATEGY W.32 MAINTAINING A TECHNICAL ADVISORY COMMITTEE

Strategy Summary

This strategy will maintain a previously established Technical Advisory Committee composed of scientists and other staff from federal agencies, state agencies, academic institutions, and private, non-profit organizations as well as knowledgeable citizens. Its purpose is to advise the EPA, DEP and the Sanctuary on the design and prioritization of water quality and ecological research and monitoring.

Activities (1)

(1) Convene Meetings of a Technical Advisory Committee. The Technical Advisory Committee meets once or twice per year to advise FKNMS managers. The EPA develops agendas in consultation with the FKNMS, DEP, South Florida Water Management District (SFWMD), Monroe County, and other members of the Water Quality Protection Program (WQPP) Management Team.

Status: On-going. Periodic meetings are held as the Committee determines a need or as requested by the WQPP Management Team. The most recent meeting was held in the summer of 2006.

Implementation: The EPA and DEP are the lead agencies; the FKNMS has a primary role.

STRATEGY W.34 REGIONAL SCIENCE PARTNERSHIPS AND REVIEWS

Strategy Summary

FKNMS staff actively participate in science-related committees, review panels, and other groups that collaborate on science issues pertaining to South Florida, coral reefs, resource management, and other topics. This strategy ensures that consideration of Sanctuary resources is included in regional

planning, that there is broad-based recognition of scientific findings concerning the Sanctuary, and that Sanctuary expertise is shared with partners.

Activities (1)

(1) Continue Regional Science Partnerships and Reviews. Several FKNMS staff are members of or participate in the U.S. Coral Reef Task Force, South Florida Ecosystem Restoration Task Force's Working Group, Comprehensive Everglades Restoration Plan Project Delivery Teams, Florida Bay and Adjacent Marine Systems Program Management Committee, Florida Reef Resilience Program Steering Committee, Southern Florida Shallow Water Coral Ecosystem Mapping Implementation Steering Committee, meetings of regional Coastal Ocean Observing Systems and their Regional Associations, the Florida Ocean and Coastal Resources Council, grant proposal review panels, and other committees and panels. In addition, staff review numerous permit proposals, management plans, science plans, etc such as the Everglades National Park General Management Plan.

Status: On-going.

Implementation: FKNMS staff regularly participate in meetings of various committees and panels and review various documents as noted above. NOAA and FWC are the lead agencies; the EPA and DEP have primary roles.

STRATEGY W.35 DATA MANAGEMENT

Strategy Summary

As technologies evolve, research and monitoring programs become more complex and the volume of information increases. It is clear that a distributed data management strategy is most appropriate. This strategy centers around an internet-based data search engine that points interested parties to Internet sites that serve the requested databases, maps, text files, etc. For the most part, these internet sites would be maintained by the information creators to ensure data currency and accuracy. This strategy is being carried out in accordance with recommendations of the Technical Advisory Committee, the Florida Oceans and Coastal Resources Council and FWC. It evolved from W.33: Ecological Research and Monitoring (Activity 2 - Establish an Ecological Information System) and W.28: Regional Database.

Activities (3)

(1) Continue the Ecological Information System. Spatial and temporal information about ecological resources has been incorporated into an existing South Florida Geographic Information System (GIS). Information summarizing benthic habitats, species distributions and life histories, water quality, etc., is included. These are essential baseline data for effective ecological monitoring. Additionally, information will be derived from existing sources such as the Minerals Management Service / Marszalek / Dade Department of Environmental Resource Management maps and the NOAA/FWC benthic habitat maps, all of which have been digitized and incorporated into the FWC/Fish and Wildlife Research Institute's Marine Resources GIS.

Status: On-going.

Implementation: The FWC and other agencies, pending funding, have several separate but related projects underway that should meet this need. For example, the FWRI worked with the US Army Corps of Engineers (USACE) and Florida Department of Community Affairs (FDCA) on the Florida Keys Carrying Capacity Study, which generated new scenario-based

information. The carrying capacity project incorporated comprehensive growth plans, human-use, and environmental data into a model designed to facilitate growth management. Monroe County is also developing a GIS for land-use analysis, with some marine applications. Pending funding, the FWC would be the lead agency for integrating the data for easy access by FKNMS staff over the internet using map servers and internet-served databases.

(2) Establish a Data Management Protocol. This protocol will standardize the way investigators manage data by creating a single approach to maintaining, storing, and accessing digital data. For many years, researchers have maintained and analyzed their data as they saw fit. With research shifting focus from single organisms to ecosystems, the need arises to integrate multiple databases. In addition, a dynamic, distributed system is necessary for annual data gathering and archiving. A regional database and data management system will also be established for recording research results and the biological, physical, and chemical parameters associated with monitoring programs.

Status: No action has been taken to complete the protocol.

Implementation: Pending funding, the FWC will continue to produce annual CD-ROMs for the Water Quality Protection and Marine Zone Monitoring Programs. Some principal investigators are posting data and reports at individual Web sites. FKNMS will coordinate to the greatest extent possible with the NMSP IMAST group to ensure appropriate consistency with NMSP internal protocols. The FWC is the lead agency; the EPA and FKNMS have primary roles.

(3) Develop a Geographic Information System. This activity seeks to use photographs of sea bottom features near coral reefs to provide baseline data on coral cover at a particular time. The photographs provide information on the location of monitoring stations in relation to benthic cover and assist mooring-buoy specialists in pinpointing the location of buoy anchors. A comparison between 1995 and 1999 color infrared photographs shows seagrass damage over time, and turbidity increases caused by boats crossing over shallow areas. GIS analysis also shows the status of nearshore areas and details of the destruction caused by vessel groundings. A GIS will provide satellite views of the entire Florida Keys, showing areas of monitoring efforts, and nearshore aerial photographs of research areas where benthic habitat studies are being conducted.

Status: On-going.

Implementation: Staff and volunteers assist with GIS software and imagery. FKNMS has the lead for this activity and works with staff from other NOAA offices as well as partner agencies to develop layers as needed. Recent partnership discussions include potential projects with Monroe County Marine Resources Division.

3.1.2 Research and Monitoring Action Plan

Introduction

Overview

Congress mandates in the FKNMSPA that Sanctuary managers identify research priorities and the funds needed to improve the management and preservation of the Florida Keys coral reef ecosystem. The marine ecosystem of the Florida Keys is diverse and complex, and many of its ecological processes and their interrelationships are not well known. Although many resource impacts are obvious and severe, they are often not documented or quantified, and their causes may be even less clear or unknown.

The purpose of monitoring is to establish a baseline of information on natural resources and other components of the ecosystem, and to measure changes over time. As monitoring studies gather data, they have the potential to detect significant changes in natural resources that result from management actions or from other causes. The findings of research projects must also help managers and scientists identify cause-and-effect relationships that generate ecological patterns and trends, and stressors and other factors that threaten the health of the coral reef ecosystem.

The FKNMS Water Quality Protection Program (WQPP) established comprehensive, long-term monitoring of three components of the ecosystem: water quality, coral reefs and hard-bottom communities, and seagrasses. The Marine Zone Monitoring Program documents effects of 24 fully protected marine zones, including the Tortugas Ecological Reserve, that were implemented in 1997 and 2001. Monitoring projects in this program document trends in ecological processes, reef fishes, spiny lobster, queen conch, other invertebrates, and benthic community structure within fully protected marine zones and nearby reference areas. Social and economic parameters are also being surveyed. Together, these monitoring programs provide FKNMS managers with basic information about the state of the Florida Keys coral reef ecosystem and changes resulting from a key management action – marine zoning.

U.S. Coral Reef Task Force

It has long been recognized that research and monitoring efforts in the Florida Keys must be focused on priority issues. The *1996 Management Plan* summarizes early workshops and symposia that helped define key issues for scientists around the world. More recently, the 1998 Hawaii Coral Reef Monitoring Workshop; the 1999 International Conference on Scientific Aspects of Coral Reef Assessment, Monitoring, and Restoration; the Ninth and Tenth International Coral Reef Symposia (2000 and 2004); the 2002 *Acropora* Workshop in Miami; the 2003 Coral Reefs, Climate, and Coral Bleaching Workshop in Hawaii; the 2004 *Diadema* workshop in Miami; the 2002, 2004 and 2006 workshops of the Coral Disease and Health Consortium (Charleston, Key Largo, and Madison); and the 2005 International Marine Protected Areas Congress all have added to the sense of urgency.

Another significant development was the 1998 establishment of the U.S. Coral Reef Task Force. In 2000, the Task Force issued *The National Action Plan to Conserve Coral Reefs*, which included the following statement about monitoring:

“Successful coral reef conservation requires adaptive management that responds quickly to changing environmental conditions. This, in turn, depends upon monitoring programs that track trends in

coral reef health and reveal significant trends in the condition – before irreparable harm occurs. Monitoring can also play a vital role in guiding and supporting the establishment of complex or potentially controversial management strategies such as no-take ecological reserves, fishing gear restrictions or habitat restoration, by documenting the impacts of gaps in existing management schemes and illustrating the effectiveness of new measures over time.”

The *National Action Plan* notes that accurate mapping and rigorous monitoring and assessment directly contribute to coral reef conservation by:

- Documenting the status of ecologically and economically important reef species.
- Tracking and assessing changes in reef communities in response to environmental stressors or specific human activities and uses.
- Evaluating the effectiveness of specific management strategies and identifying directions for future adaptive responses.
- Evaluating the natural recovery and/or restoration of injured or degraded reefs.
- Enabling informed decisions about the location of potentially harmful activities.
- Providing baselines for assessing catastrophic damage from natural or manmade events such as storms, diseases, vessel groundings, and toxic spills.
- Serving as an early warning system for identifying declines in coral reef health.

The *National Action Plan* also points out that modern coral reef ecology is still a comparatively young discipline, and many phenomena remain only partially understood, particularly as they relate to coral reef conservation. For example, the causes and impacts of many coral reef stressors remain uncertain, as do many of the fundamental ecological processes that determine the structure, condition, and dynamics of healthy coral reef communities and the recovery of impaired systems.

As a result, the coral reef conservation community is at a great disadvantage because threats to coral reefs apparently are increasing faster than the scientific knowledge base needed to understand and ameliorate them through active conservation measures. Without significant effort to strategically target research on coral reef conservation issues, further losses of live coral may be widespread across the Florida Reef Tract within our lifetimes. At present, research on coral reef ecosystems - both basic and applied - is insufficient to meet these needs. Moreover, further efforts are needed to identify and target critical knowledge gaps through cooperative assessment and planning by federal and state resource and funding agencies with responsibilities for coral reef ecosystems.

In order to obtain a peer-reviewed evaluation of its research and monitoring efforts, FKNMS managers convened a meeting in December 2000, at which principal investigators presented findings of their monitoring and research projects to an independent Science Advisory Panel. In turn, the panel provided recommendations, which have been incorporated into the *Comprehensive Science Plan*. This plan links research and monitoring to specific management objectives to help ensure science-based management of Sanctuary resources.

Goals and Objectives

The goal of the FKNMS Research and Monitoring Action Plan is to provide the knowledge necessary to make informed decisions concerning the protection of the biological diversity and natural ecosystem processes of the Sanctuary and its resources.

The objectives of this action plan are to:

- Encourage and provide support for research and monitoring that lead to better understanding of key ecological processes and criteria for recognizing ecological change; and
- Use research and monitoring results to evaluate management actions and improve them accordingly.

Implementation

The FKNMS Research and Monitoring Action Plan will be implemented through a coordinated framework of federal, state, and local agencies in cooperation with academic and research institutions. In many cases, academic institutions take the lead in implementing strategies and activities that deal with predictive modeling, research, or monitoring. The FKNMS managers, DEP, and FWC, however, have the lead responsibility for overall program implementation. The EPA and other agencies and organizations will continue to provide leadership in implementing many research and monitoring strategies.

Priorities

The Research and Monitoring Action Plan includes 13 strategies. Five strategies from the 1996 *Management Plan* have not been included here because of the low likelihood of implementing low-priority strategies over the next five years (see “Previous Strategies” at the end of this Action Plan). The highest-ranking strategies are Ecological Research and Monitoring and Marine Zone Monitoring. Strategies of high or medium priority typically seek to develop information to evaluate water quality and ecosystem health. High- and medium-priority activities also result in information useful to marine zoning, boating, and fisheries management.

Geographic Focus

All research and monitoring strategies apply to the entire Sanctuary. However, some strategies may include components applicable to specific areas, such as fully protected marine zones. It is important to recognize that some ecosystem patterns and trends within the Sanctuary may be caused by larger-scale phenomena such as variable oceanic circulation features and weather cycles.

Personnel

The staff required to implement the Research and Monitoring Action Plan are a mix of personnel from the agencies and organizations listed in the detailed discussion of each strategy. When EPA or FWC is the lead agency for implementing a strategy, FKNMS personnel assist in directing the activities. Researchers are registered (as appropriate) through a regional permitting system (see the Science Management and Administration Action Plan).

Scientists from universities, research institutions, and environmental firms are involved in research and monitoring activities on a long- or short-term basis. NOAA, DEP, or FWC personnel dedicated to research and monitoring activities direct the remaining activities.

Sanctuary Employees

Science activities require three full-time FKNMS employees: a science coordinator, a research interpreter, and an assistant. The Sanctuary Superintendent and the FKNMS Upper and Lower

Region Managers also are actively involved in these activities. Additional FKNMS, NOAA and DEP staff assist many science projects, including vessel and diving support.

Other NOS Support

The Socioeconomic Research & Monitoring Program for the FKNMS was initiated in 1998. The program is led by Dr. Vernon R. (Bob) Leeworthy, Leader of the Coastal and Ocean Resources Economics Program, located at the NOS Office of Management and Budget, Special Projects. Many academics, contractors, grantees and volunteers participated in this program. All program results are posted on the following Web site marineeconomics.noaa.gov/SocmonFK/keys.html

Volunteers

Volunteers assist several research and monitoring strategies. Volunteers are being sought for Artificial Reefs, Water Quality Monitoring, and Ecological Research and Monitoring activities. A FKNMS volunteer coordinator is directing associated volunteer research and monitoring activities.

Evaluating Program Effectiveness

The FKNMS staff conducts periodic evaluations to determine the effectiveness of research and monitoring activities and prepares a *Comprehensive Science Plan*. Starting in 2007, FKNMS staff will prepare its first Condition report with support from NMSP, DEP and FWC as needed. The evaluations identify strategies and activities that are ineffective or inadequate; evaluations also suggest new activities. Evaluations involve two committees: 1) a Science Advisory Panel (SAP), which is an independent, peer-review panel comprised of scientists who are not actively engaged in research in the FKNMS and 2) a Technical Advisory Committee (TAC), which has direct knowledge of the FKNMS marine ecosystem through their research activities within the FKNMS. The SAP conducted a review in 2000 and a second review will be conducted 2007; the TAC generally is convened once or twice per year. In addition, the five-year reviews of the FKNMS Management Plan include evaluations of the Science Program by a Sanctuary Advisory Council working group.

Accomplishments

There have been substantive accomplishments in the FKNMS Science Program since implementation of the 1996 management plan. Accomplishments fall into two categories: implementation and coordination, and data collection and dissemination. Examples include:

- A Benthic Habitat Map of the Sanctuary, produced in close cooperation with state and federal partners
- A 10-volume *Site Characterization of the Sanctuary*, detailing living and non-living resources
- On-going monitoring projects of the Water Quality Protection Program: water quality, seagrasses, and coral reef and hard-bottom communities
- On-going meteorological and oceanographic near-real-time data from seven SEAKEYS/C-MAN arrays and additional oceanographic sensors
- Implementation of the Marine Zone Monitoring Program in 1997, with on-going projects investigating ecological processes, reef fishes, spiny lobster, queen conch, other invertebrates, benthic community structure, and social and economic parameters
- Support of Special Studies and independently funded research projects
- On-going Keys-wide monitoring since 1989 to record water temperature at 32 reef sites.
- Collaboration with NOAA's Coral Reef Conservation Program
- On-going support of Keys-wide coral surveys and coral health expeditions

- On-going coordination and collaboration with the National Undersea Research Center (UNCW)
- Scientific and logistical support of the 5 year Sustainable Seas Expedition (1998-2002)
- On-going collaboration with the Florida Bay Science Managers
- Implementation of the Socioeconomic Research and Monitoring Program (1998-present, several baselines established in 1995-1996)

Strategies

There are 13 strategies in the Research and Monitoring Action Plan:

- W.33 Ecological Research and Monitoring
- Z.6 Marine Zone Monitoring
- W.36 Conducting Socioeconomic Research
- F.3 Researching Queen Conch Population Enhancement Methods
- F.7 Researching Impacts From Artificial Reefs
- F.6 Fisheries Sampling
- F.11 Evaluating Fishing Gear/Method Impacts
- F.15 Assessing Sponge Fishery Impacts
- W.18 Conducting Pesticide Research
- W.22 Assessing Wastewater Pollutants Impacts
- W.23 Researching Other Pollutants and Water Quality Issues
- W.24 Researching Florida Bay Influences
- W.21 Developing Predictive Models

Each of these strategies is detailed below. Table 3.3 provides estimated costs for implementation of each strategy over the next five years.

Table 3.3 Estimated Costs of the Research and Monitoring Action Plan

Research and Monitoring Action Plan Strategies	Estimated Annual Cost (in thousands)*					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
W.33: Ecological Research and Monitoring	2,500	2,600	2,700	2,800	2,900	13,500
Z.6: Marine Zone Monitoring	800	850	850	900	950	4,350
W.36: Conducting Socioeconomic Research	250	250	275	275	300	1,350
F.3: Researching Queen Conch Population Enhancement Methods	100	105	110	115	120	550
F.7: Researching Impacts From Artificial Reefs	25	25	25	25	30	130
F.6: Fisheries Sampling	500	525	550	575	600	2,750
F.11: Evaluating Fishing Gear/Method Impacts	100	105	110	115	120	550

F.15: Assessing Sponge Fishery Impacts	100	105	110	115	120	<i>550</i>
W.18: Conducting Pesticide Research	100	105	110	115	120	<i>550</i>
W.22: Assessing Wastewater Pollutants Impacts	200	210	220	230	240	<i>1,100</i>
W.23: Researching Other Pollutants and Water Quality Issues	250	250	275	275	300	<i>1,350</i>
W.24: Researching Florida Bay Influences	1,300	1,350	1,400	1,450	1,500	<i>7,000</i>
W.21: Developing Predictive Models	200	210	220	230	240	<i>1,100</i>
Total Estimated Annual Cost	<i>6,425</i>	<i>6,690</i>	<i>6,955</i>	<i>7,220</i>	<i>7,540</i>	<i>34,830</i>

* Contributions from outside funding sources also anticipated.

Strategy Summary

The purpose of this strategy is to detect status and trends of various ecological parameters in order to discern local and system-wide effects of human and natural disturbances on natural resources and to assess the overall health of the ecosystem.

The initial science program emphasized characterizations, surveys, and monitoring, which have yielded comprehensive baseline data on water quality, coral reef and hard-bottom communities, seagrasses, and important fishery species. As was recommended by an independent Science Advisory Panel in December 2000, the Sanctuary's science program needs to include more research on ecological processes. This mechanistic level of understanding will enable resource managers to determine whether management actions are feasible to remedy patterns or trends determined by monitoring projects.

FKNMS is the lead agency for the overall implementation of the Ecological Research and Monitoring Program, working with the EPA, FWC, academic and nongovernmental organizations, and the Water Quality Protection Program Technical Advisory Committee. The *Comprehensive Science Plan* identifies and prioritizes specific research and monitoring needs to meet management objectives.

Activities (7)

(1) Continue Status and Trends Monitoring of Water Quality, Coral Reef and Hard-bottom Communities, and Seagrasses. This activity produces long-term, comprehensive information on Sanctuary-wide status and trends of water quality parameters and biological resources. Water quality parameters being monitored include temperature, salinity, dissolved oxygen, turbidity, relative fluorescence, light attenuation, nutrients, chlorophyll, and alkaline phosphatase activity. Biological monitoring of coral reef and hard-bottom communities and seagrasses is also being conducted.

Status: On-going.

Implementation: The Southeast Environmental Research Center, Florida International University, has monitored water quality since 1995. The Fish and Wildlife Research Institute (FWRI) has monitored coral reef and hard-bottom communities since 1996. Monitoring of seagrasses has been conducted by the Southeast Environmental Research Center and Department of Biology, Florida International University, since 1996. A longer-term perspective on the health of marine ecosystems of the Florida Keys is being initiated in 2006 by Scripps Institution of Oceanography.

(2) Continue Volunteer Monitoring Program. Monitoring by trained volunteers yields useful, cost-effective data and provides positive engagement for a variety of stakeholders. The Reef Environmental Education Foundation, in cooperation with NOAA, manages surveys of reef fishes by volunteers. The Ocean Conservancy manages a volunteer program, Reef Ecosystem CONdition) Program (RECON), for assessing coral reef health. The Dolphin Ecology Project conducts research on Atlantic Bottlenose Dolphin. Surveys are conducted as part of the Atlantic and Gulf Rapid Reef Assessment (AGRRA) Program. Volunteers also monitor sea-turtle beaches and nesting sites and support a turtle-stranding network (this activity is also part of the Volunteer Action Plan). Volunteers

in each of these programs undergo specific training to ensure the accuracy of the data collected for the programs.

Status: On-going.

Implementation: The Reef Environmental Education Foundation (REEF) has monitored reef fishes in the Sanctuary since 1994. The Ocean Conservancy's RECON program has been active since 2002. The Dolphin Ecology Project began in 2000. AGRRA surveys in the Sanctuary began in 2003.

(3) Determine Response to Episodic Events. Sanctuary management requires centralized information about algal blooms, fish kills, large patches of discolored water, and other unusual episodes to determine whether a management action would be appropriate.

Status: On-going.

Implementation: The Mote Marine Laboratory's Tropical Research Laboratory, in cooperation with the Sanctuary, is conducting the Marine Ecosystem Event Response and Assessment project (MEERA).

(4) Continue Stakeholder Monitoring and Research. FKNMS supports monitoring and research projects that are developed by stakeholders because of opportunities to directly engage constituents in Sanctuary resource issues and to increase our understanding of the ecosystem. Sanctuary support includes assistance with project design, coordinating stakeholder projects with other research activities, providing vessel support and assistance with field work, issuance of research permits, assistance with identifying potential funding sources, and letters of support for grant proposals.

Status: On-going.

Implementation: The Sanctuary supports a *Diadema* restoration project led by two stakeholders in collaboration with the University of North Carolina at Wilmington/National Undersea Research Center (NURC) at Key Largo and members of the research community. In addition to discussing the design of the project and initial findings, FKNMS staff helped secure initial funding through NOAA and assisted the stakeholders in identifying additional funding sources.

(5) Initiate Research and Monitoring of Mangroves, Sedimentation Rates, Types and Causes of Turbidity, and Ecosystem Indicators. This activity documents changes to the extent of mangrove vegetation by using historical aerial photography and other records. There is also a need to monitor sedimentation rates and to investigate turbidity types and causes. Researchers will seek to link ecosystem indicators to performance measures established for the Comprehensive Everglades Restoration Plan.

Status: No action has been taken pending the identification of funding.

Implementation: FKNMS will be the lead agency for this activity; the FWC and DEP will have primary roles. FKNMS staff will include this activity in a request for proposals for funding.

(6) Initiate or Expand Research and Monitoring of Marine-life Species. In light of changes in fish community structure that may result from the network of fully protected marine zones, there is a need for more data on marine herbivores and fish cleaners. Other fisheries, such as the aquarium and

shell trades, have unknown ecosystem impacts and need investigation. For example, collectors annually gather and sell large numbers of sea biscuits, an important consumer of dead organic material; the ecological effects of its collection may be significant. This activity highlights the need to investigate components of the ecosystem that generally are overlooked in lieu of studies of habitats and commercially important species.

Status: On-going.

Implementation: The University of North Carolina at Wilmington/National Undersea Research Center at Key Largo collects data on distribution and abundance of some marine-life species through its Rapid Ecological Assessment surveys. The Reef Environmental Education Foundation conducts surveys that include small reef fishes that may be impacted by collections for the aquarium trade. FKNMS will be the lead agency, in cooperation with the FWC. This strategy is also included in the Volunteer, Outreach and Education, and Water Quality Action Plans. FKNMS staff will include this activity in a request for proposals.

(7) Long-Term Monitoring of Water Temperature. Extreme water temperature fluctuations in the FKNMS have been linked to bleaching and disease in reef corals and mass mortality of seagrass in Florida Bay. Recording thermographs are deployed throughout the Florida Reef Tract to monitor this important environmental parameter.

Status: On-going.

Implementation: Initiated in 1989, this program has expanded to include 32 stations from Miami to the Dry Tortugas in depth that range from 5 to 70 ft. The thermographs sample at 2-hour intervals and are secured on the seabed in theft-proof housings. The units are serviced annually and recalibrated every 2 years. FKNMS staff oversee the program, including deploying and recovering instruments, downloading thermographs, and providing data to management and other user groups. FKNMS has begun to make data widely available to researchers and will work to ensure data format remains consistent with Integrated Ocean Observing System standards for metadata and data accessibility.

STRATEGY Z.6

MARINE ZONE MONITORING

Strategy Summary

There are five types of marine zones in the Sanctuary: Wildlife Management Areas, Ecological Reserves, Sanctuary Preservation Areas, Special-use (Research-only) Areas, and Existing Management Areas. Marine zone monitoring occurs in the three types of marine zones that are fully protected from consumptive activities (“no-take zones”): Ecological Reserves, Sanctuary Preservation Areas, and Special-use (Research-only) Areas. The purpose of this strategy is to determine the effectiveness of fully protected marine zones as a management action for the conservation and sustainable use of marine resources. The basic design of these monitoring studies is to compare surveys within and outside of fully protected marine zones. Some studies, such as monitoring of reef fishes by NOAA Fisheries/Southeast Fisheries Science Center and the Reef Environmental Education Foundation, include surveys prior to implementation of the fully protected marine zones, enabling an optimal BACI (before/after, control/impact) sampling design. Initial findings of the Marine Zone Monitoring Program are in the 1998 and 1999 *Zone Performance Reviews*, the *Sanctuary Monitoring Report 2000*, the *Sanctuary Science Report 2001: An Ecosystem Report Card*, and the *Sanctuary Science Report 2002-03: An*

Ecosystem Report Card After Five Years of Marine Zoning (available at floridakeys.noaa.gov/research_monitoring/). The Strategy includes active participation and coordination with the U.S. Department of Interior/Dry Tortugas National Park (DTNP) and the FWC for implementation of the Memorandum of Understanding concerning research and monitoring of the Research Natural Area (RNA) established in 2007 and complimentary to the Tortugas Ecological Reserve.

Activities (3)

(1) Develop Baseline Data. Before monitoring begins, a baseline survey of existing resources in Ecological Reserves, Sanctuary Preservation Areas, and Special-use Areas must be conducted. The surveys characterize the status of important marine species and their habitats.

Status: Surveys of Western Sambo Ecological Reserve have been completed as part of long-term monitoring projects, and characterization studies of the Tortugas Ecological Reserve were completed prior to its implementation. Surveys of current Sanctuary Preservation Areas and Special-use Areas were conducted prior to or soon after their implementation. FKNMS and partner agency staff have coordinated closely in development of the DTNP RNA research and monitoring plan through a series of workshops held between January and May 2007.

Implementation: The University of North Carolina at Wilmington/National Undersea Research Center (NURC) at Key Largo conducts Rapid Ecological Assessments of benthic communities, and the Dauphin Island Sea Lab conducts additional coral reef community surveys at three fully protected zones and reference areas. NOAA Fisheries/Southeast Fisheries Science Center and the Reef Environmental Education Foundation conduct surveys of reef fishes. FWRI conducts surveys of spiny lobster and queen conch. These same studies have collected baseline information for the DTNP RNA evaluation.

(2) Monitor Marine Zones and Utilize as Controls. Research and monitoring of the FKNMS marine zones determine the degree to which the zones meet goals and objectives for protecting natural resources, as well as human-use patterns, attitudes and compliance. In order to determine where additional Special-use Areas might be appropriate, it is necessary to compile and review data on use patterns and areas of high resource impact. Additional data will be gathered to address particular concerns, including issues identified by the Sanctuary Advisory Council and the public.

Status: On-going.

Implementation: An interdisciplinary team (Florida Institute of Oceanography, Dauphin Island Sea Lab, Georgia State University, and NOAA Fisheries/Southeast Fisheries Science Center) monitors the Western Sambo Ecological Reserve, Eastern Sambo Research-only Area, Carysfort Sanctuary Preservation Area, and reference sites in order to detect functional changes (predation, herbivory, and coral recruitment) and structural changes (population abundance and size structure) that result from the restriction of consumptive activities. The University of Florida/Florida Sea Grant/Monroe County Cooperative Extension Service, in collaboration with a commercial fisher, conducted an additional shorter-term investigation of spiny lobster “spillover” at the Western Sambo Ecological Reserve and adjacent reference sites. Coordination of existing research and monitoring and the implementation of new programs will occur in the Tortugas Ecological Reserve, as described in the *Final Supplemental*

Environmental Impact Statement/Supplemental Management Plan for the Tortugas Ecological Reserve. The focus of ecological monitoring of Sanctuary Preservation Areas, Special-use (Research-only) Areas, and reference sites is on detecting structural changes (population abundance and size structure) that result from the restriction of consumptive activities. These monitoring studies examine benthic community structure (University of North Carolina at Wilmington/NURC at Key Largo), reef fishes (NOAA Fisheries/Southeast Fisheries Science Center and the Reef Environmental Education Foundation), and spiny lobster and queen conch (FWRI). Monitoring of human-use patterns, attitudes, and compliance with marine zone regulations is being conducted by an interdisciplinary team (NOAA/National Ocean Service/Special Projects Division, University of Miami/Rosenstiel School of Marine and Atmospheric Science, and Thomas J. Murray & Associates). NOAA is the lead agency for organizing the activity; however, partnerships, contracts, and agreements with other academic, agency, or non-governmental programs will likely be required for full implementation.

(3) Utilize Fully Protected Marine Zones as Research Areas. For all three types of fully protected marine zones, permitted researchers may conduct non-invasive experiments to address management strategies.

Status: Some research projects are being conducted in Ecological Reserves and Sanctuary Preservation Areas. Looe Key and Conch Reef have longer-term data sets.

Implementation: Academic and agency scientists conduct research projects. Grants to implement this strategy have been provided by NOAA/NOS/National Centers for Coastal Ocean Science (NCCOS)/Coastal Ocean Program, EPA/Special Studies, and NOAA/National Undersea Research Program.

STRATEGY W.36 CONDUCTING SOCIOECONOMIC RESEARCH

Strategy Summary

Continue researching the socioeconomic impacts of Sanctuary management on user groups. This research is necessary to achieve a management objective identified by the Sanctuary Advisory Council: "Providing a management system which is in harmony with an environment whose long-term ecological, economic, and sociological principles are understood, and which will allow appropriate sustainable uses." Socioeconomic issues include consequences to fishers who were displaced by implementation of fully protected zones in 1997 and 2001, user-group perceptions about changes in natural resources associated with management actions such as zoning, use patterns of Sanctuary waters, and user-group valuation of Sanctuary resources. All the efforts here were identified as research priorities in NOAA's Coral Reef Ecosystem Research Plan for federal fiscal year (FY) 2005 - 2010, Part II: Regional Priorities and in the NOS Social Science Plan FY 2005-2010.

Activities (4)

(1) Utilize Ecological Reserves, Sanctuary Preservation Areas, and Special-use Areas for Socioeconomic Research. Data are needed to test hypotheses about detrimental socioeconomic impacts of marine zoning and user-group perceptions about changes in natural resources within the

Sanctuary. User-group perceptions of changes in natural resources can be compared with quantitative ecological data.

Status: Several socioeconomic studies have been completed to establish baselines and several others are underway and planned.

Implementation: Commercial Fisheries: In 1998, the socioeconomic program (a collaboration of NOAA/National Ocean Service/Special Projects Division, University of Miami/Rosenstiel School of Marine and Atmospheric Science (RSMAS), and Thomas J. Murray & Associates) began to monitor commercial fisheries. Panels of fishers displaced by Sanctuary Preservation Areas and the Western Sambo Ecological Reserve were created. Their catch and financial performance are being tracked, as well as spatial catch patterns. One panel consists of Keys-wide fishers who were not impacted by the areas. Panel data collection through year six has been completed and reports posted in pdf on the Web site. Panel data for years seven and eight will be completed in the summer of 2006. In addition, a panel was constructed of Tortugas fishers and three years of baseline data were obtained before creation of the Tortugas Ecological Reserve. New surveys have been conducted for the post-implementation assessment.

Tortugas Integrated Assessment (TIA): In FY 2005, NCCOS initiated an integrated assessment of the Tortugas Ecological Reserve. The purpose of the TIA is to evaluate the success or effectiveness of the reserve. The University of Massachusetts-Amherst, Human Dimensions Program was given the lead for the socioeconomic component of the assessment. The results of the Tortugas panel on commercial fisheries were incorporated into the effort. The UMASS-Amherst team is doing the follow-up activity for the recreation industry. The TIA is scheduled for completion in December 2006.

Knowledge, Attitudes and Perceptions of Sanctuary Management Strategies and Regulations; Commercial fishermen, Dive Shop Owners/Operators and Members of Local Environmental Groups: In 1995-96, researchers at RSMAS and the University of Florida through the Florida Sea Grant Program, established baseline measures for the knowledge, attitudes and perceptions of proposed management strategies and regulations, especially the no-take areas. In FY 2005, the socioeconomic research & monitoring program hired Thomas J. Murray & Associates and RSMAS to replicate the study. The study was completed in January 2007. This effort will also be extended to cover flats and backcountry fishing guides with special emphasis on new and possible expansion of no-motoring WMAs.

Recreation and Tourist Uses, Values, Attitudes and Perceptions. In 2000-2001, NOAA formed a multi-agency partnership to estimate the economic value of southeast Florida's artificial and natural reefs. Additional information was gathered on the use of artificial reefs and on residents' support for additional fully protected marine areas (marineeconomics.noaa.gov/). In addition, the study completed a five-year comparison of visitors and residents who used reefs (1995-96 and 2000-01). Importance and satisfaction ratings for 25 natural resource attributes (e.g., water clarity, coral cover, diversity of marine life, etc.), facilities and services in the Florida Keys were compared (marineeconomics.noaa.gov/SocmonFK/impsat.pdf). A multi-agency partnership is being formed to replicate and extend of this effort in FY 2007 and FY 2008.

Spatially Explicit Bioeconomic Models: Implementation will focus on building on the work of RSMAS and the NMFS Southeast Fishery Science Center for reef fish and flats/backcountry recreational fishing. Economists from NOS SP and NMFS Southeast Fishery Science Center and possibly Resources for the Future will be involved in this work. This work will support evaluation of various zoning strategies.

(2) Monitor Use Patterns of the Entire Sanctuary and the Market and Non-market Economic Values of Sanctuary Resources. This effort will provide data and analysis to examine use and valuation of all natural resources in the FKNMS with special emphasis on artificial and natural reefs by residents and visitors.

Status: On-going.

Implementation: Baseline data set on recreation and tourism were developed in 1995-96. In 2000-2001, many of the 1995-96 measurements were updated and some measurements of direct reef use (artificial and natural reefs separately) were made. (marineeconomics.noaa.gov/SocmonFK/impsat.pdf). In 2000-2001, a study was conducted on recreation and tourism in the four-county southeast Florida area that includes the Sanctuary. Artificial and natural reef use by residents and visitors was a major focus. The report establishes links between the economy and reef use and develops estimates of the recreational value of the reefs (marineeconomics.noaa.gov/). In 2005 FKNMS began discussions to support an update of the 1995-96 socio-economic study of the Florida Keys. A partnership is being established between three elements of NOS (FKNMS, NCCOS and SP), the Monroe County Tourist Development Council and The Nature Conservancy to get updates on recreation-tourist activities. The previous efforts will also be extended to address the knowledge, attitudes and perceptions of Sanctuary management strategies and regulations for both residents and visitors to the Florida Keys/Key West and to evaluate how businesses use the fact that all the waters surrounding the Florida Keys/Key West are protected in the FKNMS to promote their businesses. In addition, the knowledge, attitudes and perceptions of Sanctuary management strategies and regulations will be extended to flats and backcountry fishing guides with a focus on the new WMAs. The project is also integrating efforts to estimate the socioeconomic impacts of climate change/coral bleaching by Australian economist Hans Hoegh-Guldberg. NOAA's CRCP is funding the extension of work done for Australia's Great Barrier Reef to the FKNMS with FY 2007 and FY 2008 funding. In addition, the project is integrating efforts sponsored by the Florida Reef Resiliency Program with the University of Massachusetts-Amherst, Human Dimensions Program.

Recreational Spiny Lobsters: The FWRI conducts annual surveys for the recreational spiny lobster fishery to estimate catch and effort. The FKNMS accounts for over half of the catch and effort. Socioeconomic add-ons were conducted in 1992 and 2001. The economic impact of both the two-day sport season and the regular season were estimated on the Monroe County economy in terms of expenditures, sales/output, income and employment for residents and visitors. Also, economic values or willingness to pay for increases in bag limits were also evaluated. Socioeconomic add-ons will be periodically updated in partnership with FWRI.

Water Quality and Economic Use Values: Develop models relating water quality to different economic uses (e.g. commercial fishing, recreational fishing, scuba diving, snorkeling,

swimming/beach use, and glass-bottom boat rides) and how changes in water quality may result in changes in economic values. Partnerships would be developed with EPA and DEP.

(3) Monitor Use Patterns on Existing Artificial and Natural Reefs Surrounding Sites for Sinking New Artificial Reefs. This effort will provide data and analysis to test the hypothesis that sinking a new artificial reef in a natural reef environment will reduce use on the surrounding natural reefs.

Status: On-going.

Implementation: In 2001, two pre-sinking and post-sinking data collection efforts were planned. For the *Spiegel Grove*, pre-sinking monitoring was conducted from August 2001 to May 2002 on the surrounding artificial and natural reef off Key Largo where the *Spiegel Grove* was to be sunk. Post-sinking monitoring was conducted from August 2002 to July 2003. To further monitor the *Spiegel Grove*, it is proposed that dive shop logbooks be collected monthly for a two-year period and the full methodology be implemented in year three. A third effort proposes studies that will be implemented in the event that the U.S.S. *Hoyt Vandenberg* is sunk off Key West. The state is a partner in the proposed *Vandenberg* study. Analysis would be done by SP economists.

Reef Permit Evaluation Tool: In 2000-2001, a study was conducted on the socioeconomics of the reefs in Southeast Florida in partnership with the State of Florida and the four counties of Monroe, Miami-Dade, Broward and Palm Beach. Estimates of use and economic value of both artificial and natural reefs were developed. As a follow-up, the partners discussed a future effort to develop economic models relating reef attributes to economic demand and value. Models would support assessments of introducing “new” artificial reefs into surrounding natural reef environments and/or restoration of damaged natural reefs. A key research product would be a reef permit evaluation tool.

(4) Support Science of Socioeconomic Analysis of Marine Protected Areas. Very little is known about applied socioeconomic analysis to marine protected areas. Funding support will be provided for scientists to meet and share information on this subject.

Status: On-going.

Implementation: : In 1999 and 2000, the socioeconomic research & monitoring program funded the Gulf and Caribbean Fisheries Institute to hold special sessions on the socioeconomics of marine protected areas. A set of papers were published in the Proceedings of the 52nd and 53rd Annual Conferences of the Institute. In 2000 and 2001, the program partnered with NOAA/NOS/International Programs Office, to fund technical sessions on the socioeconomics of marine protected areas.

STRATEGY F.3

RESEARCHING QUEEN CONCH POPULATION ENHANCEMENT METHODS

Strategy Summary

Scientists have investigated optimal approaches to increasing queen conch populations through release of aquaculture-reared juveniles. Research to date has allowed scientists to determine that rearing juveniles to a size suitable for release in the field is cost-prohibitive. Results are being shared with interested parties for possible continuation of aquaculture-based population enhancement.

Further research utilizing reciprocal transplants supports the efficacy of moving queen conch from non-reproductive, inshore environments to reproductive, offshore environments. Research to investigate possible endocrine disruption of queen conch near shore is on-going.

Activities (2)

(1) *Transplant Queen Conch from Inshore to Offshore Environments.* Scientists have determined that moving queen conch from non-reproductive, inshore environments to reproductive, offshore environments is a cost-effective method for increasing reproductive output.

Status: On-going.

Implementation: This activity is an existing priority of the FWRI and is supported by volunteers. This activity is also included in the Volunteer Action Plan.

(2) *Investigate the Cause of Reproductive Failure of Inshore Queen Conch.* Research on various snails in other parts of the world has shown that snails are susceptible to endocrine disruption caused by various anthropogenic contaminants. This activity will determine the cause of reproductive failure, possibly by endocrine disruption, of queen conch in the Keys.

Status: On-going.

Implementation: The FWRI, in collaboration with the University of Florida, has obtained a grant from the NOAA/NOS/NCCOS/Coastal Ocean Program and EPA/Special Studies to investigate anthropogenic effects on queen conch reproductive development.

STRATEGY F.7 RESEARCHING IMPACTS FROM ARTIFICIAL REEFS

Strategy Summary

A number of artificial reefs (primarily intentionally sunk ships) have been placed in the Sanctuary. The impacts of these structures on fish and invertebrate populations and habitats, and the longevity of these structures, are not known. Research is needed on these topics to determine whether the placement of artificial reefs is consistent with goals and objectives of the Sanctuary.

Activities (3)

(1) *Investigate Impacts of Artificial Reefs on Fish and Invertebrate Populations for Long-term Management Including Location, Size, and Materials.* The effects of artificial reefs on fish and invertebrate abundance and community composition and on other Sanctuary resources will be assessed. The longevity of artificial reefs composed of different materials will be evaluated. Appropriate artificial reef locations will be determined, based in part on these findings.

Status: On-going.

Implementation: Impacts on reef fishes of the *Spiegel Grove* are being investigated by the Reef Environmental Education Foundation. Permit holders are responsible for these investigations with oversight from FKNMS staff.

(2) Monitor and Evaluate Habitat Modification Caused by the Installation of Artificial Reefs. This activity complements Activity 1; information on habitat modifications caused by artificial reefs is a necessary element of evaluating consistency of artificial reefs with Sanctuary goals and objectives. Soft sediments may be altered during installation of artificial reefs, and water flows around these structures are likely to continue to modify soft sediments and their associated communities. Nearby hard-bottom habitats may also experience modifications as a result of altered flows and other factors associated with artificial reefs.

Status: On-going.

Implementation: Permit holders are responsible for these investigations with oversight from FKNMS staff.

(3) Assess and Develop Regulations for Artificial Reef Construction and Evaluate Habitat Suitability for Artificial Reefs.

Status: On-going.

Implementation: Permit holders assess and report the impacts and benefits of artificial reefs. This activity is included in the Volunteer and Regulatory Action Plans.

STRATEGY F.6

FISHERIES SAMPLING

Strategy Summary

An improved fisheries sampling program requires improving the spatial resolution of commercial and recreational fisheries-dependent and fisheries-independent sampling programs to provide statistics on catch and effort. This can be accomplished by establishing smaller sampling areas. Fisheries-independent samples measure pre-recruits of economically important species in the statistical areas. Regulations will be developed and implemented in accordance with FWC and the protocols for consistent regulations (see also Strategy R.2, Activity 6 in the Regulatory Action Plan).

Activities (3)

(1) Evaluate and Enhance Existing Census Programs. Existing commercial landing and recreational creel census programs continue to be evaluated and improved to provide statistically based management information for regulating take. This includes the assessment and modification of information types and mandatory vs. voluntary information. To increase the resolution, smaller sampling areas should be considered by National Marine Fisheries Service (NMFS)/Southeast Fisheries Science Center (SEFSC) and FWC. Estimation of private recreational fishing activity and catch should also be considered for a more complete assessment of scope and sources of fisheries impacts.

Status: Several on-going projects.

Implementation: The FWC and NMFS are the lead agencies for implementing this activity. The National Park Service (NPS), the South Atlantic Fishery Management Council (SAFMC), and the Gulf of Mexico Fishery Management Councils (GMFMC) provide primary support. NMFS/SEFSC has taken a yearly census of fish populations for 15 years at the Key Largo and Looe Key National Marine Sanctuaries. Since 1986, the FWRI has administered a commercial

fishery-dependent monitoring program that includes the snapper-grouper complex, pompano, dolphin, mackerel, spiny lobster, amberjack, and stone crab. The FWRI is also conducting a fisheries-dependent monitoring program for charter boats.

(2) Continue a Fishery Pre-recruitment Monitoring Effort. A fisheries pre-recruitment monitoring effort has been initiated for the long-term prediction of fishery stocks for Sanctuary management. This effort is independent of commercial monitoring activities. The FWC has begun implementation of fishery pre-recruitment monitoring efforts for other areas in the state. Several statistical areas have been established, and this activity will evaluate and implement the programs to that level. It has not been possible to monitor all species at all areas.

Status: On-going.

Implementation: The FWC has partially implemented a statewide fisheries pre-recruitment monitoring program that includes the Sanctuary.

(3) Investigate Life Histories of Fishery Species. For most fishery species, scientific studies of complete life histories are lacking. Life histories describe the ecology of an organism's life cycle, e.g., survival from stage to stage, stage-specific feeding and habitat utilization, adult reproduction, and life span. These investigations should include species on the FWC marine life list.

Status: This activity is dependent upon the availability of sufficient funding.

Implementation: NOAA and FWC are the lead agencies for implementing this activity.

STRATEGY F.11 EVALUATING FISHING GEAR/METHOD IMPACTS

Strategy Summary

Approximately half a million lobster traps and a million stone crab traps are deployed in Sanctuary waters during the fishing seasons for these species, which last eight months and seven months, respectively. The habitat impacts of lowering and raising such a considerable number of traps, as well as additional impacts from derelict fishing gear such as lost or abandoned crab and lobster traps and entangled lines, require investigations.

Activities (3)

(1) Evaluate Impacts of Existing Fishing Gear and Methods on Habitats. Research is needed to investigate impacts on habitats of commercial and recreational fishing gear and methods.

Status: Preliminary investigations have been conducted. This activity is dependent upon the availability of sufficient funding

Implementation: The NOAA/NOS/NCCOS/Center for Coastal Fisheries and Habitat Research is investigating impacts of lobster traps on seagrass habitat and NMFS is investigating coral reef impacts.

(2) Conduct Research on Low-impact Fishing Gear and Methods. This activity will facilitate research to develop gear designs and types that minimize impacts to corals, hard-bottom, seagrasses, and other habitat and species. Biodegradable fishing line, traps, and buoy lines are examples of gear types

that would be studied. Modified trap designs would also be considered. Fishing methods, including resource handling and gear placement, would be examined to develop methods and gear that minimize impacts to resources while maintaining efficiency. Volunteers will provide assistance.

Status: This activity is dependent upon the availability of sufficient funding.

Implementation: The FWC, SAFMC, and GMFMC will be the lead agencies.

(3) Conduct Research on the Ecological Impacts on Sanctuary Preservation Areas of Bait Fishing and Catch-and-Release Fishing by Trolling. In order to make an informed decision about whether to maintain the catch-and-release fishing by trolling and bait-fishing provisions for some of the protected areas, it is necessary to assess the ecological effects of these limited consumptive activities.

Status: This activity is dependent upon the availability of sufficient funding.

Implementation: NOAA will be the lead agency for organizing; partnerships, contracts, and agreements with other academic, agency, or non-governmental programs will likely be required for full implementation of this activity.

STRATEGY F.15 ASSESSING SPONGE FISHERY IMPACTS

Strategy Summary

The purpose of this strategy is to determine which sponge fishing methods have a low adverse impact on species and habitat and identify areas that exhibit low abundance, low recovery rates, and habitat damage. The strategy supports the development and implementation of regulations for the sponge fishery.

Activities (1)

(1) Assess Impacts of Sponge Fishery Methods. Research is needed to compare impacts on resources and habitats of different sponge fishing methods.

Status: The Sanctuary Advisory Council held two workshops in 2000 to gather information about commercial sponging and forwarded its recommendations to the FWC.

Implementation: The FWC is the lead agency for implementing this activity. Investigators at Old Dominion University have been awarded grants from the NOAA/NOS/NCCOS/Coastal Ocean Program to investigate dynamics of hard-bottom communities, including commercially fished sponge species.

STRATEGY W.18 CONDUCTING PESTICIDE RESEARCH

Strategy Summary

This strategy will establish an independent research program to identify the impacts of spraying practices on Sanctuary resources and identify alternative means of mosquito control. Because pesticides used in mosquito control are nonspecific to the larval stages of crustaceans, fish and natural mosquito predators, the effects of the chemicals and all application methods need to be examined. In addition, the impacts of housing patterns, design, and landscaping need to be investigated as they

affect the demand for mosquito control. This strategy is partnered with Strategy W.17 in the Water Quality Action Plan, which focuses on mosquito spraying.

Activities (3)

(1) *Research Impacts and Alternatives.* Research the impacts of current spraying practices on Sanctuary resources and identify alternative means of mosquito control.

Status: A special study was funded in 1997 to investigate if aerial or truck-sprayed pesticides drift into nearshore surface waters. Dibrom and its breakdown product were found in some subsurface samples several hours after application in sufficient concentrations that represented an ecological hazard to sensitive marine organisms. More research is needed to quantify the risk of mosquito spraying and larvicide application on non-target organisms. The Monroe County Mosquito Control District asked USFWS for permission to aerially apply larvicides on refuge islands adjacent to population centers. USFWS approved limited use of ground application if it was part of a pilot project that included monitoring of impacts on target and non-target species. That alternative was supported by the Sanctuary's Technical Advisory Committee but rejected by the Monroe County Mosquito Control District.

Implementation: The lead agency will be the Florida Department of Agriculture and Consumer Services (FDACS). The DEP will also have a primary role regarding evaluations of pesticide toxicity. The FDACS may also have an assisting role as the state land-planning agency for a designated Area of Critical State Concern, with oversight responsibility to ensure that local development regulations adequately protect the area's natural resources.

(2) *Modify the Mosquito Control Program.* The results of the pesticide research program will be used to modify the existing mosquito control program as necessary.

Status: No action has been taken.

Implementation: The lead agency will be the FDACS; the DEP will also be a primary agency.

(3) *Conduct a Field Survey of Household use of Pesticides and Herbicides and Develop a Plan to Minimize Their Impact on the Environment.* This activity would involve a survey of pesticides, herbicides, and fungicides used in the Keys. The activity seeks to develop a plan, with a strong public education component, that will minimize the environmental impacts of household chemicals.

Status: No action has been taken.

Implementation: The lead agency will be the FDACS; the DEP will also be a primary agency.

STRATEGY W.22 ASSESSING WASTEWATER POLLUTANTS IMPACTS

Strategy Summary

The purpose of this strategy is to: 1) conduct special studies to establish pollutant-loading thresholds above which biotic communities are adversely affected; 2) detect the presence of wastewater pollutants from on-site sewage treatment and disposal systems (OSTDS), cesspits, package plant boreholes, and surface-water dischargers; 3) determine the relative pollution contribution of each

method to surface waters, groundwaters, and sediments, document the transport of pollutants into the environment; and 4) describe the severity and extent of ecological impacts that can be linked to the pollutants.

Activities (1)

(1) Conduct Wastewater Pollutants and Ecological Impact Studies. Potential approaches include experimental studies, eutrophication gradient studies; comparative studies of impacted and non-impacted sites; historical studies; geographic comparisons, use of biochemical and ecological indicators, use of sewage tracers; and high-frequency and spatially intensive water quality sampling.

Status: To date, six special studies have been completed. A comprehensive monitoring program has been initiated at Little Venice (Marathon, FL) to document conditions in canal and nearshore waters prior to and after construction of a central collection and treatment system for wastewater. This strategy is also included in the Water Quality Action Plan.

Implementation: EPA and DEP are the lead agencies. FKNMS and Monroe County also have primary roles. The Water Quality Protection Program's Technical Advisory Committee and Steering Committee approve research topics and products.

STRATEGY W.23 RESEARCHING OTHER POLLUTANTS AND WATER QUALITY ISSUES

Strategy Summary

Conduct special studies to document the fate and ecological impacts of non-wastewater pollutants, develop innovative monitoring tools, and examine effects of global climate change on organisms and ecosystems of the Keys.

Activities (4)

(1) Estimate Other Pollutant Loadings. This activity will document the locations and magnitudes of pollution impacts other than wastewater. Sources will include those both inside and outside of the Sanctuary (for example, permitted discharges, stormwater runoff, groundwater leachates, marinas, the C-111 canal, Biscayne Bay, Florida Bay, Southwest Florida, oceanic fluxes, and gyre-induced upwellings). Pollutants will include hydrocarbons, heavy metals, and pesticides.

Status: This activity is an on-going focus of the FKNMS WQPP and will be addressed upon recommendation of the FKNMS Water Quality Steering Committee (WQSC) and the TAC. Three special studies found that water movement through tidal passes is predominantly towards the Atlantic Ocean, and wind may be a controlling factor in speed and direction; pesticides used for mosquito control, or their toxic breakdown products are found in some canals in concentrations high enough to adversely affect marine organisms; and human pathogenic viruses were present in residential canals in the Keys, and these viruses were viable in cooler months. An independent investigation has determined that transport of nutrients by upwelling is the major source of nitrogen and phosphorus along the outer bank-barrier reef system of the Florida Reef Tract.

Implementation: EPA and DEP will be the lead agencies. Assistance may be provided by FKNMS, NPS, and SFWMD.

(2) Identify Causal Linkages Between Pollutants and Ecological Impacts. This activity will conduct research to identify and document causal linkages between non-wastewater pollutants and specific ecological problems.

Status: A special study demonstrated that corals exposed to water from Florida Bay grow more slowly than corals at control sites, probably in response to increased turbidity of Florida Bay waters. Current monitoring at the Little Venice site (Marathon, Florida) includes quantifying the structure of the seagrass community near the mouths of residential canals before and after improvements to wastewater treatment.

Implementation: EPA and DEP are the lead agencies. NOAA, NPS and SFWMD may provide assistance.

(3) Develop and Evaluate Innovative Monitoring Tools. This activity will identify and evaluate monitoring tools and methodologies used to detect pollutants and identify cause-and-effect relationships among water quality and biological resources.

Status: Special studies to date have found that coral growth rates and the concentration of zooxanthellae respond to environmental conditions; that the algal community changes in structure between Florida Bay and the Keys; and that chlorophyll in surface waters is a reliable and easily measured indicator of movements of water masses. An on-going special study is examining possible endocrine disruption of nearshore queen conch and effects of mosquito-control compounds on larval development of queen conch.

Implementation: EPA and DEP are the lead agencies. NOAA also has a primary role.

(4) Conduct Research on Global Change. This activity will involve research to examine the effects of stresses associated with global change on the ecosystem. Examples of stresses include changes in temperature, salinity, frequency and intensity of storms, turbidity, sea level change, and ultraviolet and visible radiation.

Status: On-going; several independently funded research projects have investigated some of the stresses listed above.

Implementation: FKNMS personnel have been involved in monitoring and tracking changes in the coral community of the Keys due to elevated sea surface temperatures and other perturbations since 1976. The anecdotal observations and monitoring data (Looe Key Reef 1990) have been reported in Sanctuary status reports and published in various publications since 1983. The Sanctuary is the lead agency. EPA, USFWS, and DEP will assist. This activity is also included in the Water Quality Action Plan.

STRATEGY W.24 RESEARCHING FLORIDA BAY INFLUENCES

Strategy Summary

Conduct research to understand effects of water transported from Florida Bay on water quality in the Sanctuary.

Activities (3)

(1) Conduct a Historical Assessment. This activity will involve a historical assessment of the hydrology of the Everglades, Florida Bay, and Florida Keys water as it has affected water quality and biological communities in the Sanctuary. It will clarify the role of freshwater inflows and water quality from the Everglades and other freshwater discharges to the Southwest shoreline of Florida, Florida Bay, and the Sanctuary. The activity will examine the effects of structural modifications and changes in quality, quantity, timing and distribution of freshwater releases from existing structures and will examine land-based practices affecting the water quality of runoff.

Status: Six Florida Bay Science Conferences have been successfully completed. A Synthesis Report on research in the system has been prepared for Florida Bay and will be published by the FWC in 2006. The report includes a section that reviews knowledge of the paleoecology of the Bay. The USACE has developed a Water Quality Model for Florida Bay. Modeling efforts (hydrodynamic, water quality, and ecological) are being conducted by several teams as part of the Florida Bay/Florida Keys Feasibility Study of the Comprehensive Everglades Restoration Plan.

Implementation: SFWMD and NPS are the lead agencies. Assistance is provided by USACE, which has historical data concerning water management activities affecting the Everglades and Florida Bay. A water quality monitoring network has been established in Florida Bay and surrounding coastal areas, including Biscayne Bay, Whitewater Bay, Ten Thousand Islands, the Southwest Florida Shelf, and waters of the Sanctuary. Historical salinity data for Florida Bay have been assembled and summarized.

(2) Conduct Circulation Studies. This activity will involve water circulation studies to estimate present-day, long-term net transport and episodic transport from Florida Bay to the Sanctuary. Studies of groundwater flow may also be included.

Status: A special study entitled "Hawk Channel Transport Study: Pathways and Processes" has been completed. A hydrodynamic model for Florida Bay has been developed by USACE, but during testing it did not successfully duplicate known salinity patterns. Another hydrodynamic model for Florida Bay will be developed as part of the Florida Bay/Florida Keys Feasibility Study of the Comprehensive Everglades Restoration Plan. The University of Miami is conducting bimonthly cruises of Florida Bay and the west Florida shelf and continues to employ satellite-tracked drifters to study circulation patterns in Florida Bay and ocean currents.

Implementation: The EPA, DEP, and NOAA are the lead agencies.

(3) Conduct Ecological Studies. This activity will involve studies to document any ecological impacts of Florida Bay waters on Sanctuary communities and potentially endangered or threatened species. Documentation of potential impacts could provide a stronger basis for action to restore historical freshwater flow to Florida Bay.

Status: This activity is an on-going focus of the FKNMS WQPP and will be addressed upon recommendation of the FKNMS WQSC and the TAC. Three special studies have been completed that address the impact of Florida Bay waters on FKNMS resources. Findings include a demonstration that corals exposed to Florida Bay water grow at slower rates than those at a control site; that corals exposed to Florida Bay water had significantly higher

zooxanthellae concentrations, probably in response to decreased light penetration in the more turbid water; and that differences in the algal community structure in waters surrounding the Florida Keys may, in part, be explained by the influence of Florida Bay waters. One study used carbon and nitrogen isotope ratios to attempt to determine sources of organic matter and nitrogen on the reef tract.

Implementation: EPA and the DEP are the lead agencies.

STRATEGY W.21 DEVELOPING PREDICTIVE MODELS

Strategy Summary

This strategy will develop predictive models that, with appropriate scientific guidance, would help resource managers predict and evaluate the outcome of a particular strategy, such as engineering to reduce wastewater nutrient loadings. Initial conceptual models would be developed, information needs identified, environmental data gathered, and quantitative models developed and refined over the long-term and on a continuous basis.

Activities (2)

(1) Conduct a Modeling Workshop. This activity will involve conducting a workshop to discuss modeling approaches, develop preliminary conceptual models, and define specific information needs for the models.

Status: The Florida Keys Carrying Capacity Study developed an Integrated Water Module for the Sanctuary that included stormwater and wastewater loading estimates for total nitrogen, total phosphorus, biochemical oxygen demand, and total suspended solids. A National Research Council Report (*A Review of the Florida Keys Carrying Capacity Study*) identified a number of deficiencies with this module. The Florida Bay/Florida Keys Feasibility Study of the Comprehensive Everglades Restoration Plan (CERP) has held a number of meetings of its Project Delivery Team and sub-committees in support of model development for Florida Bay (hydrodynamics, water quality and ecological). To read more about this ongoing effort www.evergladesplan.org/pm/studies/fl_bay.aspx.

Implementation: The lead agencies will be EPA, FKNMS, and DEP.

(2) Develop a Modeling Implementation Plan. This activity will involve developing an overall plan for developing predictive models focused on management needs. The plan will include discussion of preliminary conceptual models, data needs, data gathering, and model development and refinement. The plan will also discuss mechanisms for ensuring that the modeling effort remains closely tied to management needs.

Status: This is an on-going activity under the CERP with three predictive models in various states of development. Models include Physical, Water Quality, and Ecological variables. FKNMS scientific staff serve an advisory role on the Project Delivery Team for this effort.

Implementation: Hydrodynamic, water quality, and ecological modeling for Florida Bay is being conducted as part of the Florida Bay/Florida Keys Feasibility Study of the

Comprehensive Everglades Restoration Plan. The National Center for Coral Reef Research (NCORE) has been utilizing data from various sources to develop a data navigation interface for the FKNMS. Researchers at the University of Miami/Rosenstiel School of Marine and Atmospheric Science (RSMAS) have been developing oceanic and coastal circulation and larval dispersal models as several spatial scales relevant to the FKNMS. The lead agencies are EPA, FKNMS, and DEP. NPS, SFWMD, and USACE will assist.

PREVIOUS STRATEGIES

This review of the FKNMS Management Plan identified some Action Strategies that no longer warrant the low- or medium-priority attention they originally received in the *1996 Management Plan*. The following strategies are not included in this action plan because of the low likelihood of implementing low-priority strategies over the next five years:

- W.9 Laboratory Facilities
- F.4 Aquaculture Alternatives
- F.10 Bycatch
- F.14 Spearfishing
- R.5 Carrying Capacity



3.2 EDUCATION, OUTREACH, & STEWARDSHIP

There are currently two action plans that fall into this management division: the Education and Outreach Action Plan and the Volunteer Action Plan. While the purpose of these two action plans is different, each is more effective when they are integrated with one another because greater understanding leads to a greater desire to volunteer time for conservation goals, and *vice versa*.

Successful Sanctuary management relies on a well-informed public who understand their role in the overall management of the Sanctuary. The Education and Outreach Action Plan outlines management tools to reach key audiences, such as students or first-time visitors, with critical messages that enlist their support in protecting Sanctuary resources.

The Volunteer Action Plan addresses people wishing to spend time protecting and conserving Sanctuary resources. Volunteer efforts provide beneficial services and information to the Sanctuary as well as provide opportunities to increase a sense of stewardship among Florida Keys' constituencies.

3.2.1 Education and Outreach Action Plan

Introduction

Education and outreach have played a primary role in resource protection since the 1975 designation of Key Largo National Marine Sanctuary. Over the decades, the Sanctuary has worked to help ever-growing and changing user groups learn and practice sustainable ways of enjoying the Sanctuary's beauty and bounty. This Action Plan seeks to raise conservation awareness among target audiences, positively affect public attitudes and increase the value people place on the Florida Keys ecosystem.

The challenges of education and outreach include reaching 80,000 permanent residents of Monroe County with broad ethnic and cultural backgrounds and millions of tourists who spend approximately 13.3 million visitor-days in the region each year. Many visitors hail from overseas, therefore education and outreach activities must be sensitive to language and culture. The Sanctuary also serves as a national and international information resource for scientists, students, teachers, and the general public on coral reefs and tropical marine ecosystems. Global communications augment this role by increasing the ease by which people can access information without ever visiting the Florida Keys.

Goals and Objectives

The goals of the Education and Outreach Action Plan are to:

- Promote protection and sustainable use of Sanctuary resources;
- Promote public understanding of marine resources, and related watersheds;
- Promote public understanding of the national marine sanctuaries; and,
- Empower citizens with the necessary knowledge to make informed decisions that lead to the responsible stewardship of aquatic ecosystems.

The objective of this Action Plan is to:

- Deliver educational programs and products on environmental, natural, historical, cultural, and socio-economic issues, so that the public is able to base its decisions on consistent, accurate scientific information.

Accomplishments

In coordination with related action plans, the Sanctuary's Education and Outreach Program has achieved many of the 1996 *Management Plan's* objectives. Highlights include:

- Awarded Monroe County teachers, through the Teacher Awards Program, \$26,000 to implement environmental education.
- Conducted scores of Coral Reef Classrooms, reaching over 5000 students in fourteen years who learned about the coral reef ecosystem and collected water-quality data through sampling.
- As a founding member, helped initiate and continue to actively support Monroe County Environmental Education Advisory Council by participating in Teacher Workshops and other County-wide activities.

- Supported the Sustainable Seas Expedition by developing web materials, conducting a Student Summit, holding open houses, and leading “Student/Teacher at Sea” days.
- Organized and conducted numerous Adult Environmental Education events.
- Team OCEAN volunteers donated more than 15,000 hours to raise awareness among Sanctuary users about safe public access and resource protection.
- Distributed educational materials to businesses and served as a community liaison.
- Held annual Maritime Community Meetings throughout the Keys.
- Attended scores of local, regional, and national trade shows.
- Established an Education Advisory Board.
- Played a leading role in founding and continuing the statewide Seagrass Outreach Partnership.
- Developed a Sea Smart - Dive Smart program for employees of the dive and snorkel industry.
- Published the *Florida Keys Dive and Snorkel User’s Guide* for businesses and customers.
- Participated annually in The Great Annual Fish Count.
- Increased demand for Sanctuary information through product development and media contacts.
- Developed and produced a wide variety of educational products, many bilingual.
- Wrote, edited and produced quarterly editions of *Sounding Line*, a newsletter.
- Placed information, articles, and images in numerous periodicals and publications.
- Produced two editions of *The Florida Keys Environmental Education Resource Directory*.
- Expanded and catalogued audio and video libraries.
- Developed and continue to maintain the FKNMS Web site (floridakeys.noaa.gov).
- Given scores of presentations to civic groups and various trade groups throughout the Keys.
- Assisted in hosting of international visitors and interpreting the Sanctuary and its resources as well as explaining the importance of the FKNMS education and outreach programs.
- Participated in the planning and hosting of the Annual Florida Keys Birding Festival for the past 4 years.
- Staff have participated in and lead the teams planning, designing and operating the interagency visitor center, the Florida Keys Eco-Discovery Center, in Key West.

Strategies

There are 9 strategies in this action plan:

- E.4 Developing Training, Workshops and School Programs
- E.6 Continuing the Education Working Group
- E.10 Establishing Public forums
- E.11 Participating in Special Events
- E.1 Printed Product Development and Distribution
- E.2 Continued Distribution of Audio-Visual Materials
- E.3 Continue Development of Signs, Displays, Exhibits and Visitor Centers
- E.5 Applying Various Technologies
- E.12 Professional Development of Education and Outreach Staff

Each of these strategies is detailed below. Table 3.4 provides estimated costs for implementation of each strategy over the next five years.

Table 3.4 Estimated costs of the Education and Outreach Action Plan

Education and Outreach Action Plan Strategies	Estimated Annual Cost (in thousands)					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
E.4: Developing Training, Workshops and School Programs	200	200	250	300	300	1,250
E.6: Continuing the Education Working Group	1	1	1	1	1	5
E.10: Establishing Public Forums	-	1	1	1	1	4
E.11: Participating in Special Events	-	110	125	125	125	485
E.1: Printed Product Development and Distribution	100	242	226	281	281	1,130
E.2: Continued Distribution of Audio-Visual Materials	2	2	2	2	2	10
E.3: Continue Development of Signs, Displays, Exhibits, and Visitor Centers	75	250	115	125	600	1,165
E.5: Applying Various Technologies	-	-	-	25	10	35
E.12: Professional Development of Education and Outreach Staff	6	7	8	9	10	40
Total Estimated Annual Cost	<i>384</i>	<i>813</i>	<i>728</i>	<i>819</i>	<i>1280</i>	4,124

Strategy Summary

This strategy will enhance the knowledge base of local educators, both formal and informal, through environmental education workshops regarding the Keys' natural and cultural resources, and will ensure that the education community within the Keys is receiving consistent, accurate scientific information. Activities will be bi-lingual when and where appropriate.

Activities (6)

(1) Promote and Support Environmental Education. Education programs will enhance cognitive development and skill-based knowledge. FKNMS staff will continue to provide grade-appropriate materials, facilitate field trips, and provide up-to-date information to public- and private-school educators. For all activities, staff uses a well-developed network of educators, programs, and institutions, including Monroe County School District, and government and non-government agencies. Coral Reef Classroom, Build-An-Ocean, and Envirothons may be expanded. A high school level (grades 9 through 12) monitoring program and a maritime heritage resource-based program may be developed. FKNMS staff will regularly facilitate activities such as poster contests, Kids' Week, Kid's Expo, and other special events. Highlights of well-received programs are below.

The Coral Reef Classroom teaches basic coral reef biology and concepts of habitat interdependence through activities such as water quality sampling, data collection, and analysis and evaluation. The exercises encourage analytical thinking, demonstrate the role that management plays in protecting natural resources, and inform about careers in environmental science. Each Coral Reef Classroom session includes a shore-side presentation and a boat trip to the coral reef.

Build-An-Ocean for lower-elementary school students teaches how to identify mangroves, seagrasses, fish, and coral reefs – many of the plants and animals of the ecosystem. This is a hands-on, interactive program in which students cooperate to “build an ocean” with color laminated pictures of the various organisms and elements of the ecosystem.

Envirothons are competitive events for middle through high school aged students that tests their knowledge of environmental issues, flora and fauna, and habitats of the Florida Keys and South Florida.

Status: Implemented and on-going.

Implementation: FKNMS and educators cooperate to provide these programs.

(2) Provide or Support Environmental Education Workshops for Educators. This activity will enhance the knowledge base of educators through environmental education workshops about the Keys' natural and cultural resources and ensure that the education community receives consistent, accurate scientific information. FKNMS will continue to co-sponsor these programs when appropriate.

Status: Implemented and on-going.

Implementation: FKNMS and educators cooperate to provide these programs. Using *The Florida Keys Environmental Education Resource Directory*, staff will identify needs, design programs and partner with others to implement workshops.

(3) Sponsor and Support Adult Environmental Education. This activity will continue to sponsor and support environmental education opportunities for community leaders, decision makers and organized user groups. Organizations offering adult education, such as the Florida Keys Community College, the Power Squadron, and the U.S. Coast Guard Auxiliary, will be identified. Education staff will support guest organizations' guest lectures, field trips, and brochures. When environmental education is not part of an organization's program, staff confers with organizers to determine if such information may be included and what form it may take. FKNMS staff facilitates activities (for example, a photo contest) when appropriate.

Status: Implemented and on-going.

Implementation: FKNMS will identify and contact adult education organizations to determine how the Sanctuary may support their efforts and/or establish an environmental education focus.

(4) Provide Mechanisms Outside the Law Enforcement Sector that can Deliver Resource Education at the Site of the Resource. Since 1995, Team OCEAN volunteers have donated more than 15,000 hours to promote the safe and enjoyable public access to and use of the Sanctuary, while advocating resource protection. On high-use days at busy reef sites, teams of volunteers and staff distribute brochures, answer questions, and assist the boating public. Team OCEAN will expand to serve the Florida Keys from five base locations.

Status: Implemented and on-going.

Implementation: FKNMS continues to train volunteers and facilitate this program. Volunteer, Enforcement and Damage Assessment and Restoration activities are coordinated with this activity.

(5) Offer Teacher Awards. Teacher Awards, a competitive program, offers Monroe County teachers an opportunity to supplement curricula with funding for field trips, scientific equipment, and reference material. FKNMS issues a Request for Proposals for educational services. The proposals are evaluated on a competitive basis and funding is administered through an agreement with a nonprofit organization such as the National Marine Sanctuary Foundation (NMSF).

Status: Implemented and on-going.

Implementation: FKNMS is responsible for implementing this activity.

(6) Coordinate Voluntary Certification Programs. FKNMS will work with leaders in various businesses (e.g. dive and snorkel, marine mammal viewing, kayak, eco-tours, fishing, etc), other agencies and non-government groups to design and implement Voluntary Certification Programs for the targeted business. The goal of the certification programs will be to ensure the staff and customers receive accurate information about the sanctuary and the coral reef ecosystem, and how they can protect it through good etiquette. The Blue Star and Dolphin Smart programs currently under

development and/or being implemented with the dive and snorkel businesses and the dolphin “encounter” businesses will serve as the pilot programs.

Status: On-going.

Implementation: FKNMS, partners, businesses, and agencies will identify needs and methods of implementation.

STRATEGY E.6 CONTINUING THE EDUCATION WORKING GROUP

Strategy Summary

The Education Working Group (formerly the Education Advisory Board) will continue to work with the Sanctuary Advisory Council to introduce new ideas into the Education and Outreach Action Plan. Working group members have been drawn from the Monroe County Environmental Education Advisory Council, Florida Keys Community College, Schools in Monroe County, other institutions of higher learning, and Florida Keys non-formal educational institutions. Working Group members also include representatives of public television and radio stations, entities that provide information and education programs to user groups, commercial interests, and federal and state agencies. The Sanctuary will continue to work with other groups not based in the Keys but which have been willing and able to support FKNMS education. These include agencies with jurisdictional interests in or directly related to the Sanctuary, national and international conservation and environmental organizations, state education and teacher organizations and educational organizations that hold meetings in the Keys.

Activities

Working group activities will continue to include, but not be limited to: 1) providing information on current activities in the education community; 2) encouraging cooperative efforts; 3) providing direction for the Sanctuary Education Program; 4) preventing the duplication of effort; 5) promoting stewardship; and, 6) guiding development of natural and cultural resource education products.

Status: Implemented and on-going.

Implementation: FKNMS staff, Sanctuary Advisory Council, and working group members.

STRATEGY E.10 ESTABLISHING PUBLIC FORUMS

Strategy Summary

The purpose of this strategy is to ensure public involvement throughout South Florida in Sanctuary activities by holding public meetings and promoting FKNMS awareness to extracurricular groups. Public meetings are an important mechanism for disseminating resource management information to the community. During the last five years, the education staff has sponsored public meetings highlighting an array of timely subjects and issues. In addition, FKNMS educators have regularly participated as guest speakers for lectures sponsored by community organizations.

Activities (2)

(1) Conduct Public Meetings. Public meetings are held throughout the Keys on topics deemed important and on an as needed basis. FKNMS staff and guest speakers present information and encourage a dialogue between staff members and the public. The FKNMS superintendent and state manager are present whenever possible.

Status: Implemented and on-going.

Implementation: FKNMS will have the primary responsibility for implementing this activity. Meetings continue to be held as needed throughout the Keys. Meetings are announced using local media and other appropriate forms of communication.

(2) Conduct Lecture Series. FKNMS staff are encouraged to speak at public lectures that are organized by civic and community organizations. FKNMS educators coordinate with and offer logistical support to organizers of lecture series such as the “The Dagny Johnson Key Largo Hammock Botanical State Park Lectures.”

Status: Implemented and on-going.

Implementation: FKNMS and local community and civic organizations.

STRATEGY E.11 PARTICIPATING IN SPECIAL EVENTS

Strategy Summary

The purpose of this strategy is to organize, support, and/or participate in special events (e.g., trade shows, expositions, etc.) that allow for the exchange of Sanctuary information. FKNMS currently coordinates and will continue to coordinate with other agencies and organizations at events (e.g. NPS, FWC, Seagrass Outreach Partnership, etc.)

Activities (3)

(1) Develop and Maintain Trade Show Information Booths. FKNMS staff attend trade shows, local festivals and other events with materials that provide the public with information about Sanctuary resources. Education staff will continue to identify festivals and trade shows that provide the most effective and efficient use of Sanctuary resources.

Status: Implemented and on-going.

Implementation: FKNMS and event organizers.

(2) Participate in and support National Marine Sanctuary Program Activities. FKNMS continues to participate in National Marine Sanctuary Program education and outreach efforts. The National Education Plan will be implemented locally.

Status: Implemented and on-going.

Implementation: FKNMS.

(3) Establish Partnerships. The Sanctuary will continue to explore and establish partnerships with government and non-government agencies to meet the Sanctuary goals and objectives. Partnership opportunities will be evaluated and established on an individual basis.

Status: On-going.

Implementation: FKNMS and partners.

STRATEGY E.1 PRINTED PRODUCT DEVELOPMENT AND DISTRIBUTION

Strategy Summary

Printed products will be developed based on a needs assessment designed to define audiences, develop messages, designate the most appropriate tool, and identify the best means of distribution. Staff will continue to seek partners when developing and distributing products to reduce costs by sharing expenses, providing consistent messages, and reducing redundancy. Products will be bilingual where appropriate to help non-English speaking visitors and residents learn about the Sanctuary, the human impacts on Sanctuary resources and environmental quality.

Activities (13)

(1) Design and Print Sanctuary Brochures. A series of brochures that contain comprehensive information about the Sanctuary has been produced. Information is regularly reviewed, updated, refined and reprinted as needed. Brochures are available on the FKNMS Web site (floridakeys.noaa.gov) as appropriate

Status: Implemented and on-going.

Implementation: FKNMS and partners as appropriate.

(2) Produce a Sanctuary Newsletter. FKNMS staff will regularly evaluate *Sounding Line* newsletter to define the target audience, purpose, messages, and distribution. Methods of dissemination such as web publishing, hard copy mailings, and e-mail will be regularly assessed. The newsletter includes information about current developments in management and feature projects and programs in the Sanctuary. Guest articles are invited from partners and community organizations.

Status: Implemented and on-going.

Implementation: FKNMS has primary responsibility for design and content. All program disciplines are asked to contribute articles and provide input on content and theme.

(3) Produce The Florida Keys Environmental Education Resource Directory. The directory lists natural and cultural resources in the Keys and descriptions of the groups involved. It is periodically updated and may be made available via the Internet.

Status: Implemented and on-going.

Implementation: FKNMS oversees this project and maintains the directory on the FKNMS Web site (floridakeys.noaa.gov).

(4) Provide Information to Shipping Businesses. Shipping businesses will continue to be alerted about Sanctuary regulations, such as vessel waste discharge and ATBA, PSSA, and other information. Target audiences are large importers/exporters, port authorities, commercial fishing companies, and ship insurers. Methods of distribution include NOAA nautical charts, trade publications and newsletters, trade shows, and direct mailings.

Status: Implemented and on-going.

Implementation: FKNMS education staff and NMSP headquarters. National headquarters and the NOAA Office of General Counsel contact U.S. and international shipping interests. Field education staff contact local port authorities and large-vessel operators. NOAA headquarters, field and General Counsel staff, DEP, the Office of Coastal and Aquatic Managed Areas, and FWC's Division of Law Enforcement cooperate.

(5) Provide Interpretive Information to Periodicals and Publications. Specific groups such as: the diving and fishing industries, research community, local naval facilities, and the Spanish-speaking community, regularly receive targeted information about programs, research findings, and regulations. The internet, the FKNMS Web site (floridakeys.noaa.gov), and CD-ROMs are regularly evaluated as ways to provide information to writers and editors. A greater focus will be made on publications and periodicals that serve Spanish-speaking populations.

Status: Implemented and on-going.

Implementation: Education staff continues to research and identify topics, authors, and media contacts for written pieces to be submitted for publication and respond to requests for articles, information, and images from various periodicals and publications.

(6) Provide Information to Businesses about Sanctuary Resources and Activities. Information about regulations and resources is provided to local on-the-water businesses. FKNMS staff currently visit over 400 businesses from south Miami-Dade County to Key West to distribute brochures and other informational materials and serve as liaisons between the businesses and Sanctuary management. FKNMS staff will also educate business personnel about environmentally sensitive business practices through personal contacts and distribution of specific educational materials.

Status: Implemented and on-going.

Implementation: FKNMS staff coordinates this activity with businesses.

(7) Provide Multilingual Information to Marine Rental Businesses. Multilingual information about Sanctuary activities will be provided to marine-related businesses, such as boat and personal watercraft rental operations and marina gas facilities, in order to educate patrons about environmental issues, stewardship skills, and the Sanctuary in general. Materials will be revised and updated as necessary. Possible cultural barriers will be explored and addressed where appropriate.

Status: Implemented and on-going.

Implementation: FKNMS staff will continue to develop and distribute multilingual educational information.

(8) Distribute Information in Utility Bills, Newsletters, and Annual Vehicle and Vessel Registrations. Through this activity, all residents of the Keys would receive information about FKNMS regulations, issues, and stewardship skills. Other avenues will be evaluated, including partnerships and messages on billing envelopes.

Status: Implemented and on-going.

Implementation: FKNMS staff, partners, agencies, and companies.

(9) Develop an Outreach Component with the Tourist Development Council. Provide potential visitors with general ecosystem descriptions and information about environmental damage that may result from inappropriate actions. The audience for this activity will be identified through the local Tourist Development Council, business owners, and employees or business clientele. Use of alternate technologies, such as a link to the FKNMS Web site, will be explored.

Status: To be implemented as staff availability and budgets will allow.

Implementation: FKNMS education and outreach staff will identify audiences and determine effective methods of outreach.

(10) Produce a Color Environmental Atlas for the Sanctuary. FKNMS education and outreach staff will work with NOAA, DEP, FWC/FWRI and FKNMS science staff to produce a color atlas including habitat types, populations, hurricane paths, and other environmental or social themes. New technologies will be explored.

Status: To be implemented as staff availability and budgets will allow.

Implementation: As information is gathered, NOAA will update existing benthic habitat maps. Concurrently, education and outreach and science staff will consult with NOAA, DEP, and FWC/FWRI to identify themes for the atlas. Education staff will identify methods and locations for distribution.

(11) Print Marine Etiquette on Marine-Related Materials Packaging. Messages about on-the-water etiquette printed on marine-related materials packaging is expected to heighten awareness and improve behavior. The messages would appear on materials used for water-related activities, such as ice bags, water buckets, and bait boxes. Partnerships with other agencies and partners will be explored.

Status: To be implemented as staff availability and budgets will allow.

Implementation: FKNMS staff and partners would identify products for marine-related messages and contact manufacturers to propose conservation messages on their packaging. Staff would design the message for approval by the manufacturer. The manufacturer would cover the cost of printing and producing the packaging.

(12) Develop Educational Materials. Educational materials such as posters, CD-ROMs, videos, and fact sheets are regularly developed for targeted audiences and messages. Before products are developed, a needs assessment will be conducted to define the audience, create the message and

determine the most appropriate tools. Outside funding and partnerships are pursued. Prior to a project being reproduced a second time, its effectiveness will be evaluated. Some current products include: Florida's Coral Reef Ecosystem poster, Reef Fish ID poster, Keeping Your Bottom Off The Bottom, and Teall's Guides.

Status: Implemented and on-going.

Implementation: FKNMS staff and contractors as needed for the technical aspects of layout and design.

(13) Expand the Shipwreck Trail. The Shipwreck Trail provides an on-water and on-land interpretive exhibit for the public. FKNMS education and outreach staff will continue working with the dive community, schools, and the public to evaluate and expand the Shipwreck Trail program. If determined to be appropriate, new trail sites with historical or recreational significance will be evaluated; volunteers will help collect data.

Status: Implemented and on-going as funding is identified.

Implementation: Education and outreach staff will work with FKNMS Maritime Heritage staff on implementing this activity. In addition, NOAA and the Florida Department of Historical Resources provide assistance and help determine monitoring protocols for any expansion. This activity is coordinated with the Maritime Heritage Resources Action Plan and volunteers. In 2006 the FKNMS began developing photomosaics of several of the Shipwreck Trail vessels for use as education and outreach materials.

STRATEGY E.2 CONTINUED DISTRIBUTION OF AUDIO-VISUAL MATERIALS

Strategy Summary

Videos, films, and audio-visual environmental education materials portraying activities in the Florida Keys and their impacts on Sanctuary resources have been collected and catalogued. The materials are stored in libraries at the three FKNMS offices and loaned to the public for educational purposes. Several videos, including Spanish language versions, have been produced and distributed.

Activities (2)

(1) Maintain the Audio-Visual Library. FKNMS staff continues to collect, catalogue, and lend audio-visual materials from Sanctuary libraries. New contributions to slide and video libraries are accepted from amateur and professional photographers and additional audio-visual materials are acquired as budget allows.

Status: Implemented and on-going.

Implementation: FKNMS staff and contributors.

(2) Develop Audio-Visual Presentations. Staff will continue to develop topic-oriented audio-visual presentations for specific age groups and target audiences. Products range from short instructional

pieces to longer presentations that detail the Sanctuary's history, development, regulations, research, water quality and other issues. Materials will be bilingual where appropriate.

Status: Implemented and on-going.

Implementation: FKNMS staff works and partners to produce educational presentations.

STRATEGY E.3 CONTINUED DEVELOPMENT OF SIGNS, DISPLAYS, EXHIBITS, AND VISITOR CENTERS

Strategy Summary

Signs and displays continue to be developed for high-use areas, including public and private boat ramps, and public beaches. The displays inform participants in water-based activities about regulations and environmentally sound practices, provide navigation information, and promote awareness of nearby sensitive areas. Visitor information booths continue to be established throughout the Keys, including FKNMS offices and Chamber of Commerce visitor centers. Portable displays provide information about Sanctuary resources, regulations, and environmental quality. Signs are multilingual as needed.

Activities (7)

(1) Develop Wayside Exhibits. Wayside exhibits are an effective means of educating the public about the Sanctuary. More than one exhibit may be established for location at popular fishing and disembarkation points in the Keys. The exhibits will provide information about FKNMS boundaries, resources, and regulations. Coordination and partnerships with other local, state, and federal agencies in the Florida Keys regarding wayside exhibits will provide consistency in messages, reduce over signage and reduce costs through sharing expenses. Wayside exhibits will be included in exhibit planning for the Florida Keys Eco-Discovery Center in Key West. Signs will be bilingual when appropriate.

Status: To be implemented as funding is identified.

Implementation: FKNMS staff will coordinate with local, state, and federal agencies to develop, produce, and install exhibits.

(2) Develop Mobile Displays. Each mobile display is unique to its context such as a convention, trade show, educational meeting, or scientific gathering. General information may be communicated along with educational opportunities or research findings. Grant funding and donations are sought to support display development and construction. Volunteers with appropriate expertise assist in design and construction. Existing displays are updated regularly.

Status: Implemented and on-going.

Implementation: FKNMS staff, professionals and volunteers.

(3) Develop Interactive Educational Exhibits. Interactive educational displays that convey information about boundaries, regulations, resources, education programs, research programs, and volunteer opportunities will be developed. The Florida Keys Eco-Discovery Center, which is part of the Dr. Nancy Foster Florida Keys Environmental Complex in Key West, will serve as home for prototype displays, including an interactive computer program, allowing staff to evaluate design

effectiveness and further develop exhibits. Funding from private and nonprofit organizations will be sought for placement.

Status: Began implementation as the Florida Keys Eco-Discovery Center in Key West was developed.

Implementation: FKNMS staff will work with funding partners, exhibit designers and other professionals for the Florida Keys Eco-Discovery Center in Key West to define the content for a long-term interactive computer program.

(4) Design and Install Roadside Signs. Roadside signs will be installed in the Homestead and Key Largo areas to alert travelers that they are entering or leaving the Sanctuary watershed. Partnerships with other agencies will be explored for possible development of multi-logo signs (for example, a Sanctuary Program logo on the Florida Heritage Trail signs.)

Status: To be implemented as funding is available.

Implementation: Education and outreach staff will design roadside signs. Sanctuary management staff will coordinate with the Florida Department of Transportation and county and local municipalities for location approval and installation.

(5) Establish Visitor Booths/Displays to Distribute Educational Materials. Visitor booths and displays will be developed to provide multilingual educational materials about resources, on-the-water etiquette, and environmental awareness. Sanctuary offices have a limited space for distribution of materials to walk-in visitors. Other locations might include rental car agencies, visitor centers, chambers of commerce, and airports.

Status: Implemented and on-going; to be expanded as staff and budgets allow.

Implementation: Staff continues to ensure displays of materials in FKNMS offices and consults local chambers of commerce and other outlets to determine if space is available for displays. Financial support is sought from chambers of commerce and the local Tourist Development Council.

(6) Establish Florida Keys Eco-Discovery Center in the Upper Keys. A Florida Keys Eco-Discovery Center will be established in cooperation with local, state and federal agencies to provide an orientation for visitors and residents about protected and managed areas. Cooperative efforts will pool resources and provide lowest-cost options for a special center. One goal of the orientation program is to inform visitors about education programs offered throughout the Florida Keys.

Status: To be implemented as staff and budgets will allow.

Implementation: FKNMS will secure an interagency agreement with agencies interested in establishing a visitor center in the Upper Keys. FKNMS will consult with agency managers, and other agency personnel to determine types of exhibits to be included in the visitor center. Activities will be divided among participating agencies. FKNMS will either develop the exhibits in-house or through contract. A staff person will also be hired to manage the visitor center, with salary funding coming from all agencies.

(7) Establish a Florida Keys Eco-Discovery Center in Key West. The Florida Keys Eco-Discovery Center, located at the Dr. Nancy Foster Florida Keys Environmental Complex, will be established in cooperation with the U.S. Fish and Wildlife Service (USFWS), NPS, SFWMD and the NMSF to provide

visitors and residents with orientation information on various protected and managed areas. Cooperative efforts will pool resources and provide lowest-cost options. A goal will be to inform visitors about the extent of education programs offered throughout the Florida Keys.

Status: On-going. In the first six month of operations the Center has hosted more than 20,000 visitors from 50 US states and 20 countries on 6 continents.

Implementation: FKNMS, USFWS, SFWMD, NPS, NMSF and contractors cooperated to plan, design, and implement. The Florida Keys Eco-Discovery Center opened to the public in October 2006. Exhibit design, outreach and visitor education activities continue to be developed and implemented as needs and funding are identified.

STRATEGY E.5

APPLYING VARIOUS TECHNOLOGIES

Strategy Summary

This strategy establishes a program to promote FKNMS goals and activities through the use of the latest technologies. Materials shall be multilingual when appropriate and possible.

Activities (3)

(1) Establish VHF Radio Stations. The NMSP and local staff will work to secure a VHF radio-information frequency dedicated to providing multi-language information about boating and related activities. The broadcasts will include information about regulations, navigation, resources, weather, and reef conditions. Messages will seek to help boaters, divers, and fishermen avoid negatively impacting the ecosystem. Cost and target area assessments will be conducted. Grant funding will be sought to support implementation costs.

Status: To be implemented as staff time and funding allow.

Implementation: FKNMS will work with NOAA and the NMSP to establish VHF radio stations and locate grant funds.

(2) Maintain and Enhance a Sanctuary Web Site. An Internet Web site (floridakeys.noaa.gov) has been developed to disseminate information about the Sanctuary's natural and cultural resources, regulations, Sanctuary Advisory Council, current issues, education, and research. Site reviews and information updates are continuous. New technologies, such as video streaming, will be implemented as appropriate.

Status: Implemented and on-going.

Implementation: A web master works with FKNMS staff to determine content and ensure timely updates.

(3) Explore, Develop, and Implement New Technologies. As new technologies are developed, they are reviewed, evaluated, and implemented into FKNMS programs and products as appropriate. Examples of potential technologies include: telepresence, distance learning, etc.

Status: Implemented and on-going.

Implementation: FKNMS and technical experts as needed.

STRATEGY E.12

PROFESSIONAL DEVELOPMENT OF EDUCATION AND OUTREACH STAFF

Strategy Summary

Conferences have been one of the primary ways that new technologies and methodologies are shared among educators in the field of natural resource education. Participating in national, state, and local conferences has been a high priority for Sanctuary educators. Conferences and workshops provide opportunities for FKNMS to reach out to the education community and have introduced Sanctuary educators to highly effective means of program evaluation and implementation.

Activities (1)

(1) Attend Conferences. Sanctuary educators continue to represent FKNMS annually at one national (or regional) professional conference and one state professional conference or program. Local conferences and workshops are attended when possible and appropriate.

Status: Implemented and on-going.

Implementation: FKNMS

3.2.2 Volunteer Action Plan

Introduction

The FKNMS Volunteer Program began as a formal partnership between The Nature Conservancy and NOAA from 1992 to 2004. In 2004, FKNMS took over the management of the volunteer program. Its programs are coordinated from all three Sanctuary offices and function as an important source for recruiting, training, placing and recognizing volunteers. Volunteers are a vital mechanism for involving the community and a valuable resource for accomplishing a variety of tasks, including research and monitoring, education and outreach programs, underwater projects, representation at certain events and functions, and administrative tasks. Volunteers support many activities that would otherwise not be accomplished as efficiently or cost effectively. There are numerous volunteer programs in the Florida Keys, many of which predate the FKNMS. In a holistic sense, some of these volunteer programs are enhancing Sanctuary resources. It is not the intent of this action plan to subsume or usurp these excellent programs. The FKNMS plans to continue to collaborate on volunteer activities within the Sanctuary with other volunteer organizations.

The FKNMS volunteer program works closely with other Sanctuary programs, outside organizations and agencies. Volunteers are matched to activities that align their interests and backgrounds. Because of the territory covered and the diversity of projects, project managers are also volunteer coordinators for their specific projects. The strength of the Volunteer Action Plan is its commitment to partnerships. Additional partnerships with the state, universities, and other non-governmental organizations have dramatically expanded the work begun by FKNMS staff. Volunteers today form an integral part of Research and Monitoring, Mooring Buoy, Water Quality, Education and Outreach, Maritime Heritage Resources, Damage Assessment and Restoration, and Administration action plans.

Goals and Objectives

The goals of the Volunteer Action Plan are to:

- Assist staff in accomplishing management objectives.
- Build a stewardship ethic in the community.

The objective of the Action Plan is to:

- Develop a system of public involvement that supports the Sanctuary in a “hands-on” manner.

Accomplishments

There have been several accomplishments in the FKNMS volunteer programs since implementation of the 1996 management plan, including:

- Volunteers have donated over 180,000 volunteer hours to the Sanctuary between 1996 and 2006, the equivalent of \$2.9 million in cash contributions, based on a national formula.
- The Sanctuary has implemented many successful volunteer efforts including Adopt-A-Reef, Coral Reef Classroom, Reef Medics, Team OCEAN, Maritime Heritage Resources Inventory, and other projects.

- Some volunteer programs in the FKNMS such as Team OCEAN have been implemented nationwide in the NMSP.
- Mote Marine Laboratory Center for Tropical Research uses volunteers in the Marine Ecosystem Event Response and Assessment (MEERA) and the Coral Bleaching Watch Program
- The Ocean Conservancy’s Reef Ecosystem Condition (RECON) RECON program trains volunteers to collect information about the reef environment and its health.
- Florida Fish and Wildlife Conservation Commission enlists volunteers for the Queen Conch Restoration Project and Lobster Watch.
- Old Dominion University and Florida State University use volunteers for the Spotted Lobster Population Study and Lobster Watch.
- Volunteers support the University of North Carolina, Wilmington with coral spawning research.
- The Dolphin Ecology Project: Atlantic Bottlenose Dolphin Study uses volunteers.
- Reef Environmental Education Foundation relies almost entirely on qualified volunteers to perform fish surveys and the Great Annual Fish Count.
- The Nature Conservancy continues to benefit from volunteer assistance with Florida Bay Watch and Sea Stewards Monitoring.

Strategies

There are three strategies in this Volunteer Action Plan:

- V.1 Maintaining Volunteer Programs
- V.2 Working with Other Organization/Agency Volunteer Programs
- V.3 Providing Support for Volunteer Activities

Each of these strategies is detailed below. Table 3.5 provides estimated costs for implementation of each strategy over the next five years.

Table 3.5 Estimated costs of the Volunteer Action Plan

Volunteer Action Plan Strategies	Estimated Annual Cost (in thousands)					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
V.1: Maintaining Volunteer Programs+	1	1	1	1	1	5
V.2: Working With Other Organization/Agency Volunteer Programs++	-	-	-	-	-	-
V.3: Supporting Volunteer Activities	75	75	85	85	85	405
Total Estimated Annual Cost	76	76	86	86	86	410
+ Funding for some of the activities in Strategy V.1 are accounted for in other action plans with related activities						
++ Funding does not reflect expenditures by organizations other than the NMSP.						

Strategy Summary

The FKNMS volunteer programs are as varied as the people who donate their time. The activities range from assisting the vessel maintenance staff to picking up litter on a reef by participating in the Adopt-A-Reef program. There are several activities associated with this strategy.

Activities (9)

(1) *Coordinate the Reef Medics Program.* Reef Medics is an innovative, hands-on program designed to use volunteers to assist in FKNMS restoration efforts. Volunteers have experience in vessel navigation and operation, snorkeling, and SCUBA diving. The Damage Assessment and Restoration Program (DARP) staff trains the volunteers in salvage and restabilization techniques. Currently, SCUBA certification is required for restoration efforts and DARP staff assists with the necessary approvals for diving through the NOAA Dive Program, The Nature Conservancy, Mote Marine Lab and other agencies. Reef Medics primarily assist DARP staff if the injury size falls below the threshold of a Natural Resources Damage Action claim or the responsible party is determined to be unviable or unknown, as in “hit and run” or “orphan” sites. Salvage and restabilization efforts of smaller viable fragments can be conducted by Reef Medics and trained volunteer divers using hand tools and cement or adhesives specifically formulated for marine applications.

Reef Medics support comes from compensatory funds from vessel grounding settlements, grants, and Sanctuary Friends of the Florida Keys, including contributions to purchase equipment and supplies, and vessel support.

Reef Medics are involved in follow-up documentation and monitoring repaired sites for two years after repairs. Expansion of the Reef Medics program will include activities not requiring SCUBA diving, with opportunities for participation by non-divers and volunteers. Mote Marine Laboratory has conducted a pilot Reef Medics “Base Camp” project and further development is underway. The content and materials for a new volunteer training course has been developed.

Status: Implemented and on-going.

Implementation: FKNMS

(2) *Promote and Support Environmental Education in Monroe County and State Schools.* Volunteers assist the education and outreach staff in bringing environmental education to schools in Monroe County. Coral Reef Classroom volunteers chaperone middle-school students during a snorkel trip to the reef and help students with water quality testing. The program is offered in the spring and fall. Volunteers are trained in the use of the equipment and procedures. Volunteers are also used to take programs such as Build a Coral Reef, Build a Seagrass Community, and Coral Reef Play to elementary classes in Monroe County.

Status: Implemented and on-going.

Implementation: FKNMS, The Nature Conservancy, the Ocean Conservancy, and Monroe County Schools.

(3) Provide Mechanisms Outside of the Law Enforcement Sector that can Deliver Resource Education at the Site of the Resource - Team OCEAN. Team OCEAN volunteers donate their time promoting safe and enjoyable public use of the marine environment of the Florida Keys National Marine Sanctuary, while advocating the protection of our natural resources. Trained volunteer teams using Sanctuary owned vessels are stationed at heavily visited reef sites during the peak recreational boating seasons. They educate and inform the public about the FKNMS, and encourage proper use of Sanctuary resources and basic safety precautions. Team OCEAN volunteers directly prevent groundings by being present, watching for errant boaters, and waving them off when they attempt to cross the shallow reef crest.

Status: Implemented and on-going.

Implementation: FKNMS

(4) Coordinate the Adopt-A-Reef Program. Local dive operators and volunteer divers “adopt” a reef and run special trips to the site so scuba divers can remove trash, fishing line and other debris. Many shops offer substantial discounts or social events to mark the clean-up. Certified divers are briefed on proper methods of cleaning the reef without damaging resources.

Status: On-going; looking for opportunities to expand.

Implementation: FKNMS, The Ocean Conservancy, and dive operators.

(5) Maintain the Maritime Heritage Resources Inventory. A bibliographic database has been created in a standard format and made accessible over the Internet. Volunteers and Sanctuary staff survey and identify site locations and site characteristics including name, age, integrity, and historical and cultural significance, sensitivity, and recreational value. Volunteers assist staff in collecting existing information, locating unrecorded sites, recording and documenting sites, assessing site significance, and developing sites for improved public access, interpretation, and protection.

Status: Implemented and on-going.

Implementation: Continue with assistance from Florida Department of Historical Resources.

This activity is conducted in conjunction with the Maritime Heritage Resources Action Plan.

(6) Provide Support for Vessel, Dock, and Mooring Buoy Assistance and Maintenance. Volunteers assist Sanctuary staff with marine and dock maintenance activities including mooring buoy installation, repair, and cleaning; vehicle and boat maintenance, grounds maintenance, and storage and dock cleaning. Qualified volunteers also assist as captains and mates. This activity is also included in the Waterway Management Action Plan.

Status: Implemented and on-going.

Implementation: FKNMS

(7) Gather Support for Geographic Information Systems. Geographic information systems (GIS) technology can be used for scientific investigations, and resource management. Volunteers work with Sanctuary staff using GIS software and imagery to provide FKNMS managers with information and photographs. Some of volunteer products include:

- Aerial photographs of sea bottom features near coral reefs that provide baseline data on the percent of coral cover at the various reefs.
- Research regarding the location of monitoring stations in relation to benthic cover, and assistance to the mooring buoy specialists in pinpointing a location of a mooring buoy anchor when the mooring balls have been torn away.
- A comparison between the 1995 and 1999 color infrared photographs that show the damage over time of seagrass destruction and turbidity increases by boats transiting shallow areas.
- Baseline information on the current status of nearshore areas as baseline information to measure future changes.
- Satellite views of the entire Florida Keys that can be used to show areas of Sea Steward monitoring and other monitoring efforts.
- Nearshore aerial photos of research areas where benthic habitat studies are being conducted.

Status: Implemented and on-going.

Implementation: FKNMS and other non-governmental organizations also included in numerous other Action Plans.

(8) Maintain the Eyes On the Water Program. This new Program will provide professionals on the water, such as dive-boat captains and crew, with the opportunity to be the Sanctuary’s “eyes and ears,” by letting staff know when someone is behaving in a manner that may be inconsistent with Sanctuary regulations. The Sanctuary will follow up on the report with a letter and educational materials to the vessel owner. This activity also included in the Damage Assessment and Restoration, Education and Outreach and Enforcement Action Plans.

Status: Implemented and on-going.

Implementation: FKNMS trains volunteers and facilitates this program. Project lead and partners include the FKNMS, non-governmental organizations, and the public,

(9) Maintain Support For Other Volunteer Projects. Volunteer assistance is an integral part of FKNMS projects not associated with specific strategies, such as general office and computer support tasks, maintenance activities, fundraising, and other special projects.

Status: Implemented and on-going.

Implementation: FKNMS

STRATEGY V.2 WORKING WITH OTHER ORGANIZATION/AGENCY VOLUNTEER PROGRAMS

Strategy Summary

The National Marine Sanctuary Program has a history of using volunteers to assist with activities ranging from maintenance to public education. Volunteers also work with organizations not associated directly with the Sanctuary but whose interests coincide with Sanctuary goals. The volunteer programs and projects are an integral part of the Sanctuary and the community, providing information relating to the overall health of the ecosystem. The information presented by the organizations assists FKNMS managers in making better resource management decisions.

Activities (11)

(1) Assist Florida Keys Watch. (formerly Florida Bay Watch). This program trains volunteers to collect seawater samples and environmental data using standard scientific methods. Florida Keys Watch is designed to augment and assist scientific studies conducted by universities, agencies, and other institutions. This activity is also included in the Water Quality and Damage Assessment Action Plans.

Status: A redesign of this project is underway.

Implementation: The Nature Conservancy and Florida International University

(2) Assist Reef Environmental Education Foundation. The Reef Environmental Education Foundation (REEF) is a grassroots, nonprofit organization that uses recreational divers who regularly conduct fish biodiversity and abundance surveys in the Keys and the Caribbean. These surveys are conducted as part of REEF's Fish Survey Project (The Great Annual Fish Count) and become part of a publicly accessible database. This activity is also included in the Research and Monitoring Action Plan.

Status: Implemented and on-going.

Implementation: REEF, FKNMS

(3) Assist Queen Conch Restoration Activities. Volunteers assist with raising juvenile queen conchs at a hatchery located at Keys Marine Lab in Long Key, Florida. They also locate and tag wild adult conchs for population and reproduction studies and help relocate nearshore populations and monitor their progress. This activity is also included in the Research and Monitoring Action Plan.

Status: Implemented and on-going.

Implementation: FWC and The Nature Conservancy

(4) Assist Dolphin Ecology Project. Throughout the year, Dolphin Ecology Project staff, scientists and volunteers photograph individual dolphins for identification, observe their activities, sample environmental parameters, and identify and measure the abundance of important dolphin prey. Volunteers and experienced boat operators conduct photo-identification surveys of Atlantic Bottlenose Dolphin. The project's educational goal is to increase public awareness about dolphins, the interrelated nature of the Keys' habitats, and the importance of South Florida ecosystem restoration. This activity is also included in the Research and Monitoring Action Plan.

Status: Implemented and on-going.

Implementation: Dolphin Ecology Project, FKNMS staff, The Nature Conservancy

(5) Assist Reef and Coastal Cleanups. Reef and coastal cleanups are supported by a network of environmental and civic organizations, government agencies, industries, and individuals who volunteer to remove debris and collect information on the amount and types of debris. The information serves to educate the public on marine debris issues and encourage behavior that will reduce debris along beaches, coastal areas, reef tracts, and in the open ocean.

Status: Implemented and on-going.

Implementation: A partnership among FKNMS, FKNMS volunteers, Sombrero Reef Sweep, Barley Bay Festival, Clean Florida Keys, The Ocean Conservancy, Reef Relief, Friends and Volunteers of Refuges, The Nature Conservancy.

(6) Assist Marine Ecosystem Event Response and Assessment (MEERA). The MEERA Project seeks to provide early detection and assessment of biological events occurring in the Sanctuary and surrounding waters. The goal is to help the scientific community better understand the nature and causes of events, such as coral bleaching and disease outbreaks, fish kills, harmful algal blooms, “red tides,” and other events that adversely affect marine organisms. Understanding the events will help scientists and managers determine if the events are natural or linked to human activities. The project relies on observations made by people who are frequently on the water, such as captains, recreational boaters, environmental professionals, and law enforcement personnel. This activity is also included in the Research and Monitoring Action Plan.

Status: Implemented and on-going.

Implementation: Mote Marine Lab’s Tropical Research Center

(7) Assist Sea Turtle Activities. Sea turtles are protected under the U.S. Endangered Species Act (ESA) and Florida law. Volunteers protect and preserve sea turtles and their habitats. Volunteers monitor known and potential nesting beaches in the Keys. They mark and record the location of nests and document nest success. Volunteers staff a sea turtle stranding network. Injured turtles are ministered to and returned to the marine environment.

Status: Implemented and on-going.

Implementation: Save-A-Turtle, The Turtle Hospital, see also the Research and Monitoring Action Plan.

(8) Assist Save the Manatee Club. Manatees are endemic throughout South Florida waters. Save the Manatee Club has volunteers in the Keys and is active locally for education and monitoring. Volunteers regularly assist in removing monofilament line, a particular danger for the species.

Status: Implemented and on-going.

Implementation: Save the Manatee Club, Dolphin Research Center, Monroe County.

(9) Assist Marine Animal Rescue Activities. Volunteers throughout the Florida Keys regularly offer ready assistance to distressed marine mammals. Each stranding is unique, and the specific course of action depends upon individual circumstances. Volunteers assist marine mammal stranding to reduce the animal’s pain and suffering, provide appropriate first aid, minimize possible threats of marine mammals to human health and safety, derive maximum scientific and educational benefits from both live and dead stranded marine mammals, and collect consistent, high-quality data to facilitate marine mammal conservation.

Status: Implemented and on-going.

Implementation: NMFS’ Marine Mammal Health and Stranding Response Program and permitted partners.

(10) Assist Wild Bird Rehabilitation. Several wildlife rescue organizations in the Keys respond to injured birds, including sea gulls, pelicans, egrets, herons, osprey, and eagles. Volunteers rescue and rehabilitate birds at major rehabilitation centers in Tavernier, Marathon and Key West.

Status: Implemented and on-going.

Implementation: Florida Keys Wild Bird Rehabilitation Center, Marathon Wild Bird Center, and Wildlife Rescue of the Florida Keys.

(11) Assist Reef Ecosystem Condition (RECON). RECON trains volunteer divers to collect information about the reef environment, the health of stony corals, the presence of key reef organisms and obvious human-induced impacts. The goals of RECON are to broaden the scope of available information about the bottom-dwelling organisms on coral reefs, to alert local researchers and managers of changing reef conditions, such as coral bleaching and nuisance algal blooms, and to increase public understanding of the threats to coral reef ecosystems. This activity is also included in the FKNMS Research and Monitoring Action Plan.

Status: Implemented and on-going.

Implementation: The Ocean Conservancy, EPA

STRATEGY V.3 SUPPORTING VOLUNTEER ACTIVITIES

Strategy Summary

The Volunteer Program requires staff and administrative support for the program to function efficiently. Thus, FKNMS project managers strive to recruit, place, orient, train, evaluate, and recognize volunteers who work on a project. Just as each project requires specific training and orientation, each volunteer requires unique evaluation and recognition. Volunteers are asked to report to the project manager the number of hours worked on each project.

Because volunteers are capable of assisting FKNMS managers in diverse ways, this strategy helps identify future volunteer programs. As management needs change over time, the volunteer program continues to identify future projects to recruit volunteers to accomplish objectives. FKNMS staff determines where and how volunteers can assist in fulfilling management objectives. The staff continues to form partnerships with other organizations to use volunteers in a variety of projects. Areas that may be evaluated in the near future include volunteers for artificial reef monitoring and Sanctuary-wide ecological monitoring.

Activities (9)

(1) Recruit and Place Volunteers. Volunteers are recruited based on particular skills, experience, aptitude and especially their interest. Recruitment sources include community groups, churches, neighborhood associations, other volunteer groups, governmental agencies, universities, and local schools. Once recruited, volunteers are paired with a program matching their desire, expertise, and experience.

Status: Implemented and on-going.

Implementation: FKNMS

(2) Orient and Train Volunteers. Orientation is necessary so that volunteers become part of the Sanctuary program. Orientation allows new volunteers to feel welcomed and appreciated, and provides information that assists them in performing their work effectively. Training is specific to the volunteers and the project.

Status: Implemented and on-going. Orientation occurs two to three times a year in the Upper, Middle, and Lower Keys. Specific project training packages for volunteers and skills building training for project managers will be developed.

Implementation: FKNMS

(3) Ensure Volunteer Safety. Volunteer safety is a priority for every project manager. Each project has its own set of safety measures of which the project manager must be aware. Project managers and staff strive to recognize work place hazards and to improve working conditions to the greatest extent possible.

Status: Development of safety manuals for volunteer activities will be a priority in the next five years.

Implementation: FKNMS

(4) Recognize Volunteers. Recognition begins with placing the volunteer in a fulfilling position. Thereafter, formal and informal recognition and awards include an annual party, notes, cards, plaques, uniforms, and similar appropriate items associated with the service.

Status: Implemented and on-going.

Implementation: FKNMS

(5) Evaluate Volunteer Projects. The benefits of evaluation include identifying a project's strengths and weaknesses; anticipating project issues and dealing with them in advance; improving morale and involvement of volunteers and staff; discovering which staff or projects have the highest volunteer turnover; and uncovering new opportunities.

Status: Implemented and on-going.

Implementation: FKNMS

(6) Maintain Communication with Volunteers. Program managers, via a wide range of mechanisms including letters, telephone calls, and e-mail, communicate with volunteers. Volunteers are regularly highlighted through news articles, television specials and series, such as "Waterways," radio interviews and magazine articles that enhance recognition, funding, and recruiting. In addition e-mail and Internet sites are used to communicate goals and achievements. FKNMS maintains an information database about volunteer interests and skills, project activity, service hours, and other relevant data.

Status: Implemented and on-going.

Implementation: FKNMS

(7) Identify and Maintain Funding. Funding for the FKNMS volunteer projects is complex and achieved through a variety of partnerships and a range of sources.

Status: FKNMS regularly assists in developing funding sources for volunteer projects that provide FKNMS management information.

Implementation: FKNMS

(8) Identify and Coordinate Internships. FKNMS project managers regularly develop a wide variety of internships for a broad range of programs as well as educational or training levels. The managers provide project descriptions, supervision, training, scheduling, and support activities for the intern.

Status: Implemented and on-going.

Implementation: FKNMS

(9) Develop and Enhance Volunteer Programs. Opportunities to use volunteers in the Sanctuary on both long and short term situations will be developed on an as-needed basis.

Status: Implemented and on-going.

Implementation: FKNMS

PREVIOUS STRATEGIES

This review of the FKNMS Management Plan identified some Action Strategies that no longer warranted the priority attention they originally received in 1996. These strategies have not been removed from the plan; rather, they have been incorporated into the new strategies under broader headings. Many of the previous strategies listed in the original plan were tied to activities in other action plans that did not occur and others were not feasible due to liability. It was found that to have the majority of the Plan simply list specific ways that volunteers can be utilized was not very useful due to changing needs. In the revised Plan, the mechanisms to identify volunteer opportunities and needs are identified rather than the activities themselves.



3.3 ENFORCEMENT & RESOURCE PROTECTION

This management division bundles all of the essential legal tools that are available to Sanctuary Managers to protect the natural and historical resources of the Florida Keys National Marine Sanctuary. These action plans include: the Regulatory Action Plan; the Enforcement Action Plan; Damage Assessment and Restoration Action Plan; and the Maritime Heritage Resources Action Plan. Each of these action plans serves a direct role in protecting and conserving Sanctuary resources, whether they are natural or historic resources.

Effective management requires a comprehensive set of regulations and an enforcement program to implement those regulations. The most successful marine protected areas are committed to enforcement of their regulations. The Sanctuary regulations and the interpretive approach to enforcing those regulations are described in this section.

Vessel groundings and damage to submerged Sanctuary resources are a major management issue in the Sanctuary. An average of over 500 vessel groundings occur every year in the Sanctuary and this destructive activity has resulted in the need for a separate action plan to describe the Sanctuary's approach to damage assessments and restoration.

Historical resources are also protected within the Sanctuary and the action plan that describes the Sanctuary's approach to protecting these resources is described in this management division. A rich and colorful history of exploration and discovery of submerged historical resources in the Florida Keys has necessitated the development of an action plan that integrates the State of Florida and NOAA's trustee responsibilities for these resources.

3.3.1 Regulatory Action Plan

Introduction

Overview

Regulations are an integral component of the FKNMS management process. They make up an important part of the management plan by regulating certain activities on a Sanctuary-wide basis and by regulating other activities depending on how that area of the Sanctuary has been categorized or zoned. Permitting, certification, and notification and review processes allow certain activities that are otherwise prohibited to take place under carefully controlled circumstances.

The strategies in this action plan implement and refine a comprehensive, coordinated regulatory program that complies with the requirements of the Florida Keys National Marine Sanctuary and Protection Act and the National Marine Sanctuaries Act. The first strategy describes the Sanctuary's permitting program that is routinely implemented to allow activities compatible with resource protection to be conducted with appropriate monitoring and conditions. The second strategy outlines 16 management issues that the Sanctuary Advisory Council, its working groups, and the general public have identified as requiring review and, where appropriate, revision of the existing regulations.

Background

Drawing on 20 years of management experience in the Key Largo and Looe Key National Marine Sanctuaries, NOAA developed regulations to protect natural and historic resources as part of the *Final 1996 Florida Keys National Marine Sanctuary Management Plan* (Appendix C). These regulations meet national legislative mandates as well as carefully considering resource protection and multiple uses compatible with resource protection. These regulations were developed through a process that included an impact assessment of expected environmental and socioeconomic consequences and extensive public comment. As outlined in the Management Agreement between the State of Florida and NOAA, any changes to the regulations will need to be reviewed and approved by the Governor and Cabinet, acting as the Board of Trustees of the Internal Improvement Trust Fund.

In addition to establishing new regulations, NOAA utilized existing regulations under federal, state, and local laws to the extent possible. These authorities include existing federal laws, such as the Coastal Zone Management Act, the Magnuson-Stevens Fishery Conservation and Management Act, the Clean Water Act, the Rivers and Harbors Act, Coastal Barrier Resources Act. They also include state laws, such as: the Beach and Shore Preservation Act, the Florida Environmental Land and Water Management Act, the Florida Air and Water Pollution Control Act, the Florida Aquatic Preserves Act of 1975, and the Florida Clean Vessel Act. To achieve this coordination, Sanctuary regulations supplement, rather than replace, existing authorities that already regulated some portion of the actions called for in specific management strategies. In a few instances, agencies have specifically requested that Sanctuary regulations incorporate existing laws and regulations. This is accomplished using tools which can be administered under the NMSA and the FKNMSPA. At the local level, the regulations in this action plan complement the goals, objectives, and policies established by Monroe County in its *Year 2010 Comprehensive Plan*.

In the end, new regulations were adopted to address 19 management strategies from the 1996 management plan. Another 34 management strategies that had a regulatory component were either

addressed by regulations that had already been established by another agency or required scientific analysis before regulations could be established.

Goals and Objectives

The goal of this action plan is to refine and continue implementation of a comprehensive and coordinated regulatory program for the Sanctuary to ensure the protection and use of Sanctuary resources in a manner that:

- Complements existing regulatory authorities;
- Facilitates all public and private uses of the Sanctuary that are consistent with the primary objective of resource protection;
- Utilizes a system of temporal and geographic zoning to ensure effective site-specific resource protection and use management;
- Ensures coordination and cooperation between Sanctuary managers and other federal, state, and local authorities with jurisdiction within or adjacent to the Sanctuary;
- Achieves simplicity in the regulatory process and promotes ease of compliance with Sanctuary regulations;
- Promotes mechanisms for making informed regulatory decisions based on the best available research and analysis, taking into account information about the environmental, economic, and social impacts of Sanctuary regulations; and
- Complements coordination among appropriate federal, state, and local authorities to enforce existing laws that fulfill Sanctuary goals.

The objectives of this action plan are to:

- Continue implementing an efficient and effective permitting program;
- Further refine the regulations that guide Sanctuary management based on experience since 1997.

Accomplishments

Since implementation of the 1996 management plan, there has been a number of enforcement, permitting and regulatory accomplishments, such as:

- Since July 1, 1997, the following regulations have been implemented: 1) 1998 regulations establishing a large no-anchor zone in the Tortugas for ships 50 meters or more in length, and 2) Regulations expanding the Sanctuary boundary and establishing a permanent 151-square-nautical mile no-take zone called the Tortugas Ecological Reserve,.
- On recommendation of the Water Quality Steering Committee and EPA, the State of Florida and NOAA have established a no-discharge zone for state waters in the Sanctuary. The Water Quality Steering Committee has requested no-discharge regulations for the entire Sanctuary. The process to establish a no-discharge zone for the entire Sanctuary has been initiated with a goal to complete the process by 2009.
- Since 1997, over 400 permits have been issued that represent more than 300 discrete research or educational projects. A permitting database, continually updated, tracks the status of permits and summarizes research projects.
- Since 1997, an average of 210 no-cost bait fish permits have been issued yearly by the Sanctuary to facilitate the charterboat fishing industry's need for live bait. Permit holders report catch and location data annually.

- A new process to issue “hair-hooking” permits was initiated in 2004. Almost 60 permits have been issued.
- A no-cost, paperless permit system was instituted in 2001 to track entrance to and egress from Tortugas North Ecological Reserve. The system ensures that mooring buoys are available and regulations are understood by vessels visiting the reserve.

Strategies

There are two strategies associated with this action plan:

- R.1 Maintaining the Existing Permit Program
- R.2 Regulatory Review and Development

Each of these strategies is detailed below. Table 3.6 provides estimated costs for implementation of each strategy over the next five years.

Table 3.6 Estimated costs of the Regulatory Action Plan

Regulatory Action Plan Strategies	Estimated Annual Cost (in thousands)					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
R.1: Maintaining the Existing Permit Program	100	100	100	100	100	500
R.2: Regulatory Review	100	100	100	100	100	500
Total Estimated Annual Cost	<i>200</i>	<i>200</i>	<i>200</i>	<i>200</i>	<i>200</i>	1,000

Strategy Summary

The issuance of permits assures protection and conservation of Sanctuary resources from harmful activities and practices. A well-developed and implemented permitting program allows scientists and others to conduct their work while following the conditions defined in an established permitting process. Scientific findings from permitted activities can enhance managers' understanding about Sanctuary issues and resources and assist in the implementation of management programs.

Since implementation of the 1996 Management Plan, the FKNMS has used a comprehensive permitting program to issue and track research, education, archeological and other projects that occur in Sanctuary waters that may have minor or uncertain resource impacts. Permits may be issued under various categories (see 15 CFR 922.166) as General Permits, Historical Resources Permits (now titled Maritime Heritage Resource Permits), and Special Use Permits. Specific regulatory review criteria for each permit category must be satisfactorily met for a permit to be issued. Over 200 permits are issued yearly to private and public institutions, non-governmental organizations, and individuals to perform otherwise prohibited activities. A straightforward application process and inclusive database exist to facilitate permit issuance and track permit requirements and reports.

Activities (6)

(1) Continue Support for General Permits. A Sanctuary general permit may be issued if the activity proposed will: (1) further research or monitoring related to Sanctuary resources, (2) further educational value of the Sanctuary, (3) further natural, cultural or historical resource value, (4) further salvage and recovery operations from an air or marine casualty, (5) assist in managing the Sanctuary, and (6) otherwise further Sanctuary purposes. The majority of general permits issued by the FKNMS are granted to further research or monitoring related to Sanctuary resources, and are described in the Science Management and Administration Action Plan. Other types of general permits are issued less frequently, but are available if applicable to the project proposed and if review criteria are met.

Status: On-going.

Implementation: The NOAA aspect of FKNMS has the lead agency for this activity since this is a federal function, which has been fully implemented and continues as a critical management tool.

(2) Continue Support for Maritime Heritage Resource Permits. Sanctuary permits may be issued for the survey/inventory and research/recovery of historical and cultural resources. Administration of these permits follows all necessary federal and state regulations. The issuance of Maritime Heritage Resource (MHR) permits is further described in the MHR Action Plan.

Status: On-going.

Implementation: The NOAA aspect of FKNMS has the lead agency for this activity; active consultation with state agencies is described in the MHR Action Plan.

(3) Continue Support for Special Use Permits. Special Use Permits have been issued infrequently since 1997. Requirements regarding the issuance of special use permits are contained in section 310 of

the NMSA (16 USC 1431 et seq.), which states that special use permits may be issued to establish conditions of access to and use of Sanctuary resources or to promote public use and understanding of those resources. Since 1997, some issues have been brought forward by the public, other agencies, and Sanctuary staff that may be best resolved through the issuance of special use permits. For example, a special use permit may be the most appropriate means by which to allow permit holders to conduct concession-type or commercial activities under certain conditions. Special Use permits may also address the need for marine mammal viewing tours to adhere to specific viewing guidelines to avoid disturbance. Any additions or changes regarding the issuance of special use permits in the FKNMS will be consistent with the NMSA.

Status: Five special use permits have been issued by the FKNMS over the last several years. Currently, the types of activities eligible for special use permits are limited.

Implementation: The NOAA aspect of FKNMS has the agency responsible for this activity and will undertake an assessment of various types of special use permits in conjunction NMSP headquarters as resources permit.

(4) Develop Permit Guidelines. In cooperation with the NMSP, the FKNMS has developed permitting guidelines that describe permit procedures, request application information, and include staff contact information. A permit application form, primarily aimed at research and education permit applicants, is posted at the Sanctuary's Web site and may be submitted electronically (floridakeys.noaa.gov).

Status: On-going.

Implementation: This process has been implemented, with periodic updates to the Permit Guidelines as needed, and continues as a critical management activity.

(5) Establish a Permit Protocol. A protocol for records management and permit tracking was established in 1997. Records management strives to incorporate electronic technologies as much as possible to file the numerous documents associated with each permit, including application forms, correspondence, copies of permits and amendments, and reports. Permit tracking via an electronic database continues to be the cornerstone of the FKNMS and NMSP permitting program. Significant advances to the database will streamline data entry for both the applicant and Sanctuary staff and are being undertaken at this time by NMSP headquarters.

Status: On-going.

Implementation: An effective permit protocol has been established and continues to be implemented. The permit database is running for NMSP staff and is anticipated to be available to the public in 2007/2008.

(6) Promote Interagency Collaboration in Permitting. Sanctuary permitting staff communicates with other federal, state, and local agencies and organizations involved in regulating or overseeing projects with potential resource impacts to: (1) determine potential effects to Sanctuary resources, (2) aid in developing conditions to avoid or minimize resource impacts, (3) offer suggestions for mitigation of unavoidable impacts, and (4) provide technical assistance and consultation regarding activities occurring in Sanctuary waters. A specific example of this coordination is the guidance that Sanctuary staff provides in permitting and installing idle-speed/no-wake shoreline markers (see the Waterways Management Action Plan, Strategy B.4 - Waterway Management/Marking, Activity 10). Another

specific example of this coordination is the direct communication with federal, state and local governments for marine debris removal and derelict or abandoned vessel issues.

Status: On-going.

Implementation: FKNMS continues consultation with agencies and organizations on projects and activities affecting marine resources, whether a FKNMS permit is being issued or another agency is leading the permit process. Regional and national headquarters staff (both federal and state) are requested as needed.

STRATEGY R.2 REGULATORY REVIEW AND DEVELOPMENT

Strategy Summary

Since implementation of the 1996 management plan, the Sanctuary Advisory Council, its working groups, and the general public identified a number of management issues that require review and, where appropriate, potential revision of existing regulations. Such issues include but are not limited to:

- Commercial salvage and tow-boat operations
- Operation of personal watercraft and other vessels within the Sanctuary
- Bait fishing in Sanctuary Preservation Areas
- Catch-and-release trolling in four Sanctuary Preservation Areas
- Definition of “trolling”
- Boundary adjustment(s) of some protected areas
- Clarification of the intent of regulations in Research-only Areas
- Special Use permits for marine mammal expeditions
- Consistency between state and federal regulations for wastewater discharges
- Cruise ship sedimentation plumes
- Possible need for identification and establishment of additional marine zones

Additionally, some topics such as artificial reefs and fish feeding are national issues that the NMSP is addressing on a system-wide basis.

The following activities identify existing regulations that will be considered for revision in order to address the management issues that have been identified. Although the 1996 management plan incorporated regulations as a component of plan adoption, these potential revisions to current regulations will be undertaken as a separate action, following this management plan review process. As part of the separate process other federal, state and local agencies with jurisdiction, as well as the general public, will be invited to participate in the scoping, review and development of any potential changes to the FKNMS regulations. As outlined in the Management Agreement between the State of Florida and NOAA, any changes to the FKNMS regulations will need to be reviewed and approved by the Governor and Cabinet, acting as the Board of Trustees of the Internal Improvement Trust Fund.

Activities (17)

(1) Evaluate Need for Marking of Channels and Reefs. Working with the Sanctuary Advisory Council, determine if there is a need to revise regulations. Currently, there is a prohibition on vessel speeds greater than idle speed in areas designated as idle-speed only/no-wake, and within 100 yards of navigational aids indicating emergent or shallow reefs (partially addressed in CFR 922.163(a)(5)).

(2) Evaluate Boat Groundings. Working with the Sanctuary Advisory Council, determine if there is a need to revise regulations. Currently, there is a prohibition on prop scarring or other injury to seagrasses or the seabed (partially addressed by CFR 922.163(a) (5)).

(3) Consider Pollution Discharge controls. Currently, there is a prohibition on discharging or depositing materials or other matter in the Sanctuary (addressed by CFR 922.163(a) (4)). Exceptions to this prohibition include: discharging or depositing fish, fish parts, and bait during traditional fishing operations and discharging cooling water, engine exhaust, deck wash and effluent from marine sanitation devices during normal vessel operations. However, in protected zones, including Wildlife Management Areas, Ecological Reserves, Sanctuary Preservation Areas, and Special-use Areas, only discharges from engine exhaust and cooling water are allowed.

In 2002, the EPA and State of Florida established a no-discharge zone² through the federal Clean Water Act for the state waters of the Sanctuary. This action came at the recommendation of the Sanctuary's Water Quality Steering Committee and as a request by the Governor of Florida to the Administrator of the Environmental Protection Agency. Draft regulations were issued for public review and the public overwhelmingly recommended approval. The EPA issued the final rule (67 FR 35735) in May 2002. The Sanctuary's Water Quality Steering Committee has requested that NOAA establish a similar no-discharge zone for the federal waters of the Sanctuary. Sanctuary managers will conduct a similar public process to evaluate this request.

(4) Reduce Impacts from Salvaging and Towing. This activity seeks to identify a methodology to reduce damage to natural resources resulting from improper vessel salvage methods. Salvagers or towboat operators responding to vessel groundings are required to report the groundings to the appropriate authorities (USCG, the state, or the Sanctuary). This is to ensure an appropriate response on the part of the agencies to the incident and to report the safety of passengers, the condition of the vessel and any resource damage. This requirement is not always followed and there have been documented instances where additional damage to the submerged resources has occurred.

NOAA did not issue regulations to implement this strategy in 1997; however, it attempted to work with the salvage and tow industry to achieve this goal. During the period in which the Sanctuary regulations have been in effect, the issue of lack of notification to appropriate officials by some salvage and towboat operators, as well as other resource injury problems, has surfaced repeatedly.

² Section 312 of the Clean Water Act gives the Environmental Protection Agency and states the authority to designate "No Discharge Zones". A no discharge zone is an area of a waterbody or an entire waterbody into which the discharge of sewage (whether treated or untreated) from all vessels is completely prohibited. No discharge zones are designed to give states an additional tool to address water quality issues associated with sewage contamination.

(To the extent that a salvage operation involves prohibited activities, CFR section 929.166 provides for the issuance of National Marine Sanctuary General Permits to allow the activity.)

The Regulatory Action Plan Working Group recommended revising Strategy B.13 to establish Special-Use permits for salvage and towboat operators. One potential approach may be to develop standard salvage procedures, which may include, but not be limited to: 1) obtaining a permit, 2) notifying authorities, 3) where appropriate, having an authorized observer at the site or receiving permission to proceed, 4) providing operator training, and 5) promoting environmentally sound salvaging and towing practices. These or similar procedures could be implemented as part of a permit for salvaging and towing operations.

(5) Reduce Impacts from Personal Watercraft (PWC) and Other Vessels. This activity will consider the issuance of new or revised regulations addressing the impacts from PWC and other types of vessels. The issue of personal watercraft operation within the Sanctuary received the largest volume of public comment during the nine-month review of the draft 1996 management plan. The issue of personal watercraft continued throughout the comment period to be among the Sanctuary Advisory Council's most heavily debated issues. Actions implemented in 1997, beginning with the final regulations, took a proactive approach to dealing with this issue based on recommendations from the Sanctuary Advisory Council.

Since implementation of the 1996 FKNMS management plan, the controversy over PWC operation has diminished some, but local concerns continue to be frequently voiced. While the PWC industry has made efforts to address noise and pollution, conflicts among PWC users, the resources, and other Sanctuary users continue. The problems created by these conflicts continue to be brought to the attention of FKNMS managers by the Sanctuary Advisory Council and others in the community. Following implementation of FKNMS regulations, Monroe County attempted to resolve PWC issues through its Marine and Port Advisory Committee and Board of County Commissioners. The efforts did not move forward and the issue continues to be brought before the Sanctuary Advisory Council.

The Sanctuary Advisory Council established a PWC Working Group in 1998, held a series of public meetings and followed a rigorous schedule in an attempt to resolve the conflicts. The PWC working group presented a series of options or recommendations to the Sanctuary Advisory Council in June 2000.

In addition, the Sanctuary Advisory Council's Regulatory Working Group spent many hours reviewing the minutes of PWC Working Group meetings, held throughout 1999, 2000 and 2001, and established the regulatory alternatives that will be considered during the two years following the acceptance of this plan (See Appendix G). These alternatives will be incorporated into the required National Environmental Policy Act documentation that will be prepared in conjunction with any draft regulations. These draft alternatives are being considered for the management of all vessels in the Sanctuary, including personal watercraft.

(6) Ensure Consistency Among Fishing Regulations. This activity will improve administrative and regulatory coordination between fisheries regulatory agencies operating within Sanctuary waters through a protocol for drafting and revising fisheries regulations in order to implement a consistent set of fishing regulations throughout the Sanctuary. Working with the Sanctuary Advisory Council, FWC, and South Atlantic and Gulf of Mexico fishery management councils, FKNMS managers will

ensure administrative and regulatory coordination between fisheries regulatory agencies operating within the Sanctuary.

(7) Consider Need for Mariculture Regulations. Working with the Sanctuary Advisory Council, FWC, South Atlantic and Gulf of Mexico fishery management councils and Florida Department of Agriculture and Consumer Services, FKNMS managers will determine if there is a need to establish mariculture operations regulations and proceed accordingly. This activity may help reduce fishing pressures on wild marine-life species and help satisfy the commercial demand for these species. This is a long-term effort designed to identify and develop mariculture techniques and, possibly, to allow the development of mariculture operations that are consistent with the Sanctuary's primary purpose of resource protection.

Currently FKNMS staff is working with a number of groups including the Florida Aquarium, Mote Marine Laboratory, the University of Florida and marine life collector Ken Nedimeyer to establish coral aquaculture sites in the FKNMS.

(8) Consider Need for Artificial Reefs Regulations. Artificial reefs are addressed by CFR 922.163(a) (3) and (4), which prohibit alteration of or construction on the seabed and discharge/deposit of materials without a permit, CFR section 922.166 which provides for the issuance of national marine sanctuary general permits, and CFR section 922.49 which governs notification and review of applications for leases, licenses, permits approvals, or other authorizations to conduct a prohibited activity. In addition, the "Policy Statement of the National Marine Sanctuary Program: Artificial Reef Permitting Guidelines" was finalized in July 2005.

Working with the Sanctuary Advisory Council, Sanctuary managers will determine if there is a need to revise FKNMS regulations and proceed accordingly.

(9) Consider Need for Exotic Species Regulations. While the release of exotic species into Sanctuary waters is already prohibited under CFR 922.163(a) (7), there are no specific references to exotic species released in ballast water. This is an emerging issue nationally and may need to be addressed in the Sanctuary. Working with the Sanctuary Advisory Council, FKNMS managers will determine if there is a need to revise these regulations. FKNMS managers will develop any potential regulations consistent with international law and other state and federal agencies' regulations that address the discharge of ship ballast water containing exotic or non-indigenous species. The State of Florida currently has in place Florida Statute 370.081 (1) which makes it unlawful to import any marine plant or animal non-indigenous to the area. Paragraph (5) under this same statute makes it unlawful to release into the waters of the state any non-indigenous saltwater species.

(10) Consider Need for Fishing Gear/Fishing Methods Regulations. Certain fishing methods and/or gear types are addressed by CFR section 922.163(a) (11), which prohibits explosives, poisons, oil, and bleach as fishing methods and by the Protocol for Cooperative Fisheries Management. Working with the Sanctuary Advisory Council, FWC, South Atlantic and Gulf of Mexico fishery management councils, Sanctuary managers will determine if there is a need to revise these regulations and proceed accordingly. If required, regulations will likely be developed requiring the use of low-impact gear and methods in priority areas in consultation with the fishery management councils and the FWC.

(11) Consider Need for Spearfishing Regulations. Currently, spearfishing is addressed by CFR 922.164, which prohibits spearfishing in Ecological Reserves, Sanctuary Preservation Areas, the Key Largo and Looe Key Existing Management Areas, and the four Special-use (research-only) Areas and by the Protocol for Cooperative Fisheries Management. The need for spearfishing restrictions for high priority areas (e.g., areas of low abundance, a high degree of habitat damage, or a high degree of user conflicts) will be reviewed. Working with the Sanctuary Advisory Council, FWC, South Atlantic and Gulf of Mexico fishery management councils, Sanctuary managers will determine if there is a need to revise these regulations and proceed accordingly. If restrictions are deemed appropriate they might include provisions such as gear or tournament prohibitions or the closure of selected areas, such as around residential areas. Further scientific review of the impacts of spearfishing may be needed in the future.

(12) Consider Need for Fish Feeding Regulations. In November 2001, the FWC voted to prohibit divers from fish feeding in state waters. In compliance with the Protocol for Cooperative Fisheries Management, the Sanctuary will initiate the public rule-making process to consider a prohibition of fish feeding by divers or any persons in federal waters beginning with the regulatory review process to be initiated in 2007/2008.

Initial stages of this process will include an assessment of the biological and behavioral impacts of fish feeding by divers in Sanctuary waters. The results of this assessment will be used in the regulatory review process for possible implementation of an appropriate fish-feeding strategy. Regulatory alternatives to be considered may include: (1) Status quo - no regulation, or (2) Prohibiting fish feeding within the federal waters of the Sanctuary to have consistent federal and state regulations. Working with the Sanctuary Advisory Council, Sanctuary managers will determine if there is a need to develop regulations and proceed accordingly.

(13) Consider Need for Bait Fishing Regulations. During the scoping period and at regulatory working group meetings, it was recommended that FKNMS managers consider amending regulations to eliminate the provision for bait fishing in Sanctuary Preservation Areas. The regulatory working group determined that there is a need to assess the impact of bait fishing in the areas before regulatory action can be considered.

As such, an assessment of the impact of bait fishing will be conducted. Should such an assessment demonstrate impacts FKNMS managers working with the Sanctuary Advisory Council and FWC will determine if there is a need to develop regulations and proceed accordingly. Assuming a regulatory need is identified a set of alternatives will be considered that will include consideration of user conflicts, enforcement difficulties, and ecological impacts.

(14) Consider Regulations to Govern Catch and Release Trolling in Four Sanctuary Preservation Areas. Currently, catch-and-release fishing while trolling is allowed in the Conch, Alligator, Sombrero Reef, and Sand Key preservation areas. During the scoping period and at regulatory working group meetings, it was recommended that this activity be re-evaluated and possibly eliminated.

An assessment of the impact of catch-and-release trolling in Conch, Alligator, Sombrero Reef and Sand Key SPAs will be conducted. After the assessment of the impact of catch-and-release trolling is completed, various alternatives will be considered during the NEPA process to establish regulations

and will be undertaken in consultation with FWC, the Sanctuary Advisory Council, and the general public.

15) Consider Need for Dredging Regulations. Currently, dredging is addressed by CFR 922.163(a)(3) which, with certain exceptions, prohibits alteration of the seabed; 922.163(a)(4), which prohibits discharging or depositing materials or other matter (with exceptions); 922.166, which sets forth a permitting mechanism for allowing otherwise prohibited activities in the Sanctuary; 922.168, which sets forth requirements and procedures for the certification of preexisting leases, licenses, permits, approvals, other authorizations, or rights to conduct a prohibited activity; and 922.49 which requires the notification of and review of applications for leases, licenses, permits, approvals, or other authorizations to conduct a prohibited activity. Revising these regulations could help to eliminate negative resource impact dredge-and-fill activities within the Sanctuary. Revising these regulations could also help to promote the use of low-impact technologies for maintenance dredging and potentially prohibit such dredging in areas where significant reestablishment of sensitive benthic communities has occurred (e.g., seagrass and coral habitats).

Dredge-and-fill activities may be allowed if in the public interest (as determined by USACE and the State of Florida on its sovereign submerged lands) and if little or no environmental degradation is likely to occur. An example of this would be directly after a hurricane to remove or move large quantities of sand or dirt from the waterways. FKNMS will work with the Sanctuary Advisory Council, USACE, and the State of Florida to determine if there is a need to revise these regulations and proceed accordingly.

(16) Consider Regulations Specific to Touching Coral. Currently, touching coral is addressed by CFR section 922.163(a)(2), which prohibits removal, damage, distribution, or injury of any living or dead coral or coral formation and section 922.164, which prohibits touching coral in Sanctuary Preservation Areas and Ecological Reserves. This activity proposes to review the potential need to further protect coral communities from damage by prohibiting the touching of coral in high-use, sensitive, and vulnerable areas. Working with the Sanctuary Advisory Council, FWC, Southeast Atlantic and Gulf of Mexico Fishery Management Councils Sanctuary managers will determine if there is a need to revise these regulations and proceed accordingly.

(17) Evaluate Allowable Activities in Existing Zones and Make Regulatory Changes as Needed. There are five types of zones in the Sanctuary: Sanctuary Preservation Areas, Ecological Reserves, Special-use (Research-only) Areas, Wildlife Management Areas, and Existing Management Areas. Each type of zone has specific regulations for certain activities. Allowable activities for each area require periodic evaluation and may need to be changed to address issues of concern (also see the Marine Zoning Action Plan). For example, if data indicates conflicts with wildlife in an area that has allowed idle-speed-only/no-wake access, the possibility of changing the zone to no-motorized access will be evaluated.

The activities currently allowed within the zones have yet to be evaluated. FKNMS is the agency responsible for this activity and will undertake regulatory assessments and associated changes as resources permit.

3.3.2 Enforcement Action Plan

Introduction

Overview

When the Key Largo and Looe Key National Marine Sanctuaries were designated in 1975 and 1981 (respectively), it became clear to Sanctuary managers that a major enforcement presence would have to be maintained in order to protect and conserve resources. This same level of commitment has been necessary for the entire Florida Keys National Marine Sanctuary since it was established in 1990.

Sanctuary enforcement has traditionally been accomplished through a Cooperative Enforcement Agreement between NOAA and the State of Florida. Beginning in 1981, NOAA and the state entered into an agreement in which the Florida Park Service (FPS), previously responsible for managing the John Pennekamp State Park, continued to provide management services to NOAA, including enforcement of Sanctuary regulations. The state, now in the form of FWC, continues as the primary enforcement arm in the FKNMS.

FKNMS relies heavily on “interpretive enforcement,” which seeks voluntary compliance primarily through education. The goal of interpretive enforcement is to gain the greatest level of compliance through understanding and public support of sanctuary goals. Interpretive enforcement emphasizes informing the public through educational messages and literature about responsible behavior before resources can be adversely impacted. Officers talk directly with users and distribute brochures in the field and throughout the community; such encounters allow officers to make direct, informative contact with visitors and local residents while conducting routine enforcement activity.

Preventive enforcement is achieved by maintaining sufficient presence within the Sanctuary to deter violations. Successful enforcement relies on frequent water patrols and routine vessel boardings and inspections. Water patrols ensure that Sanctuary users are familiar with regulations in order to deter willful or inadvertent violations and provide quick response to violations and emergencies.

Legislative Authorities

Besides the National Marine Sanctuaries Act, NOAA has sole or shared primary jurisdiction for the Magnuson-Stevens Fishery Conservation and Management Act, the Atlantic Tunas Convention Act, the Marine Mammal Protection Act (MMPA), the ESA, and the Lacey Act.

Among federal conservation laws enforced primarily by other agencies but of concern to NOAA, are the Oil Pollution Act, the Clean Water Act, the Marine Plastic Pollution Research and Control Act, the Abandoned Shipwreck Act, the Archaeological Resources Protection Act, the ESA, the MMPA, and the Migratory Bird Treaty Act

Also relevant are state laws including: the Beach and Shore Preservation Act, the Florida Environmental Land and Water Management Act, the Florida Air and Water Pollution Control Act, the Florida Aquatic Preserves Act of 1975, and the Florida Clean Vessel Act.

Sanctuary Enforcement Funding

Since 1980, the Enforcement Program and all other management programs in the Sanctuary have been fully funded through a cooperative agreement with the State of Florida. Seventeen Sanctuary officers

currently working in the Sanctuary are state employees. Sanctuary officers are assigned to FWC's Division of Law Enforcement, with operations coordinated among NOAA, FWC, and DEP. In addition to state laws and local ordinances, Sanctuary officers have statutory or delegated authority to enforce the NMSA and other statutes administered by NOAA.

Integrating Enforcement Efforts

Across the nation, federal, state, and local agencies are increasingly joining forces and targeting whole coastal ecosystems, including rivers, bays, estuaries, and coastlines, to develop and implement comprehensive management and enforcement. Federal, state, and local laws provide a variety of tools to protect coastal resources. In so doing, these laws strengthen enforcement capabilities by allowing agencies to utilize each other's expertise, share resources and problem solve collectively. Federal, state, and local agencies in the Florida Keys are continually working to integrate efforts. Additionally, residents, volunteers and visitors help by detecting and reporting violations and groundings, monitoring water quality, and submitting witness statements.

Successful and efficient Sanctuary enforcement depends largely on how well the region's federal, state, and local enforcement assets are directed and coordinated. A clear vision of the interagency mission and an understanding of the assets and resources available for an interagency effort are essential. An assessment of existing federal, state, and local enforcement assets in the Keys has demonstrated that most of the assets on the water belong to FWC and USCG. Although other agencies have assets, they are either limited or the agencies operate in areas specific to their mission. Consequently, the goal of interagency agreements with USFWS, NPS and FPS to cross-deputize officers has not occurred, to the detriment of enforcement capabilities. Interagency agreements with these agencies and local enforcement may be sought in the future.

Goals and Objectives

The goal of this Action plan is to:

- Protect resources by achieving compliance with the applicable laws.

To achieve this goal, the objectives are:

- To increase public understanding of the importance to comply with regulations;
- To achieve voluntary compliance; and
- To promote public stewardship of the historical, cultural, marine resources through interpretive enforcement.

Implementation

There are several mechanisms that the FKNMS uses to achieve the enforcement goals and objectives identified above including:

A) Agreements and Cooperative Efforts in order to:

- Strengthen existing enforcement partnerships with the State of Florida.
- Develop partnerships with federal and local enforcement agencies in order to provide a strong enforcement presence throughout the Sanctuary.
- Maintain an active relationship with international, federal, state, and local enforcement agencies to identify mutual concerns and develop cooperative and unified responses.

- Explore cooperative relationships with foreign governments.
- Enter into memoranda of understanding, cooperative enforcement agreements, and joint operations plans with other agencies as appropriate.
- Facilitate communication to avoid duplication of effort.
- Promote cooperation, standardization of gear, and coordination of limited resources such as vessels, radios, radio frequencies, and training.
- Promote training, cooperation and cross-deputization among enforcement agencies.

B) Community Involvement in order to:

- Encourage public involvement by encouraging site-specific interpretive patrols by volunteers.
- Involve USCG, civil aeronautical patrols, power squadrons, dive operators and fishing organizations in promoting compliance.
- Maintain an active relationship with citizen groups interested in compliance.
- Encourage compliance through community outreach programs.
- Encourage information sharing and networking with local law enforcement.

C) Education in order to:

- Emphasize education as a tool to achieve compliance with regulations.
- Promote voluntary compliance and stewardship through outreach programs.
- Train user groups about regulations and procedures for reporting violations.
- Identify major user groups and develop and disseminate specific materials.
- Increase the officer's capabilities and response to critical incidents such as large vessel groundings or oil and chemical spills.

D) Operations that:

- Maintain an investigative capability to ensure quick response to willful unlawful acts.
- Develop and maintain the capability to effectively respond to violations and emergencies.
- Establish an enforcement advisory committee of regional law enforcement organizations.
- Develop enforcement operation plans that identify strategies and priorities and outline the best means of achieving them.
- Develop regulations for the sanctuary that are comprehensible to the general public and are easily enforced.

FKNMS Enforcement Operations

Coordination of FKNMS enforcement occurs through the coordination of FKNMS managers, FWC, NOAA Office of Law Enforcement (NOAA/OLE), and USCG. Enforcement since FKNMS regulations took effect in July of 1997 has been largely the domain of the designated Sanctuary Officers and NOAA/OLE with heavy support of other FWC assets and assistance from USCG when groundings and violations involving large vessels have occurred.

The 1996 management plan called for the funding of a NOAA/OLE special agent designated as the Sanctuary agent. The Sanctuary agent was hired prior to implementation of the management plan, and in addition to authoring the enforcement action plan, the officer initiated coordination among enforcement agencies and was responsible for case processing. When the agent moved to another agency, funds were redirected to hire an enforcement technician to manage summary settlement cases and assure proper routing of other cases to an enforcement attorney within NOAA/OLE. Other

duties originally assigned to the Sanctuary agent have been split among OLE Special Agents, the Sanctuary Captain and Lieutenants and Sanctuary managers.

Sanctuary officers patrol the Upper, Middle, Lower Keys, and Tortugas region with emphasis on Sanctuary Preservation Areas and Ecological Reserves. Patrol priorities are based primarily on resource protection and the time of the year (seasons) as opposed to user conflicts.

The Sanctuary Enforcement team now consists of a Captain in overall command while the other positions are as follows.

- Upper Keys: One supervisory Lieutenant and four officers.
- Lower Keys: One supervisory Lieutenant and four officers.
- Tortugas Patrol: An offshore patrol crew consisting of one Lieutenant in command with three additional officers. Patrols are conducted on board a 57 foot high performance catamaran vessel specifically designed for the task.

As part of the continuous management process, an enforcement review program has been established for the Sanctuary. This program ensures management issues are addressed by all agencies involved in enforcement, and that the proper equipment, training and marine resource identification and protection methods reach the enforcement staff.

Accomplishments

There have been several accomplishments in FKNMS enforcement since implementation of the 1996 management plan, including:

- Funding of a Law Enforcement Technician at NOAA's National Marine Fisheries Service (NMFS) Office in St. Petersburg, Fla., has facilitated case management.
- The FWC's pilot has contributed greatly to patrol efforts as well as response and documentation to groundings.
- USCG training has taken place and the USCG continues to enforce Sanctuary regulations when possible.
- The USCG and US Geological Survey (USGS) continue aerial and vessel surveillance in the Sanctuary.
- The USCG has been helpful in boarding and reporting ships anchored in a "no anchor area" in the Tortugas Ecological Reserve. Additionally, in the first 7 months of the implementation of the Tortugas Ecological Reserve, the USCG cited 3 shrimp boat operators for illegal shrimping in the Reserve.
- A 31-foot Manta has been obtained and refitted for offshore patrol primarily in the Tortugas Ecological Reserve. Acquisition of this vessel has dramatically improved enforcement in the Tortugas Ecological Reserve, allowing more 2-3 day patrols that have substantially increased the detection and apprehension of violators.
- Four new patrol vessels have been obtained and are operating in the Sanctuary.
- An interagency agreement between NOAA and FWC establishes the authority for all FWC officers to enforce Sanctuary regulations.
- The enactment of Rule 68B-6 by FWC parallels FKNMS rules pertaining to Ecological Reserves and SPAs as well as the designated boundaries of SPAs, Ecological Reserves and Research-only Areas within state waters. Rule 68B-6 is enforceable by all state, county and municipal officers within their jurisdictions.

- The establishment and posting of regulatory markers delineating no-entry, no-motor and no-wake zones facilitates enforcement of those zones by all state, county and municipal officers within their jurisdictions.
- An interagency agreement, not involving cross-deputization, between NOAA, FWC and NPS, is currently being worked on that will facilitate enforcement in the Tortugas ecological reserves and the 46 square mile Research Natural Area no take zone established in 2006.
- Cooperative relationships have been established between NOAA/OLE Special Agents, USCG, FWC, NPS, USFWS, DEP, Monroe County Sheriff and Key West Police Department, Key Colony Beach Police Department and the Village of Islamorada Policy Department.
- An initiative to further involve USCG was established in July 2001. As a result, the Sanctuary Captain will coordinate with NOAA/OLE and USCG's Fisheries Enforcement Training Section in Charlestown, S.C., to establish a Sanctuary enforcement training curriculum for USCG personnel stationed in the Florida Keys.
- FKNMS staff has undertaken on-going training in the Incident Command Structure (ICS) as a result of the mock assessment for Safe Sanctuaries 2005.
- FKNMS staff has coordinated with federal, state and local governments in an effort to remove marine debris and derelict or abandoned vessels due to the six hurricanes that impacted Monroe County in 2004 and 2005.
- FKNMS staff has worked to develop cooperative relationships with the commercial fishermen (stone crab and lobster) in the attempt to recover trap property after the 2004 and 2005 hurricane seasons.
- Additional NOAA funding increased the number of sworn officers from 6 to 17 during the management plan review period.
- FKNMS acquired a state of the art 57 foot high speed catamaran to patrol the Dry Tortugas Ecological Reserve as well as the Lower Keys. This vessel is the first ever designed and purchased by NOAA exclusively for National Marine Sanctuary law enforcement patrols and mission.
- FKNMS staff has increased international participation to assist other countries in the development of enforcement plans for marine protected areas. The countries include Korea, Brazil, Malaysia and the Seychelle Islands.

Strategies

There is one strategy associated with this action plan:

- B.6 Acquiring Additional Enforcement Personnel

This strategy is detailed below. Table 3.7 provides estimated costs for implementation this strategy over the next five years.

Table 3.7 Estimated costs of the Enforcement Action Plan

Enforcement Action Plan Strategy	Estimated Annual Cost (in thousands)*					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
B.6: Acquiring Additional Enforcement Personnel	2,900	3,025	3,290	3,560	4,000	16,775
Total Estimated Annual Cost	2,900	3,025	3,290	3,560	4,000	16,775

* Contributions from outside funding sources also anticipated.

Strategy Summary

As identified in the original management plan (1996) FKNMS needs 43 Sanctuary enforcement officers for high-use and sensitive areas. Six support personnel will be required to provide clerical, mechanical, and dispatch duties. FKNMS current employs 17 officers and 2 support personnel. This will require additional funding for 26 officers and 4 support personnel. This strategy seeks to (1) increase the presence of law enforcement officers on the water to protect resources and reduce user conflicts, (2) provide resources to aid officers in long-term investigations and (3) adequately staff enforcement of the Tortugas Ecological Reserve. Remote observation techniques may be used to aid enforcement efforts.

Activities (5)

(1) Develop Remote Observation Techniques to Aid Enforcement Efforts. Floatplanes, tethered aerostats, etc., may be used to aid enforcement.

Status: Initiated and on-going. Surveillance radar has been installed on Smith Shoal Light by NOAA/OLE. The radar is used to monitor federal and state shrimp sanctuaries; an additional radar installation is planned for the Tortugas. A remote-camera system for use within Sanctuary protected areas is being developed by NOAA/OLE. An “Eyes on the Water” program will give users a formal method for notifying the Sanctuary of observed violations. Education to assist the public in reporting violations to FWC’s dispatch center is one year from completion.

Implementation: NOAA is the lead agency with assistance from other agencies.

(2) Develop Interagency Agreements Establishing Cross-agency Enforcement Authority. These agreements would set forth federal, state, and local enforcement authority among all officers. The agencies include:

- NOAA/OLE, in close consultation with the Sanctuary Superintendent and the Sanctuary Captain, will coordinate enforcement operations.
- FWC and Sanctuary enforcement officers are supervised by FWC under an agreement that allows officers to enforce provisions of the National Marine Sanctuaries Act and other NOAA statutes. FWC’s Sanctuary detachment is the primary enforcement in the Sanctuary. A new interagency agreement allows other FWC officers to enforce statutes that apply within the entire Sanctuary, including the NMSA and relevant federal statutes; however, participation is limited by operational parameters.
- USCG is fully empowered by the NMSA to enforce Sanctuary regulations.

Interagency agreements to cross-deputize officers among NOAA and USFWS, and NOAA and the NPS have been explored but not consummated. USFWS currently enforces FKNMS regulations in Wildlife Management Areas that it manages and assists Sanctuary officers by reporting violations of which they become aware. NPS currently patrols only within the area of its national parks. NPS has been the primary source of information concerning Sanctuary violations in the Tortugas. An interagency agreement to cross-deputize Florida Park Service (FPS) officers has been established.

Historically, FPS officers and Sanctuary officers regularly assist each other with enforcement near park borders, especially during vessel groundings.

Status: USCG has full authority to enforce Sanctuary regulations. NOAA has established an interagency agreement that cross-deputizes FWC officers. The two agencies conduct most of the law enforcement within the Sanctuary. NOAA continues to evaluate the possibility of additional agreements.

Implementation: NOAA is the lead agency.

(3) Develop Standard Operating Procedures. This will increase the efficiency and effectiveness of enforcement. It will establish coordination and cooperation among agencies and increase communication by scheduling staff and equipment efficiently, developing a process for handling violations, standardizing radio communications, promoting cooperation with the military and determining priority enforcement areas.

Status: Implemented and on-going.

Implementation: NOAA/OLE coordinates joint operations of USCG and FWC. The Sanctuary captain coordinates routine operations of Sanctuary officers and joint operations with other FWC assets. In addition, a process for handling Sanctuary violations has been established for USCG and FWC. Joint USCG and FWC operations use VHF radio communications; otherwise FWC and USCG use systems unique to each agency. FWC has been issued two Nextel units that are a part of the NOAA/OLE communications network. Use of military equipment has been limited to identifying high-use areas. Priority enforcement areas have been identified and priority areas are revisited each month via conference call between the Sanctuary, NOAA/OLE and USCG.

(4) Develop a Standardized Training Program. A training program is being developed to enable enforcement agencies to educate each other about statutes and codes. The cost to implement is estimated at up to \$3.6 million in capital expenses and an additional \$1 million for operation and maintenance, primarily salaries and equipment, to be distributed among participating agencies. The funding will come primarily from NOAA and will be used to hire up to 26 additional enforcement officers, two clerks and two radio-duty officers. If 26 additional officers are hired, 24 will require a high-performance vessel. Each officer will have enforcement gear at approximately \$5000 per officer. Each officer must initially attend the FWC Law Enforcement Academy and then participate in FWC annual training.

Status: The standardized training program for USCG will be complete within six months. Revision and updating activities are continuous.

Implementation: A standardized training program is in effect within FWC. The Sanctuary captain will work with USCG's Fisheries Training section to establish standardized training for its personnel.

(5) Develop System to Evaluate Effectiveness and Efficiency. A system will be designed for evaluating the effectiveness of enforcement. Evaluating efficiency will be done monthly and annually. Regional managers assess efforts in known hot spots and coordinate enforcement coverage accordingly. On a yearly basis, the heads of the cooperating agencies will meet to discuss issues.

Status: Implemented and on-going

Implemented: Computer Automated Dispatch (CAD) Center within FWC communications can compile and track information on a monthly and annual basis.

3.3.3 Damage Assessment and Restoration Action Plan

Introduction

According to FWC official dispatch records, there is an average of over 500 vessel groundings reported in the Sanctuary annually. In addition, there are many grounding incidents that damage resources but are not reported. Groundings often result in significant injury to coral, seagrass and hard-bottom resources. Although large-vessel groundings often result in immediate resource devastation with long-term impacts, the vast majority of grounding incidents are caused by small, recreational vessels. An individual, small-vessel grounding often results in minimal damage to the resources, but the cumulative detrimental effect of many such grounds can have long-lasting impacts.

FKNMS staff use a database to assess trends in vessel groundings, identify “hot spots” where education and outreach activities can be enhanced, and determine what solutions, such as waterway marking, may be appropriate. At this time it is difficult to determine if groundings are increasing or decreasing. As the public becomes more aware of the issue the number of reports has increased, making it difficult to determine in only five years if there is a real increase in groundings or merely an increase in reporting. The number of boats in operation affects this statistic as well.

FKNMS is authorized to assess civil penalties and recover the cost of response, assessment and restoration from the responsible parties. The FKNMS has Damage Assessment and Restoration Program (DARP) teams in the Upper Keys and the Lower Keys. In conjunction with FKNMS education and outreach staff, managers, and law enforcement personnel, DARP staff develop grounding prevention measures, minimize impacts, assess impacts, repair injuries where possible, and support the associated legal processes. Although this action plan is new to the management plan, many strategies and activities have been on-going since 1982.

Accomplishments

- Sanctuary staff conducted 261 biological assessments of vessel groundings that damaged greater than 10 square feet of coral or 10 square yards of seagrass from 1995 to 2005.
- Between 2002 and 2005, 145 assessments were conducted on injuries that fell beneath the 10 square feet of coral/10 square yards of seagrass threshold, resulting in the issuance of summary settlement citations in each of those instances.
- Establishment of a vessel grounding database to document grounding locations, assessment, restoration and monitoring data, and to track case phases.
- Assessment of eleven freighter anchoring injuries in the Tortugas from 1997 to 2005.
- Assessment of nine freighter groundings since 1989 including some occurring prior to that date.
- FKNMS has established two damage assessment and restoration teams in the Sanctuary whose mission is to respond to, document and report injuries to seagrass, hard ground and coral reef resources within the FKNMS. These teams also provide the information and expertise for development and implementation of restoration plans for the injured sites.
- FKNMS staff has assisted with live-aboard mooring assessment in Cow Key Channel.
- FKNMS staff continues to conduct monitoring of injured and restored sites.
- FKNMS staff helped prepare a Regional Restoration Plan for the damaged seagrass meadows in the Florida Keys.

- FKNMS staff conducted or managed major structural restoration of coral reef areas at large-vessel damage sites at Molasses Reef, South Carysfort Reef, near American Shoal, and Looe Key Reef. Small vessel injury restoration sites include areas at Carysfort Reef, Newfound Harbor, and Western Sambo.
- Completion of multiple restoration and coral restabilization efforts at other sites.
- FKNMS staff have developed and implemented monitoring programs at many of the grounding sites.
- FKNMS staff assists in all aspects of resource management including permitting, research, vessel grounding protocol development, and grounding prevention.
- FKNMS staff has assisted in numerous seagrass restoration projects.
- FKNMS DARP Team members have assisted other NMS units and other parts of NOAA in damage assessment and restoration projects.
- DARP Team members have been so thorough in the development of their casework in conjunction with NOAA attorneys and economists that the FKNMS has yet to lose a case by legal challenge.
- FKNMS staff has implemented the Reef Medics Volunteer Coral Salvage and Restabilization Program in order to address sites where no responsible party can be identified. The program also provides a response team for small-vessel groundings where restoration costs may not be incorporated into the penalty assessed to the responsible party.
- FKNMS staff has partnered with other agencies and commercial fishermen in trap retrieval and removal following storm events.
- FKNMS staff has assisted in the development of Education and Outreach products that target user groups whose activities have the potential for causing injury to Sanctuary resources.

Goals and Objectives

The goals of this action plan are to:

- Prevent or at least minimize vessel grounding impacts
- Assess and document Sanctuary resource injuries caused by vessel groundings and other human impacts
- Restore resources
- Support Law enforcement and grounding litigation teams.

The objective of this action plan is to:

- Manage the program in a manner that protects and restores Sanctuary resources
- Manage litigation cases.

Strategies

There are six non-regulatory management strategies in this Damage Assessment and Restoration Action Plan.

- B.18 Injury Prevention
- B.19 Implementing DARP Notification And Response Protocols
- B.20 Damage Assessment and Documentation
- B.21 Case Management
- B.22 Habitat Restoration
- B.23 Data Management

Each of these strategies is detailed below. Table 3.8 provides estimated costs for implementation of these strategies over the next five years.

Table 3.8 Estimated costs of the Damage Assessment and Restoration Action Plan

Damage Assessment and Restoration Action Plan Strategies	Estimated Annual Cost (in thousands)*					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
B.18: Injury Prevention	25	26	30	32	33	146
B.19: Implementing DARP Notification and Response Protocols	50	53	59	62	65	289
B.20: Damage Assessment and Documentation	135	142	164	172	180	793
B.21: Case Management	105	110	115	129	135	594
B.22: Habitat Restoration	168	176	191	201	220	956
B.23: Data Management	60	63	68	71	75	337
Total Estimated Annual Cost	543	570	627	667	708	3,115

* Contributions from outside funding sources also anticipated.

STRATEGY B.18 **INJURY PREVENTION**

Strategy Summary

Prevention of resource injury is preferred to restoration. Working with the education and outreach staff, enforcement officers, volunteers, and federal, state and local agencies, the Sanctuary's damage assessment teams carry out a broad range of activities to prevent injuries to Sanctuary resources whenever possible.

Activities (6)

(1) Assist Waterway Marking/Management. The staff will continue to coordinate with appropriate agencies to mark waterways, provide input and assistance regarding regional patterns and frequency of incidents to identify "hotspots" including seagrass, coral reef and hard-bottom areas that display patterns of chronic vessel grounding, and assist the waterway marking and management working group in developing and fine tuning activities to address these issues.

Status: Implemented and on-going.

Implementation: Primarily Monroe County and the USCG, assisted by Waterway Management team, FKNMS/DARP staff, and cooperating agencies.

(2) Assist Education and Outreach. The program staff assists the FKNMS Education and Outreach program to produce information and educational products aimed at preventing groundings. Products and information are provided to the media, boating interest groups, periodicals and publications, and environmental education organizations that disseminate the information. Information in products includes grounding statistics, avoidance techniques, and the legal and financial consequences to insurance companies. The program seeks to provide technical support, background information, quantitative data, videos and photographs.

Status: Implemented and on-going.

Implementation: FKNMS staff

(3) Assist Programs Concerned with Direct Contact or Intervention. There are several existing site programs that address injury prevention, such as:

(A) Law Enforcement - Believing that that law-enforcement presence is an effective deterrent to groundings, FKNMS staff will provide technical support, data, and professional advice to assist the Sanctuary's law enforcement team.

Status: Implemented and on-going

Implementation: FKNMS and FWC.

(B) Team OCEAN - The Team OCEAN program is a body of trained volunteers who spend time on the water disseminating information about the environment, boating practices, regulations, and local navigation. Team members have prevented numerous vessel groundings through direct intervention by hailing operators, for example. Team OCEAN has the full support of the damage prevention program, including sharing vessel and equipment resources.

Status: Implemented and on-going; schedule is as requested.

Implementation: FKNMS and cooperating agencies.

(C) *Professional Guides Association* - The damage assessment program lends its full support to the Florida Keys Professional Guides Association's "Guides Educating Guides" initiative. The initiative enlists the services of professional backcountry fishing guides to instruct others in their profession on the ecological and economic value of seagrasses and how they and the public can better preserve and protect them. A by-product of this activity is that with increased awareness of the value of the seagrass habitat to their livelihoods, fishing guides become community leaders in protecting resources and preventing vessel groundings.

Status: Implemented and on-going.

Implementation: FKNMS and professional organizations.

(4) *Operating Permits for Towing and Salvage Professionals*. Staff will assist with the review for the need of a permitting system that would require towing and salvage operators in Sanctuary waters to notify injury response personnel about groundings to which they respond and to use minimal-impact gear and procedures when removing a grounded vessel. Should such a need be determined staff will coordinate with other Florida Keys and South Florida marine protected areas to develop best management practices for grounded vessel salvage. FKNMS management, education and outreach, and law-enforcement personnel would develop procedural requirements and guidelines, assist in developing training materials, and administer a mandatory operators' permitting course.

Status: Awaiting implementation.

Implementation: FKNMS with assistance from law-enforcement.

(5) *Minimize or Eliminate Impacts from Live-aboard, Derelict or Sunken vessels*. In an effort to reduce vessel impacts, staff will assist Sanctuary management and other state and local water quality and regulatory programs to create mooring fields, install pump-out stations, etc., and provide technical and logistical support for the removal of derelict vessels when requested.

Status: Implemented and on-going.

Implementation: FKNMS and other agencies.

(6) *Assist with Development of Oil and Hazardous Spill Response*. DARP staff coordinates with the USCG's Area Committee and other South Florida marine management and enforcement agencies to develop unified response protocols to deal with containment and cleanup of spills to prevent and minimize impacts on the ecosystem. This activity will include participation in the development of best management practices that can be implemented in the instance of an oil- or hazardous-material spill to protect mangroves, coral reefs and seagrasses and minimize the adverse impacts. Additionally, all FKNMS staff participated in Sanctuary's Hazardous Incident Emergency Logistics Database System (SHIELDS) training as well in the Safe Sanctuaries 2005 drill conducted at the FKNMS in April 2005.

Status: Implemented and on-going.

Implementation: Primarily USCG; FKNMS participates as needed.

Strategy Summary

The first step in a damage assessment action is incident notification from Sanctuary enforcement personnel, the USCG, other agencies and the general public. Once notification has been received, DARP personnel implement an appropriate response. This strategy addresses the technological and legal requirements of damage assessment and restoration by establishing injury assessment protocols. Detailed and repeatable procedures for assessing injury to natural resources must be adaptable, yet conform to accepted industry standards and advancements. Developing advanced methodologies will provide scientifically sound and legally defensible Natural Resource Damage Assessment (NRDA) claims and subsequent restoration planning efforts.

Activities (5)

(1) Further Develop and Fine Tune the Chain of Notification for Grounding Incidents. This will be accomplished by coordinating with FWC, Sanctuary law enforcement, NOAA administrators and state partners to determine the level of notification following a vessel grounding, establish criteria and thresholds to determine degree of response by the Sanctuary, and determine criteria and thresholds for notification above the Sanctuary and FWC level such as NOAA, state attorneys, economists, litigation case team members or marine protected area managers based on the scale and nature of each incident.

Status: In progress.

Implementation: NOAA, FWC, the State of Florida, and other cooperating agencies.

(2) Coordinate with Other Management and Enforcement Agencies to Develop Standardized Vessel Grounding and Spill-Response Protocols. DARP coordinates with other management and enforcement agencies to develop standardized, uniform vessel grounding and spill response protocols that are adopted and followed within and among the various agencies managing South Florida's marine protected areas. This on-going activity is shared with FWC, enforcement managers and includes discussion, planning and cooperative implementation with South Florida marine safety, resource management and environmental protection agencies. Agencies include, but are not limited to, USCG, EPA, USFWS, NPS, FWC, FPS, DEP, and Monroe County.

Status: Implemented and on-going.

Implementation: FKNMS, FWC and other agencies as appropriate.

(3) Implement "Eyes on the Water." FWC's law enforcement dispatch records indicate that more than 500 reported groundings occur annually in the Florida Keys. It is suspected that hundreds more undoubtedly go undetected or unreported. To effectively document injuries, allocate funds and distribute resources, DARP has joined with volunteer and education staff to develop and implement a volunteer training program for those who spend a significant amount of time on and around Keys waters. Training includes incident recognition, documentation, and notification. The volunteers include, but are not limited to Team OCEAN, Reef Medics, and Mote Marine Laboratory volunteers, area charter-boat personnel, professional fishing guides, and other volunteers.

Status: Implemented and on-going.
Implementation: FKNMS and FWC

(4) Gain public involvement in grounding notification. DARP will assist the Education and Outreach and Enforcement programs to develop and implement public notification campaigns. Staff will promote use of FWC law enforcement dispatch as the clearinghouse for reporting groundings, in short, the creation of a “grounding hotline.” This activity is being instituted in an effort to reinforce with the general public the vital role it plays in notification and to eliminate confusion as to which agency needs to be contacted.

Status: Awaiting implementation by FWC.
Implementation: FKNMS and FWC

(5) Gain towing and salvage operator cooperation in grounding notification. This is an on-going activity that seeks to establish rapport with local operators and includes regular meetings and training sessions to emphasize the importance of an operator’s cooperation in the vessel grounding notification network.

Status: Awaiting full implementation.
Implementation: FKNMS.

STRATEGY B.20 DAMAGE ASSESSMENT AND DOCUMENTATION

Strategy Summary

This strategy addresses the technological and the legal requirements of damage assessment and restoration by establishing assessment protocols, methodology and documentation necessary support for case management.

Activities (6)

(1) Respond to and assess injuries to natural resources within the FKNMS resulting from vessel groundings; further develop and fine-tune associated protocols and methodologies for these kinds of injuries. Various methodologies and protocols are recognized, including:

- (a) *Damage to live coral dominated substrate* - FWC law enforcement is authorized to issue summary settlement citations to vessel operators responsible for groundings that result in injury of 10 square feet or less to live coral substrate. The fines issued do not require involvement of DARP staff, NOAA, or state legal counsel. Coral injuries of greater than 10 square feet require a biological assessment by the Sanctuary through DARP staff, using a variety of assessment techniques to quantify, describe, illustrate, and document the injury. Depending upon the size and extent of the injury, the assessment is forwarded to either NOAA’s Office of General Counsel for Law Enforcement to be processed as a simple civil penalty or NOAA’s Office of General Counsel for Natural Resources for processing as a Natural Resources Damage Action (NRDA) claim. The latter may include response and assessment cost recovery, restoration, monitoring, and compensatory components.

Status: Implemented and on-going

Implementation: FKNMS and FWC law enforcement

- (b) *Damage to seagrass dominated substrate* - FWC law enforcement is authorized to issue summary settlement citations to operators responsible for groundings that cause 10 square yards or less of injury to seagrass dominated substrate. Seagrass injuries of greater than 10 square yards require a biological assessment by DARP staff, using a variety of assessment techniques to quantify, describe, illustrate, and document the injury. Depending upon the size and extent of the injury, the assessment is forwarded to either NOAA's Office of General Counsel for Law Enforcement to be processed as a simple civil penalty or NOAA's Office of General Counsel for Natural Resources for processing as a NRDA claim. The latter may include response and assessment cost recovery, restoration, monitoring, and compensatory components.

Status: Implemented and on-going

Implementation: FKNMS and FWC law enforcement

- (c) *Damage to mixed substrate* - The DARP team provides technical input to NOAA and state legal counsel and the litigation team, which is composed of attorneys, economists, research biologists and FKNMS administrators, in order to determine appropriate legal action under Section 307 (civil penalty action) or 312 (natural resource damage assessment action) of the NMSA for vessel grounding injuries to mixed seagrass and hard-bottom communities or mixed *Thalassia* (turtle grass) and *Porites* (finger coral) shoals and banks. Current assessment is based largely on protocols used in coral and seagrass injury assessment. The DARP team, in conjunction with the litigation team, determines if special or modified assessment techniques are needed.

Status: Implemented and on-going

Implementation: FKNMS and FWC law enforcement

- d) *Damage to non-living coral reef framework* - The DARP team provides technical input to NOAA and state legal counsel and the litigation team to determine appropriate legal action under Section 307 (civil penalty action) or 312 (natural resource damage assessment action) of the NMSA for vessel grounding damage to the non-living skeletal remains of reef-building corals that comprise the structural framework and attachment places for living reef components. The DARP team, in conjunction with the litigation team determines if special or modified assessment techniques are needed.

Status: Implemented and on-going

Implementation: FKNMS and FWC law enforcement

(2) Respond to and assess injuries to natural resources within the FKNMS resulting from large vessel (primarily freighter) anchoring activity; further develop and fine tune assessment protocols and methodologies for these kinds of injuries. This is a problem that has only recently received close scrutiny by Sanctuary management and DARP personnel and is almost exclusively confined to the remote reaches of the Tortugas region, usually in greater than 25 meters of water. Freighters anchor weigh tons and are secured by extremely large chain. When freighters drop anchor, the heavy chain can drag along the bottom causing extensive, catastrophic damage to corals and other sessile benthic

organisms. As anchored vessels swing with the wind and wave action, continuing damage can occur. Current methodologies borrow largely from coral reef injury assessment procedures and valuation formulae. Likewise, restoration and monitoring methodologies and protocols will closely follow those currently used in shallow reef situations, while incorporating special planning for diving and working at greater depths.

Status: A no-anchor zone was established in the Tortugas region in 1998; assessment protocols and methodologies implemented and on-going.

Implementation: FKNMS, State of Florida legal counsel, FWC law enforcement

(3) Respond to and assess injuries to natural resources within the FKNMS resulting from live-aboard and derelict vessels; further develop and fine tune assessment protocols and methodologies for these kinds of injuries. The DARP team will provide technical input to NOAA and state legal counsel and litigation team to determine appropriate penalty schedules for injuries to seagrasses, corals and hard-bottom habitat due to the shading effects or direct contact by permanently or semi-permanently moored live-aboard vessels and derelict vessels.

Status: Implemented and on-going.

Implementation: FKNMS, in conjunction with the litigation case team, will determine if special or modified assessment techniques need to be developed established for addressing injuries to these types of habitat.

(4) Respond to and assess injuries to natural resources within the FKNMS resulting from near-shore construction and repairs or modifications to existing structures, such as public utility structures, bridge pilings, and seawalls; further develop and fine tune assessment protocols and methodologies for these kinds of injuries. As a result of the permitting of improvements or alterations to existing coastal structures or features, or the construction of new structures or features, the DARP team will be called upon to assess coral, seagrass, or hard-bottom resources that may be impacted during the construction, repair or alteration phase of the project. The data and documentation gathered from such assessments may be used in the permit decision-making process, and in planning for possible mitigation or restoration. The current methods and procedures for coral and seagrass site characterization or assessment will be used, but the over-all process will differ significantly from grounding assessments in that an initial assessment is conducted before construction or alternation, followed by a post-project evaluation.

Many of these permitted construction projects result in the removal and relocation of sessile organisms to a suitable substrate by FKNMS staff or the permittee, as required.

Status: Implemented and on-going.

Implementation: FKNMS will be requested by the permitting agency to make an assessment of the marine resource impacted during construction, repair or alteration phase of the project.

(5) Respond to and assess injuries to natural resources within the FKNMS resulting from fishing gear; further develop and fine tune assessment protocols and methodologies for these kinds of injuries. The DARP team will collect data and conduct assessments of injuries to various substrate types resulting from fishing gear. The information will be provided to federal and state fisheries management and law enforcement personnel. DARP staff will also provide technical support to the Sanctuary litigation team cases involving illegally placed artificial finfish or shellfish aggregating structures. The

frequency of this type of assessment may increase over time in support of increased enforcement efforts.

Status: Implemented and on-going.

Implementation: FKNMS will collect data and conduct assessments of injuries to various substrate types resulting from the placement of fishing gear. Technical support will be provided to the Sanctuary litigation case team as requested.

(6) Respond to and assess injuries to natural resources within the FKNMS resulting from natural events; further develop and fine tune assessment protocols and methodologies for these kinds of injuries. Current assessment techniques are borrowed from coral reef and seagrass methodology, but no uniform or standardized protocols have been developed. Infrequency of injury by catastrophic natural events (primarily hurricanes) has provided little momentum to establish assessment protocols. Rapid assessment methodologies developed by other agencies or private institutions for coral reef observations may be utilized to assess large-scale catastrophic events.

Status: Implemented as needed

Implementation: FKNMS.

STRATEGY B.21 CASE MANAGEMENT

Strategy Summary

Case management involves sharing information and documentation regarding an injury incident so that the litigation team may proceed with legal action against the responsible party. This strategy identifies the activities necessary to carry out case management.

Activities (3)

(1) Provide vessel grounding litigation case management participation. Vessel grounding case management involves processing the information and documentation gathered during the assessment phase of an injury to Sanctuary resources into a legal action against the responsible party. In instances where the size of the injury does not exceed the threshold of a summary settlement, DARP involvement will be minimal (an occasional verification of an FWC Officer's evaluation of the injury), if required at all. Cases that fall under NMSA Section 307 (civil penalty action) categorization will require at a minimum the production of an injury assessment report by a DARP biologist, and some processing by NOAA's Office of General Counsel for Law Enforcement. Grounding cases that will be handled as NMSA Section 312 (natural resource damage assessment action) cases require the most DARP staff involvement, necessitating considerable coordination and information sharing NOAA's Office of General Counsel for Natural Resources and other members of the designated case team.

Status: Implemented and on-going.

Implementation: This is a joint FKNMS and litigation team activity that occurs with most cases.

(2) Provide vessel grounding litigation case management support. This is an on-going activity. DARP team is involved in the on-going task of providing reports, documentation, site reconnaissance, depositions, expert witness testimony, etc. in support of vessel grounding case litigation.

Status: Implemented and on-going.

Implementation: Depending on the severity of the incident, each case requires various portions of this activity. In addition a contract position was created in 2006 to provide overall specific case management support and coordination.

(3) Document Costs. In conjunction with administrative staff, the DARP team tracks expenditures associated with response, field assessment work, reporting, etc. for each case. Recently developed procedures for more accurate and efficient cost documentation are being implemented. Future activity in this area includes development of a cost documentation reporting sheet for Sanctuary law enforcement.

Status: Implemented and on-going.

Implementation: FKNMS and case administrator are developing additional procedures and reporting requirements.

STRATEGY B.22 HABITAT RESTORATION

Strategy Summary

The National Marine Sanctuaries Act permits NOAA to recover the cost of restoring resources that are damaged by human activities. Restoration may involve re-stabilization of damaged but viable corals, seagrasses or hard-bottom components, and/or the replacement of substrate, structure and habitat. This strategy describes the on-going efforts of the DARP teams to restore Sanctuary resources damaged by human activity. In this Strategy when reef restoration techniques are discussed, the FKNMS means restoration to the reef framework that is already there, although damaged. It does not mean the usage of any artificial structures that were not already located at the injury site.

Activities (8)

(1) Salvage, restabilize and repair living hard corals and octocorals, seagrasses, and the non-living reef framework injured by groundings or other non-natural impacts. FKNMS uses several resources to salvage and/or repair Sanctuary resources, including:

- (a) *Salvage, maintenance and restabilization of injured Sanctuary resources by DARP staff and private contractors* - DARP team members, FKNMS staff, and private contractors can be mobilized to take part in "rescue" and "first aid" activities following a grounding. Efforts will focus on the salvage and restabilization of large, viable fragments or entire colonies of stony corals *in situ*, or as closely as possible to the injury site on uncompromised stable substrate. If the substrate within the immediate vicinity of the injury site is deemed too heavily fractured or otherwise unstable, the dislodged fragments and/or intact colonies may be relocated temporarily to protected "nursery" areas for holding until the original substrate is restabilized, reconstructed or replaced.

Alternatively, if it is deemed impractical or unfeasible to restore the original substrate to a degree that would adequately support the dislodged colonies or fragments, or if the time required to restore the original substrate would surpass the expected survivability horizon of

the salvaged material, then a Sanctuary restoration biologist may choose to transplant this material elsewhere. One such alternative can be a nearby site from a previous vessel grounding that did not receive restorative measures and has a suitable substrate for reattachment.

The DARP team participates in developing strategies for streamlining the acquisition of funds from litigation case settlements to implement restoration as swiftly as possible, especially when emergency salvage and restabilization is necessary. Improved materials/methods and other innovations are continually being developed, evaluated and incorporated into the program. Among these will be a Programmatic Environmental Impact Statement that will expedite the NEPA process for restoration planning and implementation.

- (b) *Salvage, maintenance and restabilization of injured Sanctuary resources by Reef Medics Program and Other Volunteer Groups* - Reef Medics is an innovative, hands-on program designed to use volunteers to assist in Sanctuary restoration efforts. Volunteers have experience in vessel navigation and operation, snorkeling, and SCUBA diving. The DARP staff trains the volunteers in salvage and restabilization techniques. Currently, SCUBA certification is required for restoration efforts and DARP staff assists with the necessary approvals for diving through the NOAA Dive Program, The Nature Conservancy, Mote Marine Lab and other agencies. Reef Medics primarily assist DARP staff if the injury size falls below the threshold of a Natural Resources Damage Action claim or the responsible party is determined to be unviable or unknown, as in "hit and run" or "orphan" sites. Salvage and restabilization efforts of smaller viable fragments can be conducted by Reef Medics and trained volunteer divers using hand tools and cement or adhesives appropriate for use with living organisms in marine applications.

Reef Medics support comes from compensatory funds from vessel grounding settlements, grants, and Sanctuary Friends of the Florida Keys, including contributions to purchase equipment and supplies, and vessel support.

Reef Medics are involved in follow-up documentation and monitoring of repaired sites for up to two years after repairs. Expansion of the Reef Medics program will include activities not requiring SCUBA diving, with opportunities for participation by non-divers and volunteers. Mote Marine Laboratory has conducted a pilot Reef Medics "Base Camp" project and further development is underway. The content and materials for a new volunteer training course has been developed.

- (c) *Salvage or removal of living corals by researchers and public aquaria.* Vessel groundings on coral reef substrate often produce fragments of living coral colonies too small or too compromised to be viable in the natural environment. Likewise, permitted repair or replacement of submerged or partially submerged structures sometimes sacrifices encrusting corals and other sessile marine organisms. The removal of un-permitted or deleterious structures, such as illegally placed fishing gear and derelict vessels, also may result in the loss of hard corals and gorgonians. In such cases, the preferred alternative is to transplant the material to a suitable substrate within the reef ecosystem. However, if size, fragility or other factors make successful relocation and restabilization unlikely or impossible, then the FKNMS

superintendent may allow the material to be collected by researchers and public aquaria with permits to procure coral specimens from Sanctuary waters.

DARP works with permit personnel to include language that requires utilization of “sacrificial” material as primary source, removal of intact specimens from manmade structures as a secondary source, and using natural reef sources only if the target species cannot be found on artificial structures. DARP investigates lab or aquarium propagation for subsequent return to the ecosystem.

Status: Implemented and on-going.

Implementation: FKNMS management, DARP, private contractors, and volunteer groups. Sub activities are currently in various stages of implementation.

(2) Restore injured or destroyed coral reef framework. The DARP team uses funds from case settlements to reconstruct or replace coral reef framework structures that have been compromised or destroyed. The goal of this activity is to restore the ecological and structural functionality of the injured reef framework and to reestablish lost aesthetic aspects. The DARP team participates in developing strategies for streamlining the acquisition of funds from litigation case settlements to effect restorative efforts as swiftly as possible, especially when emergency salvage and re-stabilization is required.

In cooperative situations, private contractors may also be engaged to restore or replace impacted or destroyed coral reef framework.

Status: Implemented and on-going within the limitations of funding, human resources, and technology.

Implementation: DARP, FKNMS managers, litigation case managers, private contractors

(3) Restore grounding-impacted seagrass meadows. FKNMS DARP personnel participate or facilitate seagrass restoration in damaged areas. These cases are handled on a case-by-case basis and involve coordination among seagrass scientists, DARP personnel, DEP personnel, and other resource managers. Other seagrass restoration efforts occur by:

- (a) *Use of Sanctuary Staff and Private Contractors.* The DARP team participates in on-going projects utilizing settlement funds to restore seagrass dominated substrate injured in vessel groundings. Activities by staff or contractors includes backfilling prop scars, trenches and excavation craters (“blowholes”), installing seabird attracting roosts (bird stakes) placed to promote the concentration of natural fertilizer; replanting pioneer seagrasses in denuded areas, sodding with nursery-grown and mechanically planted shoal-grass plugs, and the development, evaluation and implementation of other innovative methods and technologies.
- (b) *Use of Volunteer Groups.* DARP personnel direct trained volunteers to begin “first aid” measures following grounding damage to seagrass meadows using hand tools to return unnaturally banked or piled sediments back into scars, trenches and excavation craters created by grounded vessels.

(c) *Use of Regional Restoration Programs.* The DARP team uses various funding sources to identify seagrass areas in need of restoration, and to implement restoration efforts, especially of orphan sites that would otherwise not receive treatment. Other members of this regional restoration group include representatives from the NOAA Beaufort Lab/Seagrass Research Team, the NOAA Damage Assessment Center, and DEP

Status: Related sub-activities are currently in various stages of implementation.

Implementation: NOAA Damage Assessment Center, NMFS Beaufort Lab, FKNMS, DEP, private contractors, and volunteers.

(4) *Monitor restoration.* DARP staff schedules regular field visits to monitor restoration sites. The monitoring data gathered is used for the scientific evaluation of methodologies. Based on the evaluations, mid-course corrections can be made at existing restoration sites and future restoration planning will reflect the knowledge gained.

Status: Currently established for many existing incident locations.

Implementation: FKNMS and cooperating agencies.

(5) *Acquire blanket permits for DARP activities.* DARP staff will work with other restoration team members, including NOAA's Beaufort Lab/Seagrass Research Team, NOAA's Damage Assessment Center, and DEP to obtain blanket permits from regulating agencies (USACE, DEP, and others as appropriate) for damage assessment and restoration projects.

Status: Applications are under review by issuing agencies.

Implementation: A joint activity requiring various agency (e.g. USACE, DEP, etc) approvals.

(6) *Reintroduce indigenous living corals and seagrass.* DARP staff participate in the review of policies and regulations regarding the re-introduction of living corals and seagrasses indigenous to the Florida Keys, which were held or propagated in laboratories, aquaria, or nurseries. Concerns exist about the possibility of introducing exotic or foreign strains of diseases or parasites, and/or the possibility of reintroducing corals or seagrass with weakened immune and defense mechanisms, or defective genetic material.

Status: This activity is currently under development. A workshop on the reintroduction of organisms from enclosed systems is targeted for mid to late 2007.

Implementation: Multi-agency DARP personnel are making preparations to convene a workshop of experts to assess the biological and ecological ramifications of reintroducing corals and seagrasses and to develop criteria regulating these and related activities. A research project has been permitted by the FKNMS to define health certification and reintroduction protocols. However, due to setbacks resulting from problems with coral aquaculture techniques and recipient partners, the project was delayed until just recently. The project partners have been re-established and research is underway, with a field re-introduction activity initiated in 2006. It will be critical to conduct the proposed workshop with all coral nursery partners involved in handling FKNMS corals, and ideal to hold it after this initial research is completed in 2007.

(7) Development of seagrass donor beds. The DARP team will determine appropriate sites for developing, maintaining and enhancing donor beds of shoal grass for transplanting into restoration sites.

Status: This activity is currently under development. Donor site identification is on-going.

Implementation: Donor site identification has evolved through discussions with FKNMS permitting staff working on reviews of US Army Corps of Engineers (USACE) permits. Seagrass beds subject to destruction due to small maintenance dredge projects in access channels to sub-divisions and public access waterways are appropriate donor sites available for beneficial use projects, such as seagrass restorations. USACE is developing permitting language that will require their applicants to coordinate with FKNMS for the rescue of seagrass imperiled by maintenance dredging projects.

(8) Work with public outreach coordinator to inform the public about habitat restoration activities. This is an on-going DARP team activity in which DARP personnel regularly provide the Sanctuary Communications Manager with information, photos, videos, and other materials for use in press releases, TV and radio spots, and magazine articles to inform the public about restoration projects and successes.

Status: Implemented and on-going.

Implementation: FKNMS will provide information for media output to keep the public informed on restoration projects.

STRATEGY B.23 DATA MANAGEMENT

Strategy Summary

This strategy describes the DARP efforts to document groundings in the Florida Keys National Marine Sanctuary in order to determine trends and implement prevention strategies. Additionally, this information is used to track restoration, repairs and monitoring in the Sanctuary to determine the success of restoration efforts.

Activities (3)

(1) Create and maintain vessel grounding database. There are several tasks associated with this activity, including:

- (a) *Refine and Maintain Vessel Grounding Database and provide adequate staffing for on-going management.* FKNMS and FWC data are archived in a multitude of formats gathered with varying degrees of detail. Archived data needs to be reevaluated and reprocessed to allow queries to fields and subcategories. DARP staff developed a consistent format, document parameters, and standardized reporting. Once the data are reprocessed, they are shared with other Sanctuary programs such as Mooring Buoy, Waterway Marking/Management, and Regulatory. This data is incorporated as an element of the SHIELDS database.
- (b) *GIS component development and maintenance.* DARP staff assigned to database development and management has received ArcView Geographic Information System (GIS) training and the

processing of archived data has begun. The DARP team will investigate new databases and geospatial analysis technology to evaluate the feasibility of incorporation into DARP data management.

- (c) *Products for management, case tracking, outreach and research application.* Full implementation is pending the complete development of a new database. Original data has limited value. DARP personnel will work with other FKNMS program staff to create a database that is both useful and user-friendly.

Status: Partially implemented and on-going. Sub-activities are currently in various stages of implementation and most DARP personnel have received basic GIS training. In 2006 a case administrator contract position was created to facilitate this activity.

Implementation: FKNMS, FWC, law enforcement, cooperating agencies, and reporting sources, including the public and volunteers.

(2) Develop GIS and database for tracking restoration, repairs and monitoring. NOAA Damage Assessment Center's seagrass injury assessment team has implemented this data management component. This technology is currently being adapted to other FKNMS and DARP applications.

Status: This activity is in progress. Most DARP personnel have basic GIS training.

Implementation: FKNMS and related agencies.

(3) Acquire and incorporate satellite and aerial photo images into GIS databases. The DARP team participates in the acquisition of high-resolution, low-altitude aerial photographs of all special management areas and known grounding "hotspots" as baseline documentation in support of natural resource injury litigation, basic research, and managerial decision-making. These images are shared with all Sanctuary program staff to facilitate and enhance Sanctuary-sponsored projects.

Status: Implementation will commence upon acquisition of funds

Implementation: Funding is being sought and site planning is underway.

3.3.4 Maritime Heritage Resources Action Plan

Introduction

The Maritime Heritage Resources Action Plan includes a close partnership of the state, NOAA and the Advisory Council on Historic Preservation that resulted in a 1998 programmatic agreement for historical resources management. After five years of implementation, all parties renewed this Agreement in 2004 for an additional five years (see Appendix F for more information and a link to the full text of the Agreement). Overall, the Maritime Heritage Resources Action Plan demonstrates excellent progress in balancing resource protection, investigation and interpretation. This is the result of uniform implementation and enforcement of the federal and state standards formalized in the Programmatic Agreement.

Maritime Heritage Resources (MHR) are defined as underwater items and sites that have historical, cultural, archaeological, or paleontological significance. This includes sites, structures, districts, and objects associated with or representative of earlier peoples, cultures, human activities and events. In this plan, the terms “historical resources,” “cultural resources,” and “maritime heritage resources” are used interchangeably and may include artificial reefs, shipwrecks that are part of both U.S. and world history, as well as the remains of prehistoric cultures.

Maritime heritage resources in the Sanctuary encompass a broad historical range. Because of the Keys’ strategic location on early European shipping routes, the area’s shipwrecks reflect the history of the entire period of discovery and colonization. This richness of historical resources brings a corresponding responsibility to protect and preserve resources of national and international interest. Accordingly, the resources are managed for public benefit and enjoyment, while the historical and cultural heritage is preserved for the future.

Long-term protection requires a precautionary approach to historical resource management, particularly when information or artifacts may be destroyed or lost through direct and indirect activities. The Federal Archaeological Program or equivalent standards of conservation, cataloguing, display, curation, and publication must be assured before permitting their disturbance. Such projects are expensive and labor-intensive, sometimes requiring specialists in the fields of archaeology, conservation, museum work, historic shipwreck research, and recovery. FKNMS will continue to explore all public and private partnerships for management and consider private-sector implementation, when appropriate.

FKNMS’ policy is to protect sanctuary resources, including maritime heritage resources. The Sanctuary and its resources are managed to facilitate multiple uses that are compatible with resource protection. Compatible uses include research, education, recreation, fishing and other uses.

Maritime heritage resources are managed in close partnership among NOAA, the State of Florida, and the Advisory Council on Historic Preservation (ACHP). During development of the 1996 management plan, this was an area of considerable controversy and conflict. Since then, there has been much progress in achieving a balanced level of resource protection, investigation, and interpretation. Further, FKNMS works closely with cultural resource managers in Biscayne and

Everglades National Parks. An Interagency Agreement was established with Biscayne National Park in 2006 to facilitate enhanced collaboration.

Goals and Objectives

FKNMS has a trustee responsibility for current users and future generations. Because maritime heritage resources are non-renewable, decisions are made with a precautionary approach after careful and deliberate analyses of the potential consequences of long-term preservation. With this in mind, the goals of this Action Plan are to:

- Gather sufficient information about cultural resources to allow informed decisions.
- Interpret the history and culture of the area for the public.
- Allow private-sector participation, research, documentation, recovery, and curation, when appropriate.
- Develop community-based stewardship.
- Develop MHR Interagency Agreements with other federal agencies such as the NPS.

To achieve these goals, the following objectives have been identified:

- Continue to inventory the FKNMS maritime heritage resources.
- Create a database consistent with resource protection and business confidentiality.
- Interpret the resources for the public through on-site and land-based exhibits and materials such as brochures, web pages and videos.
- Develop public partnerships for research, interpretation, and management.
- Foster and enhance a stewardship ethic.

Implementation

FKNMS and the Florida Division of Historical Resources (FDHR) are primarily responsible for implementing the MHR Management Plan. NOAA and the state jointly manage FKNMS resources, while FDHR retains title to abandoned shipwrecks on state-owned submerged lands. If excavation is involved, permission may also be required from DEP/FDSL (Division of State Lands, Board of Trustees of the Internal Improvement Trust Fund) and the USACE (e.g., dredge and fill permit), depending on the location of a given site.

FDHR, through its Bureau of Archaeological Research, has developed a range of management tools that can be used as a guideline within the Sanctuary. FDHR's role, although sometimes regulatory, typically involves inventory, assessment, research, education, public interpretation, and grant assistance for historic preservation projects.

FKNMS' primary role is to protect the historic resources through permitting and enforcement, provide overall policy direction, and coordinate research by institutions and individuals. In this capacity, FKNMS will ensure that research is well-designed and consistent with Sanctuary policies. FKNMS will also work with the FDHR to inventory resources consistent with appropriate laws and guidelines.

Geographic Focus

Although MHRs may be located anywhere in the Florida Keys National Marine Sanctuary, areas of known concentration and high probability occur especially in shallow water with proximity to shipping routes, on and near reefs, in the Straits of Florida, in other historically used channels, and

near historical sources of freshwater. Management will focus on selected shipwreck sites, with the particular characteristics of a site determining the types of management tools to be applied.

Personnel

While full implementation of the revised management plan would best be achieved with a fully developed archaeological staff, FKNMS believes it is important for an underwater archaeologist to be hired to implement the high priority activities under the plan. Volunteers have proved to be very effective in assisting with cultural resource management. FKNMS will continue to seek out and use volunteers.

Equipment

FKNMS currently owns and operates a variety of vessels that may be used by archaeological staff to conduct fieldwork. The program also owns several underwater cameras that can be used for photo-documentation. A personal computer with ArcView GIS software is also available. Contracting or cooperating with other organizations for field support equipment may also be useful.

Contingency Planning for a Changing Budget

If funding is below the level needed for full implementation, cuts may need to be made in staffing and equipment purchases. Staffing the marine archaeologist position is, however, critical for effective implementation and will be given the highest funding priority possible under this plan. Contracting for archaeological services or equipment can be explored to conduct interim activities. Other staff members could potentially fill part-time positions within the MHR program after training in archaeological methods. A core staff technician could be shared with the biology or damage assessment staffs, as both positions include underwater mapping and documentation skills.

Commercial Salvage

One of the issues this Action Plan addresses is commercial salvage. The actions being implemented to address this issue are the result of a long public process, including scoping meetings, workshops, and consideration of numerous and diverse comments from the public and the Sanctuary Advisory Council.

Commercial salvage may be permitted under certain conditions, in consultation with the state, which owns abandoned shipwrecks in all state waters, including approximately 65 percent of the Sanctuary, and consistent with the Abandoned Shipwreck Act (ASA) in those areas. However, commercial salvage of abandoned shipwrecks has been determined not to be a compatible use in areas where there is coral, seagrass or other significant natural resources. In areas relatively devoid of significant natural resources, commercial salvage may be permitted for those applicants that have met the criteria outlined in the Sanctuary regulations and the Programmatic Agreement. The recording and reporting of archaeological findings and recovery operations is required, as is the curation of representative samples of artifacts consistent with the Programmatic Agreement for MHR Management and the Federal Archaeological Program or equivalent standards. The federal program was developed by the National Park Service by Presidential Order, and includes a collection of historical and archaeological resource-protection laws to which federal managers are required to adhere. The National Historic Preservation Act (NHPA) requires federal agencies to develop programs to inventory and evaluate historic resources. NHPA Section 106 requires review of each recovery permit by the State Historic Preservation Office and the Advisory Council on Historic Preservation. Permits within the scope of, and adhering to, to all provisions of the Programmatic Agreement need not go through an additional NHPA 106 review process.

The Abandoned Shipwreck Act encourages states to manage shipwreck sites in ways that protect the historical information, as well as any natural resources and habitat areas, and that guarantee recreational access to shipwreck sites. The guidelines issued by NPS to implement the Act indicate a preference for prohibiting commercial salvage, which is followed in zoned areas and in areas where there is coral, seagrass or other significant natural resources. Commercial salvage is permitted only when applicants meet strict requirements, and only in areas relatively devoid of significant natural resources. There will be no commercial salvage and deaccession of MHRs of high historical significance. The FKNMS regulations and Programmatic Agreement provide for private-sector recovery conducted in an archaeologically and environmentally sound manner. Thus, management also preserves selected shipwrecks in the Sanctuary for research and recreation. Other shipwreck sites may contain artifacts more appropriate for recovery and preservation in museums with public access.

Finally, the plan provides for the deaccession and distribution of certain recovered resources to private parties. Private benefit is available through public display, as well as from the sale of gold, silver, jewels, and other redundant, and/or duplicative, objects of low historical significance after proper archaeological recording, analysis and reporting. The Programmatic Agreement provides further details on the criteria and process for decisions regarding recovery and preservation *in situ*.

Accomplishments

There have been a number of accomplishments in the management of maritime heritage resources since implementation of the 1996 management plan, including:

- A Programmatic Agreement for Historical Resource Management in the Sanctuary among NOAA, ACHP, and the State of Florida was executed in June of 1998, establishing principles of joint management and guidelines for permits. The Programmatic Agreement was renewed for an additional five years in 2004.
- Establishment of a standardized permitting system with resulting issuance of 50 Archaeological Survey and Inventory and 25 Archaeological Research and Recovery Permits, amendments and / or renewals.
- Forty-four permit reports have been submitted and accepted as complete by NOAA and the state covering 23 different MHR investigations. Significant new information on the location, type, age and condition of historic resources has resulted.
- Permit information has been incorporated into a GIS database to facilitate management decision-making.
- The Sanctuary established a Shipwreck Trail for public access to and education about cultural resources in the Sanctuary; nine sites are included in this program.
- Sanctuary staff has educated the general public, diving community, and the marine archeology community through development of a series of presentations and materials on the Shipwreck Trail program.
- Establishment of a Maritime Heritage Resources Inventory Team staffed by volunteers to document and inventory shipwreck sites within its boundaries. This team has performed a vast amount of underwater and archival research, which has resulted in documenting hundreds of historical artifact sites in the five-volume set, *Underwater Resources of the Florida Keys National Marine Sanctuary Northeast Region*.
- To date, 174 Heritage assets have been professionally conserved, incorporated into a heritage asset database and display at the FKNMS Upper Region Office. Several of these artifacts were deemed to be threatened, triggering management recovery actions.

- A research plan was implemented to document and interpret a previously unknown wreck in 230 ft. of water that was brought to the Sanctuary’s attention by the recreational diving community. Results indicate the, now identified, remains of the ship *Queen of Nassau* to be of historical significance commensurate with listing in the National Register of Historic Places.
- The USCG *Duane* artificial reef was listed in the National Register of Historic Places on May 16, 2002. Indiana University Underwater Science and Educational Resources Program prepared the nomination. Direction, coordination, funding and logistical support for this and other field school efforts were provided by FKNMS during the period.
- A joint underwater archaeological field investigation of a “mystery wreck” was conducted by members of FKNMS and the State of Florida, Bureau of Archaeological Research in June 2005.
- Several underwater archaeological field schools have been conducted through FKNMS support and permitting.

Strategies

There are five non-regulatory management strategies in this Maritime Heritage Resources Action Plan.

- MHR.1 MHR Permitting
- MHR.2 Establishing an MHR Inventory
- MHR.3 MHR Research and Education
- MHR.4 Ensuring Permit Compliance
- MHR.5 Ensuring Interagency Coordination

Each of these strategies is detailed below. Table 3.9 provides estimated costs for implementation of these strategies over the next five years.

Table 3.9 Estimated Costs of the Maritime Heritage Resources Action Plan

Maritime Heritage Resources Action Plan Strategies	Estimated Annual Cost (in thousands)*					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
MHR.1: MHR Permitting	100	100	100	100	100	500
MHR.2: Establishing an MHR Inventory	50	100	100	100	50	400
MHR.3: MHR Research and Education	50	100	100	100	100	450
MHR.4: Ensuring Permit Compliance through Enforcement	5	5	5	5	5	25
MHR.5: Ensuring Interagency Coordination	5	5	5	5	5	25
Total Estimated Annual Cost	<i>210</i>	<i>310</i>	<i>310</i>	<i>310</i>	<i>260</i>	1400

* Contributions from outside funding sources also anticipated.

STRATEGY MHR.1 MHR PERMITTING

Strategy summary

A permit system facilitates access and multiple uses compatible with resource protection. Non-intrusive access is not prohibited and does not require a permit. Resource disturbance without a permit is prohibited. Such permits are based on the regulations for all permits, as well as factors and criteria in the regulations for MHR permits, which are detailed in the Programmatic Agreement. Criteria considered in the review include a site's: historical/cultural value and significance, recreational value, and environmental impact of the activity. Additionally, the professional qualifications of the applicants, proposed methods of research, recovery, conservation, and public benefit are considered. No permits will be issued for excavation in areas where coral, seagrass, or other significant natural habitats exist.

FKNMS requires permits for activities prohibited by Sanctuary regulations. Such permits may be granted only in accordance with existing laws and policies. FKNMS encourages uses that do not adversely affect resources (including archaeological information) or interfere with other Sanctuary uses.

A Survey and Inventory permit is not required for remote-sensing activities, but a Survey and Inventory report is required before considering the issuance of a Research and Recovery permit. Those who conduct remote sensing without a permit are encouraged to report results to the Sanctuary.

A factor considered in evaluating a research and recovery permit is whether the applicant has demonstrated professional and scientific abilities in the survey and inventory phase. An archaeological research and recovery permit is required to remove historical resources. The historic resources that are not deaccessioned must be maintained in a museum or similar institution where public access for research, education and viewing enjoyment is provided.

A deaccession and transfer permit is required to privatize the public resources recovered under a research and recovery permit. The deaccession and transfer permit is subject to the requirements for Special-Use permits. Removal of historic resources requires a substantial justification of public interest, consistent with the purposes and policies of the Sanctuary described in the NMSA, the FKNMSPA, Programmatic Agreement, the Abandoned Shipwreck Act guidelines and the Federal Archaeological Program.

The NMSP, Florida Division of Historic Resources (FDHR) and legal staff have worked together to develop a framework for MHR management of submerged lands within the Sanctuary consistent with the NMSA, the Abandoned Shipwreck Act guidelines, and state law. This framework is formalized in the Programmatic Agreement among NOAA, the Advisory Council on Historic Preservation, and the State of Florida.

The regulations, MHR Programmatic Agreement and permit guidelines have been completed. Subsequent guidelines and other activities discussed below are under consideration. This activity will have a high level of action and be on-going.

Activities (3)

(1) Create An MHR Field Unit. A field unit would be established to conduct field research and coordinate permitted research activities. FKNMS recognizes the need to develop field expertise relating to archaeological investigations in the Sanctuary and will seek the funding to hire an underwater archaeologist and provide necessary support staff and equipment.

Status: This activity will have a high level of action in the first year after adoption of this revised plan. Depending on funding, it may require longer to complete. Contracting archaeological services in the field will be considered as an interim measure in addition to the continued use of volunteers to carry out field activities.

Implementation: FKNMS will be the lead agency; FDHR will assist.

(2) Monitor MHR Site Degradation. Conduct long-term monitoring of selected sites based on significance and recreational value to determine if environmental conditions and human use affect site integrity to provide information for permit decision-making.

Status: Implemented and on-going.

Implementation: FKNMS will be the lead agency; FDHR will assist.

(3) Evaluate Excavation and Mitigation Techniques. Evaluate emergent technologies that lead to less disturbance and more efficient recovery. These technologies include but are not limited to turbidity screens, sediment removal equipment, and seagrass restoration or relocation protocols.

Status: Implemented and on-going.

Implementation: FKNMS will be the lead agency. FDHR will assist.

STRATEGY MHR.2 ESTABLISHING AN MHR INVENTORY

Strategy Summary

The purpose of this strategy is to create a bibliography and computerized database in a standard format and, where appropriate, make it publicly accessible over the Internet. It also seeks to identify and survey site locations and characteristics including name, age, integrity, historical and cultural significance, sensitivity, and recreational value. The database will interface with the NOAA NMSP's ARCH II Archaeological Site database. The inventory is a long-term management goal and will be a continuous project for the Sanctuary.

FKNMS, FDHR, several nonprofit organizations, and the private sector have completed some survey and inventory activities. Together, they have compiled and organized data on the location, identity, and significance of certain historical shipwrecks. The Cultural and Historic Resources section of the Description of the Affected Environment chapter (Volume II of 1996 Final Management Plan) contains additional information on many of the known significant cultural resources within the Sanctuary. The *Maritime Heritage Inventory* volumes are available from the Sanctuary. Currently, staff is working to develop prioritized plans for known sites that cover management, research, interpretation, and access strategies.

Activities (7)

(1) Create An MHR Field Unit. A field unit would be established to conduct field research and coordinate permitted research activities. FKNMS recognizes the need to develop field expertise relating to archaeological investigations in the Sanctuary and will seek the funding to hire an underwater archaeologist and provide necessary support staff and equipment.

Status: This activity will have a high level of action in the first year after adoption of this revised plan. Depending on funding, it may require longer to complete. Contracting archaeological services in the field will be considered as an interim measure in addition to the continued use of volunteers to carry out field activities.

Implementation: FKNMS will be the lead agency; FDHR will assist.

(2) Use MHR Information Developed in Permits, Authorizations or Certifications. Part of the permit process generally includes assessment of the natural and cultural resources in the area. The plan also provides for public and private surveys and inventories of the resources. FKNMS does not release information protected by law.

Status: On-going.

Implementation: FKNMS will be the lead agency in consultation with the FDHR.

(3) Survey and Collect Anecdotal Information. Community knowledge will be cultivated through surveys of fishermen, recreational divers, recreational dive facilities, salvors and others with local knowledge. A program of professional and amateur public participation will be developed. This information, when verified, will be incorporated into the resource inventory for periodic updating to the master inventory.

Status: Implemented and on-going.

Implementation: FKNMS will be the lead agency with assistance from FDHR.

(4) Use Volunteer Assistance in Cultural Resources Inventory. The Sanctuary's volunteer coordinator, using volunteers, will continue to assist staff in collecting information, locating unrecorded sites, recording and documenting sites, assessing site significance, and developing sites for improved public access, interpretation, and protection.

Status: Implemented and on-going.

Implementation: FKNMS; FDHR will assist.

(5) Conduct Public Participation Projects Inventory. Research and educational institutions (using students and volunteers) will conduct maritime heritage resources inventory projects, involving the public in the inventory phase of the investigations.

Status: Implemented and on-going.

Implementation: FKNMS will be the lead agency responsible for implementing this activity; FDHR will assist.

(6) Develop a Site Database. A central database of shipwreck information will be maintained by the FKNMS, in cooperation with the Florida Site File at the FDHR. Projects will be designed that are appropriate for grant funding by NOAA, FDHR, Florida Coastal Management Program, and other sources. The data collected for non-sensitive sites may also be incorporated with other geological, biological, and census data into a GIS in order to analyze relationships among the resources and facilitate management.

Status: Implemented and on-going.

Implementation: FKNMS will be the lead agency; FDHR will assist. The database will interface with the NOAA NMSP's ARCH II Archaeological Site database.

(7) Create a Public Awareness Program. Develop educational tools such as brochures, posters, videos, and an Internet site to inform the public about volunteer opportunities and training. Distribute protocols for the public when a MHR is located within the Sanctuary in coordination with the Education and Outreach Action strategies.

Status: Implemented and on-going.

Implementation: FKNMS will be the lead agency; FDHR will assist.

STRATEGY MHR.3 MHR RESEARCH AND EDUCATION

Strategy Summary

NOAA and the State of Florida have been addressing research and education considerations throughout the initial management plan period. Contractors have performed a significant amount of research through the development of the Shipwreck Trail. The Sanctuary has supported marine archaeological field schools, made presentations at professional meetings, and held public workshops on the program. This strategy includes seven activities.

Activities (7)

(1) Train Volunteers. A volunteer training program for general public involvement in research, documentation, and management will be continued. Emphasis is to be placed on increasing effectiveness through curriculum development and enhancement.

Status: Implemented and on-going. The FKNMS volunteer coordinator is responsible for implementing cooperation with a staff or contract archaeologist and the Shipwreck Trail's education coordinator.

Implementation: FKNMS. The FDHR will assist.

(2) Manage Public Participation Projects. A series of projects to involve the public in the long-term management of maritime heritage resources and promote stewardship through public involvement will be continued. Currently, the Maritime Heritage Resources Inventory volunteer program is most active in the Upper Region and will require greater emphasis in the Lower and Middle Keys.

Status: On-going.

Implementation: FKNMS is the lead agency; FDHR will assist.

(3) Coordinate with University Field Schools. FKNMS will facilitate archaeological research by providing scientific, logistical, and other support, including materials available on the Internet.

Status: On-going.

Implementation: FKNMS and the FDHR will be the lead agencies; DEP will assist.

(4) Expand The Shipwreck Trail. The Shipwreck Trail, developed to provide an on-water and on-land interpretive exhibit for the public, will be evaluated to improve effectiveness. The Shipwreck Trail education coordinator will work with the dive community, schools and the public to expand the activities. The appropriateness of adding new trail sites with historical or recreational significance will be examined. The possibility of monitoring existing sites using volunteers to gain information about impacts will also be evaluated. The Sanctuary Education Action plan has incorporated maritime heritage resource education activities.

Status: On-going.

Implementation: FKNMS will lead the education staff. FKNMS and the FDHR will assist lead determinations about monitoring protocols and expansion proposals.

(5) Develop an Interpretive Exhibit. An interpretive exhibit of the archaeological sites and their historic context will be developed in conjunction with the development of the Dr. Nancy Foster Florida Keys Environmental Complex in Key West to provide the public with information about maritime heritage resources in the Sanctuary. This exhibit may take various forms including a permanent display, a temporary or rotating display and/or display designed to travel. Long-term plans will include provisions for increasing public access to information.

Status: On-going.

Implementation: The FDHR and FKNMS will be the lead agencies.

(6) Develop a Scientific Research Study Program. The FKNMS Maritime Heritage Program will encourage and coordinate scientific studies by recognized research groups and institutions. A plan outlining the MHR research priorities will be developed and incorporated into the overall scientific research study program.

Status: Implemented and on-going.

Implementation: FKNMS will be the lead agency; DEP, FDHR, and a state Historic Preservation Officer will assist. Opportunities to collaborate with the National Park Service will be explored.

STRATEGY MHR.4 ENSURING PERMIT COMPLIANCE THROUGH ENFORCEMENT

Strategy Summary

The purpose of this strategy is to ensure compliance with statutes, regulations, and permit requirements through intensive on-site patrols by authorized law enforcement officers. Currently, NOAA, the state, and other agencies are cross-deputized with Sanctuary law enforcement authority.

Sanctuary and other pertinent regulations and laws are enforced jointly with an emphasis on public education as a tool for compliance. Officers will receive training to facilitate interpretive enforcement.

Activity

(1) Develop an MHR educational program for law-enforcement personnel. This program will be part of a standardized training program for cross-deputized enforcement agencies and is included in the cross-deputization strategy of the Enforcement Action Plan.

Status: Implemented and on-going.

Implementation: FKNMS, FWC, and FDHR.

STRATEGY MHR.5 ENSURING INTERAGENCY COORDINATION

Strategy Summary

The purpose of this strategy is to facilitate comprehensive coordination among federal, state, and local agencies involved in the management of maritime heritage resources to explore collaborative projects and sharing of information. Currently, NOAA and the FDHR collaborate under the Programmatic Agreement. The terms of the Programmatic Agreement and the final Management Plan specify the responsibilities and roles of various parties to ensure the timely and effective coordination of activities.

Activities (6)

(1) Develop a Flow Chart. The flow chart will include all agencies that participate in managing maritime heritage resources, indicating roles, responsibilities and time lines. It will also describe procedures for assessment and notification for shipwrecks of possible sovereign interest, and notify permit holders of changes in procedures and policies.

Status: New activity; 18 months to complete.

Implementation: FKNMS will be the lead agency; FDHR will assist.

(2) Develop Cooperative Projects and Programs. NOAA will seek to develop cooperative projects, share information, and combine resources with other agencies involved in historical research as well as with the NMSP Maritime Heritage Program (MHP) as coordinated from the Maritime Archaeological Center in Newport News, VA. NPS, which conducts similar programs in other parks, has significant expertise and experience in this area and shares significant common borders with the Sanctuary. Enhanced interagency coordination can directly benefit the development of the Sanctuary's management and resources and MHR Research and Study Program.

Status: On-going.

Implementation: FKNMS will be the lead agency with assistance from DEP and FDHR.

(3) Use Volunteer Assistance in Cultural Resources Inventory. The Sanctuary's volunteer coordinator, using volunteers, will continue to assist staff in collecting information, locating

unrecorded sites, recording and documenting sites, assessing site significance, and developing sites for improved public access, interpretation, and protection.

Status: Implemented and on-going.

Implementation: FKNMS volunteer coordinator; FDHR will assist.

(4) Conduct Public Participation Projects Inventory. Research and educational institutions (using students and volunteers) will conduct maritime heritage resources inventory projects, involving the public in the inventory phase of the investigations.

Status: Implemented and on-going.

Implementation: FKNMS will be the lead agency responsible for implementing this activity; FDHR will assist.

(5) Develop a Site Database. A central database of shipwreck information will be maintained by the Sanctuary, in cooperation with the Florida Site File at the FDHR. Projects will be designed that are appropriate for grant funding by FDHR, Florida Coastal Management Program, and other sources. The data collected for non-sensitive sites may also be incorporated with other geological, biological, and census data into a geographic information system in order to analyze relationships among the resources and facilitate management.

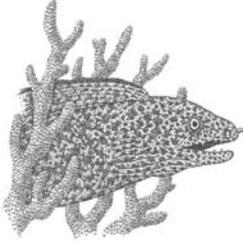
Status: Implemented and on-going.

Implementation: FKNMS will be the lead agency; DEP and FDHR will assist. The database will interface with the NOAA NMSP's ARCH II Archaeological Site database.

(6) Create a Public Awareness Program. Develop educational tools such as brochures, posters, videos, and an Internet site to inform the public about volunteer opportunities and training. Distribute protocols for public when an MHR is located within the Sanctuary in coordination with the Education and Outreach Action strategies.

Status: Implemented and on-going.

Implementation: FKNMS will be the lead agency; FDHR will assist.



3.4 RESOURCE THREAT REDUCTION

Resource protection and conservation can be achieved with a variety of management tools such as those action plans bundled in this management division. Those action plans include: the Marine Zoning Action Plan; the Mooring Buoy Action Plan; the Waterway Management Action Plan; and the Water Quality Action Plan. Each of these action plans contains tools that allow managers to directly protect and conserve Sanctuary resources through the implementation of various management strategies. These action plans, when implemented, provide very targeted means of protecting resources whether it is by establishing marine zones to conserve Sanctuary resources, balancing user conflicts or by providing mooring buoys to eliminate anchor damage to corals in high-use areas. The marking of channels and waterways to aid in the prevention of vessel groundings is an effective non-regulatory approach to protecting Sanctuary resources while boundary buoys help Sanctuary users comply with the regulations.

Water quality degradation is the primary issue that is affecting the health and vitality of Sanctuary resources. This management division includes the Water Quality Action Plan designed to identify the sources of water quality decline and to outline the various corrective management actions that need to be implemented to improve water quality.

3.4.1 Marine Zoning Action Plan

Introduction

In its enabling legislation, Congress instructed NOAA to consider temporal and geographical zoning to ensure protection of Sanctuary resources. During the development of the 1996 *Management Plan*, FKNMS and its partners determined that marine zoning would be critical to achieving the Sanctuary's primary goal of resource protection, especially in light of the multiple-use mandates.

The FKNMS established the nation's first comprehensive network of marine zones in 1997 after years of planning, design, and public input. The marine zoning plan for the Sanctuary includes five types of zones with varying levels of protection called Sanctuary Preservation Areas (SPAs), Ecological Reserves, Special-use Areas, Wildlife Management Areas (WMAs), and Existing Management Areas.

In its 2001 evaluation of this Action Plan, the Sanctuary Advisory Council found that the five strategies in the Zoning Action Plan had been implemented according to the 1996 *Final Management Plan*. This represents a highly effective component of Sanctuary management. The Advisory Council also found that marine zoning is one of the most immediately successful tools used by the Sanctuary for conservation and protection of threatened natural marine resources. The Sanctuary's zones have met with favorable response from the community, and many areas effect positive biological change inside their boundaries after just a short period of protection.

Public comments during scoping as well as comments received by Sanctuary Managers since the implementation of the Marine Zoning Action Plan in 1997 have resulted in the consideration of additional WMAs and SPAs in the FKNMS. These proposed areas will be reviewed and evaluated through a separate regulatory process (also see Strategy R.2, Regulatory Action Plan, Activity 17).

Types of Zones In The Sanctuary

There are five types of zones in the Sanctuary: Sanctuary Preservation Areas, Ecological Reserves, Special-use (Research-only) Areas, Wildlife Management Areas, and Existing Management Areas.

Sanctuary Preservation Areas

SPAs protect shallow, heavily used reefs where conflicts occur among user groups and where concentrated visitor activity leads to resource degradation. These zones encompass discrete, biologically important areas and are designed to reduce user conflicts and sustain critical marine species and habitats. Regulations for SPAs are designed to limit consumptive activities while continuing to allow activities that do not threaten resource protection. There are eighteen SPAs totaling approximately 6.5 square nautical miles. The largest area is Carysfort/South Carysfort, and the smallest areas are Dry Rocks and Cheeca Rocks.

Ecological Reserves

Ecological Reserves seek to protect biodiversity by setting aside areas with minimal human disturbance. Ecological Reserves encompass large, contiguous, diverse habitats, in order to protect and enhance natural spawning, nursery, and permanent-residence areas for the replenishment and genetic protection of fish and other marine life. Allowing certain areas to evolve in or return to a natural state preserves the diverse range of resources and habitats throughout the Sanctuary.

Ecological Reserves protect the food and home of commercially and recreationally important species, as well as the hundreds of marine organisms not protected by fishery management regulations. Regulations for Ecological Reserves are designed to meet the objectives of these zones by limiting consumptive activities while continuing to allow activities that do not threaten resource protection. Ecological Reserves therefore restrict all consumptive activities and allow non-consumptive activities only where such activities are compatible with resource protection. There are currently two Ecological Reserves in the Sanctuary, the Western Sambo Ecological Reserve and the Tortugas Ecological Reserve, totaling approximately 160 square nautical miles (548 square kilometers).

Special-use (Research-only) Areas

Special-use (Research-only) Areas are set aside for research and education, or for the recovery or restoration of injured or degraded resources. Special-use Areas may also be established to facilitate access to or use of Sanctuary resources, or to prevent user conflicts. The areas may confine or restrict activities such as personal watercraft operation and live-aboard mooring. Access is restricted to permitted entry only. The four permanent Special-use Areas in the Sanctuary are designated for Research-only and are located at Conch Reef and Tennessee Reef in the Upper and Middle Keys, and Looe Key Patch Reef and Eastern Sambo in the Lower Keys.

Wildlife Management Areas

Wildlife Management Areas (WMAs) seek to minimize disturbance to especially sensitive or endangered wildlife and their habitats. These zones typically include bird nesting, resting, or feeding areas; turtle-nesting beaches; and other sensitive habitats. Regulations are designed to protect these species or the habitat while providing for public use. Access restrictions may include no-access buffers, no-motor zones, idle-speed only/no-wake zones, and closed zones. Some restrictions may apply to time periods, others to areas. There are currently 27 WMAs in the Sanctuary. Twenty WMAs are co-managed with the U.S. Fish and Wildlife Service as part of their plan for managing backcountry portions of the Key West, Key Deer, Great White Heron, and Crocodile Lake National Wildlife Refuges. FKNMS manages the remaining seven WMAs.

Existing Management Areas

Existing Management Areas (EMAs) are resource management areas that were established prior to the 1996 Sanctuary management plan. Sanctuary regulations supplement the existing authorities to facilitate comprehensive protection of resources. EMAs are managed in partnership with FKNMS as seamlessly as possible. There are 21 Existing Management Areas in the Sanctuary. Fifteen are administered by the Florida Department of Environmental Protection, four by the U.S. Fish and Wildlife Service, and two by FKNMS (Key Largo and Looe Key National Marine Sanctuaries).

Goals and Objectives

Marine zoning's purpose is to protect and preserve sensitive components of the ecosystem while facilitating activities compatible with resource protection. Marine zoning ensures that areas of high ecological importance evolve naturally, with minimal human influence. Marine zoning also promotes sustainable uses, protects diverse habitats, and preserves important natural resources and ecosystem functions. The objectives for marine zoning are to:

- Reduce stresses from human activities by establishing areas that restrict access to sensitive wildlife populations and habitats

- Protect biological diversity and the quality of resources by protecting large, contiguous and diverse habitats that provide natural spawning, nursery, and permanent residence areas for the replenishment and genetic protection of marine life and protect and preserve all habitats and species
- Minimize conflicting uses
- Protect resources and separate conflicting uses by establishing a number of non-consumptive zones in areas that are experiencing conflict between consumptive and non-consumptive uses and in areas experiencing significant declines
- Eliminate injury to critical or sensitive habitats
- Disperse concentrated collection of marine organisms
- Prevent heavy concentrations of uses that degrade Sanctuary resources
- Provide undisturbed monitoring sites for research
- Provide control sites to help determine the effects of human activities

Implementation

NOAA remains the primary agency responsible for Sanctuary Preservation Areas, Ecological Reserves, and Special-use Areas in the Sanctuary. NOAA is also responsible for seven Wildlife Management Areas and shares responsibility and jurisdiction over 20 Wildlife Management Areas with the USFWS. The 21 Existing Management Areas within the Sanctuary are administered by a variety of federal and state agencies, including NOAA. Any additional management areas proposed by federal, state, or county governments or local municipalities would be administered under the jurisdiction of those authorities.

The Sanctuary has the lead responsibility for implementing zoning strategies outlined in this action plan. NOAA staff continues to be directly responsible for maintaining zone boundary markings. Continued full implementation of the Marine Zoning Action Plan often requires participation of various agencies and organizations, volunteer support, and private vendors for specific activities. NOAA remains the primary funding source for strategies in this action plan, except for marking the WMAs in USFWS jurisdictions.

Marine Zoning Maps

This Marine Zoning Action Plan describes specific activities related to establishing, marking, implementing, and evaluating marine zones. Maps showing the marine zones can be found at floridakeys.noaa.gov/research_monitoring/map.html.

Relationship to Other Action Plans

Several other Action Plans are either directly or indirectly connected to marine zoning activities in the Sanctuary, such as:

- The Enforcement Action Plan describes enforcement strategies.
- The Waterway Marking/Management Action Plan describes marking and maintenance of boundary buoys or signs.
- The Mooring Buoy Action Plan describes buoy placement in many of the zones.
- The Education and Outreach Action Plan describes education and outreach programs aimed at interpreting the zones.

- The Research and Monitoring Action Plan and Science Management and Administration Action Plan describe monitoring of the zones, dissemination of monitoring results, and the degree to which the zones meet their goals and objectives.

Accomplishments

There have been multiple zoning accomplishments during implementation of the 1996 management plan, including:

- Designated the Tortugas Ecological Reserve in the westernmost portion of the Sanctuary. The process began by establishing a diverse, 25-member Tortugas 2000 Working Group and culminated with the release of the *Final Supplemental Environmental Impact Statement / Final Supplemental Management Plan for the Tortugas Ecological Reserve* in November 2000.
- Gathered extensive input and public participation in the Tortugas Ecological Reserve process that highlighted the importance of this marine zoning issue to the local and national community. The area received all agency approvals necessary and was fully implemented on July 1, 2001.
- Implemented a Zone Monitoring Program to examine the effects of the fully protected zones on marine resources.
- Established a temporary and then permanent rule to protect living corals and significant habitats of Tortugas Bank from anchor damage by freighters.
- Deployed 118 boundary markers (highly visible 30-inch yellow buoys) for the 18 SPAs, four Special-use Areas, and the Western Sambo Ecological Reserve.
- Deployed boundary markers for the WMAs and adjacent no-motor zones.
- Developed a simple, no-cost permit system to allow the netting of bait fish in certain zones.
- Prioritized Sanctuary enforcement in “no take” areas, resulting in a high level of compliance.
- Instituted education and outreach efforts, such as Team OCEAN and participation in public events and presentations, resulting in a better-informed public and greater compliance.
- Compiled zone monitoring results that have shown positive trends in the number and size of recreationally and commercially important species.
- Gained the support of the Flats-fishing community for the WMAs.
- Gained noticeable public support for the no-take areas, as evidenced in public testimony at the FKNMS Sanctuary Advisory Council meetings and other forums.

Strategies

There are five management strategies in this Marine Zoning Action Plan.

- Z.1 Sanctuary Preservation Areas
- Z.2 Ecological Reserves
- Z.3 Special-use Areas
- Z.4 Wildlife Management Areas
- Z.5 Existing Management Areas

Each of these strategies is detailed below. Table 3.10 provides estimated costs for implementation of these strategies over the next five years.

Table 3.10 Estimated Costs of the Marine Zoning Action Plan

Marine Zoning Action Plan Strategies ⁺	Estimated Annual Cost (in thousands)					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
Z.1: Sanctuary Preservation Areas	100	120	100	80	80	480 ^{1,2}
Z.2: Ecological Reserves	100	120	100	80	80	480 ^{1,2}
Z.3: Special-use Areas	100	120	100	80	80	480 ^{1,2}
Z.4: Wildlife Management Areas	100	120	100	80	80	480 ^{1,2}
Z.5: Existing Management Areas	-	-	-	-	-	-
Total Estimated Annual Cost	<i>400</i>	<i>480</i>	<i>400</i>	<i>320</i>	<i>320</i>	1,920
+ Cost estimates are for "programmatic" funds, which exclude base budget funding requirements (existing salaries, overhead, etc.).						
¹ Estimated 5 Year Cost listed here does not include funding for placement and maintenance of buoys and markers along zone boundaries. Refer to Waterway Management Action Plan for these figures.						
² Estimated 5 Year Cost listed here does not include funding for monitoring, evaluating, and reporting on zone effectiveness. Refer to Research and Monitoring Action Plan for these figures.						

Strategy Summary

Sanctuary Preservation Areas have been established to protect shallow, heavily used reefs where conflicts occur among user groups, and where concentrated visitor activity leads to resource degradation. The zones encompass discrete, biologically important areas and are designed to reduce user conflicts in high-use areas and sustain critical marine species and habitats.

Regulations for SPAs seek to limit consumptive activities while continuing to allow activities that do not threaten resource protection. Therefore, consumptive activities are restricted, with two exceptions. The first exception is that FKNMS currently allows catch-and-release fishing by trolling in four preservation areas: Conch Reef, Alligator Reef, Sombrero Key, and Sand Key. The second exception is that the taking of ballyhoo (bait fish) by cast and lampara nets is currently allowed by permit in all SPAs. The taking of ballyhoo by “hair-hooking” is allowed on a trial basis by permit in select SPAs. Non-consumptive activities are allowed in all of these zones. The full regulations for SPAs are in Appendix C.

There are currently 18 SPAs, totaling approximately 6.5 square nautical miles. The largest is Carysfort/South Carysfort, and the smallest are Dry Rocks and Cheeca Rocks. Maps and coordinates can be found at floridakeys.noaa.gov/research_monitoring/map.html.

Activities (8)

(1) Maintain Buoys Along Zone Boundaries. Boundary buoys have been placed at the corner of each SPA. Buoys carry stickers to clarify no-take regulations. For all SPAs, buoy positions may be altered to clearly distinguish zone boundaries. FKNMS continues to provide regular buoy maintenance under the Waterway Management Action Plan.

Status: Buoys have been placed at the corner of each SPA

Implementation: Buoys continue to be maintained by FKNMS under the Waterway Management Action Plan

(2) Establish and Implement Management Responsibilities. FKNMS continues to oversee all aspects of zone management for SPAs. Eighteen areas have been fully implemented. Mooring buoys are installed and maintained to facilitate non-consumptive use and reduce anchor damage, as described in the Mooring Buoy Action Plan. Research and monitoring aimed at determining the efficacy of these areas in preserving species populations and habitats are described in the Research and Monitoring Action Plan.

Enforcement in SPAs has been minimal to date, which may compromise their ecological integrity and reduce their effectiveness in separating use conflicts. Although patrolling the no-take areas has been given the highest priority for Sanctuary officers, other calls sometimes distract them from the no-take areas. A strategy to address enforcement by increasing officers is contained in the Enforcement Action Plan.

NOAA also recognizes that public compliance with zone regulations is greatly enhanced through education and outreach. To this end, strategies that address public education and outreach are of

high priority and further explained in the Education and Outreach Action Plan. Despite excellent educational products and programs, interpreting the boundaries of the marine zones continues to be a priority. These issues are discussed in Activities below. Addressing these issues and altering SPAs is critical to reducing conflicts and protecting the shallow, heavily used reefs as intended by this designation.

Status: All 18 existing SPAs have been fully implemented.

Implementation: FKNMS will continue to manage all SPAs.

(3) Assess Existing Zone Boundaries and Adjust as Needed. The placement of SPAs requires periodic evaluation and adjustment as new scientific data, socioeconomic and use information, user group knowledge, and other information become available. Some boundaries may be altered to remove strain from degraded habitats, protect unique features, or facilitate certain uses.

Boundary changes may also be appropriate in areas where use conflicts occur or enforcement is problematic. The configuration and regulations of some zones needs to be evaluated and altered to improve enforcement and protection.

Status: Boundaries of the SPAs, including the Conch Reef Sanctuary Preservation Area and adjacent Conch Reef Special-use/Research-only Area, will be fully assessed pending the availability of sufficient funding.

Implementation: FKNMS is the agency responsible for this activity and will undertake a boundary assessment of the Sanctuary Preservation Areas when resources permit. At that time the Conch Reef SPA and Conch Reef Special-use/Research-only Area will be given priority.

(4) Evaluate Allowable Activities in Existing Zones and Make Regulatory Changes as Needed. SPAs have specific regulations that allow and disallow certain activities within the zones. Unlike Ecological Reserves, which prohibit all consumptive activities without exception, SPAs restrict consumptive uses but do permit limited taking of marine life by specific methods in specific zones. Catch-and-release fishing by trolling is allowed in four areas: Conch Reef, Alligator Reef, Sombrero Key, and Sand Key. Taking ballyhoo (bait fish) by cast net or lampara net (commercial gear for this species) is currently allowed by permit in existing zones. A pilot project to allow ballyhoo to be taken in 3 Upper Keys SPAs has been implemented.

These three exceptions to no-take regulations need to be periodically re-evaluated in order to improve enforcement and education of these areas. People gather information on allowable activities from sources such as brochures, boat-ramp signs, and word-of-mouth, but also by observing the actions of others. The yellow boundary buoys of SPAs, Ecological Reserves, and Special-use Areas indicate when one enters a protected zone. Allowable and prohibited activities for each area, and individual restrictions for each zone require periodic evaluation and may need to be changed.

Status: The activities currently allowed within the SPAs will be fully assessed pending the availability of sufficient funding.

Implementation: FKNMS is the agency responsible for this activity and will prioritize regulatory assessments and associated changes.

(5) Identify and Evaluate Areas/Regions for Potential Need for Additional Marine Zoning, and Establish and Implement Zones if Appropriate. Existing SPAs were established based on the status of important habitat, the ability of an area to sustain the habitat, the level of use, and the degree of conflict between consumptive and non-consumptive users. The size and location of the areas were then guided by examining user patterns, aerial photography, and ground-truthing. As new information on resource damage or decline, conflicts, or critical habitats becomes available, additional areas for new Sanctuary Preservation Areas will be evaluated.

Status: The evaluation of need for additional areas and identification of additional areas/regions suitable for the placement of SPAs will be addressed during the regulatory process to commence following the publication of this plan.

Implementation: FKNMS is the agency responsible for this activity and will prioritize identification and evaluation. The consideration of need and potential for establishment of new SPAs will occur through a process separate from this management plan review.

(6) Monitor, Evaluate, and Report on Effectiveness of Zones. Monitoring is necessary in order for FKNMS to assess the effectiveness of Sanctuary Preservation Areas in ameliorating resource degradation and reducing user conflicts. Monitoring in all SPAs is on-going. The results and how they are reported are described in the Research and Monitoring Action Plan and Science Management and Administration Action Plan. In order to make informed decisions about continuing catch-and-release fishing by trolling and bait fishing, the ecological effect of these activities will be assessed and is described in the Research and Monitoring Action Plan.

Status: Scientific monitoring is currently underway in all SPAs, and is further described in the Research and Monitoring Action Plan.

Implementation: FKNMS is the agency responsible for this activity and will continue to monitor the SPAs in conjunction with other programs or agencies.

(7) Evaluate Uses of Existing and New Zones and, if Appropriate, Manage Impacts as Needed. NOAA recognizes that patterns of resource use, levels of impact, and user satisfaction are likely to change over time. Changes and fluctuations in marine life species populations and habitats will also be observed. As needed, existing and new impacts will be assessed, evaluated, and managed.

Status: An evaluation of use and other patterns in the SPAs has been undertaken on a limited basis through socio-economic studies. Additional studies will be conducted as resources permit.

Implementation: FKNMS is the agency responsible for this activity.

(8) Revise GIS and NOAA/NOS Charts. FKNMS will use GIS to accurately site and establish legal boundaries for zones and ensure these are provided to the NOAA/NOS Charting Division to be placed on all relevant navigational charts.

Status: This is a new activity that will be implemented over the course of this management plan.

Implementation: NOAA is responsible for this activity.

Strategy Summary

Ecological Reserves have been established to protect biodiversity by setting aside areas with minimal human disturbance. They encompass large, contiguous and diverse habitats, in order to protect and enhance natural spawning, nursery, and residence areas for the replenishment and genetic protection of fish and other marine life. Allowing certain areas to evolve in or return to a natural state preserves the full range of diversity of resources and habitats found throughout the Sanctuary. Ecological Reserves protect the food and home of commercially and recreationally important species, as well as the hundreds of marine organisms not protected by fishery management regulations.

The Sanctuary Advisory Council developed a list of criteria for Ecological Reserves and the Tortugas 2000 Working Group established criteria for the creation and establishment of the Tortugas Ecological Reserve (Table 3.11). Regulations for Ecological Reserves are designed to meet their objectives by limiting consumptive activities while continuing to allow activities that do not threaten resource protection.

There are currently two Ecological Reserves in the Sanctuary: the Western Sambo Ecological Reserve (9 nm²) and Tortugas Ecological Reserve (151 nm²). Maps and coordinates can be found at floridakeys.noaa.gov/research_monitoring/map.html.

An Ecological Reserve had been proposed in the Dry Tortugas region during the 1995 Draft Management Plan process. However, extensive public comment received at that time indicated that the proposed boundaries would pose serious, adverse economic impacts on users of the area. In response to those comments, NOAA withdrew the proposal but committed to determining boundaries and final regulations for a reserve in the Tortugas within two years. NOAA then undertook an extensive process in coordination with the National Park Service to design and establish the Tortugas Ecological Reserve. At the core of this process, called "Tortugas 2000," was a diverse stakeholder and agency working group that reviewed scientific and socioeconomic data and gathered input from users, environmental organizations, and the public to build a consensus recommendation on the boundaries and regulations. The Tortugas 2000 process, resulting working group recommendation, alternatives for the reserve, NOAA's final boundary and regulatory action, and a comprehensive socioeconomic analysis are published in the *Final Supplemental Environmental Impact Statement/Supplemental Management Plan for the Tortugas Ecological Reserve*. This document has not been reproduced as part of this action plan, but is considered an integral component of it. It can be downloaded from the Sanctuary's Web site at floridakeys.noaa.gov.

Table 3.11 Criteria for the Creation and Establishment of the Tortugas Ecological Reserve

Criteria	Objective
Biodiversity and habitat	Try to choose an area that would contain the greatest level of biological diversity and widest range of contiguous habitats representative of the Florida Keys marine ecosystem.
Fisheries sustainability	Try to choose an area that would provide the greatest benefit in protecting and enhancing commercially and recreationally important fish species, especially those that are rare, threatened, or depleted.
<ul style="list-style-type: none"> • Spawning areas • Full life cycles 	<ul style="list-style-type: none"> • Try to choose an area that would include significant fish spawning aggregation sites. • Try to choose an area that would encompass all the habitats required to support the full life cycle of commercially and recreationally important fish.
Sufficient size	Try to choose a boundary that would encompass an area that is large enough to meet the criteria listed above and to achieve the potential benefits and goals of an ecological reserve.
Allowable activities	Try to allow only those activities in the Ecological Reserve that would be compatible with achieving its goals.
Socio-economic impacts	Try to choose an area and craft recommendations that would serve to minimize adverse socio-economic impacts in the short- and long-term on established users of resources in the area.
Reference area/monitoring	Try to choose an area that would serve as a reference or control area to facilitate the monitoring of anthropogenic impacts and to evaluate the consequences of establishing the Ecological Reserve.
Enforcement/compliance	Try to choose a boundary and craft regulations that would facilitate enforcement and encourage compliance.
Water quality	Try to choose an area that is known to have suitable water quality.

Activities (8)

(1) Place and Maintain Buoys Along Zone Boundaries. Boundary buoys have been placed along the Western Sambo Ecological Reserve. The buoys carry stickers to clarify no-take regulations. Boundary buoys will not be placed along the Tortugas Ecological Reserve. Deepwater and open-ocean conditions make the placement of buoys in this area difficult to impossible. GPS and marked navigational charts are more practical methods of depicting these areas to the public.

For all Ecological Reserves, boundary buoys may be added, removed, or shifted in exact location to clearly distinguish boundaries. FKNMS continues to provide regular maintenance of boundary

buoys under the Waterway Management Action Plan. If additional Ecological Reserves are established, NOAA would place and maintain buoys and signs as appropriate.

Status: Buoys will continue to be added, removed, or shifted in exact location to clearly distinguish zone boundaries.

Implementation: FKNMS is the agency responsible for this activity.

(2) Establish and Implement Management Responsibilities. FKNMS continues to oversee all aspects of zone management for the Ecological Reserves. The Western Sambo Ecological Reserve has been fully implemented. The Mooring Buoy and Research and Monitoring Action Plans describe specific activities in Western Sambo. The Tortugas Ecological Reserve has also been fully implemented. A permitting system for access to Tortugas North has been implemented and is described in the *Final Supplemental Environmental Impact Statement/Supplemental Management Plan for the Tortugas Ecological Reserve*. Mooring buoys have been installed at some locations in Tortugas North and are described in the Mooring Buoy Action Plan. The use of the mooring buoys in Tortugas North is set-up on a rotational basis.

Regulations for both reserves are listed in Appendix C. A strategy to address enforcement needs by increasing officers is in the Enforcement Action Plan. Public compliance with zone regulations is greatly enhanced through education and outreach. Strategies for public education and outreach are in the Education and Outreach Action Plan. Research and monitoring efforts aimed at determining the efficacy of these zones are described in the Research and Monitoring Action Plan.

Status: Both Ecological Reserves have been fully implemented and are managed on an on-going basis.

Implementation: FKNMS will continue to be the responsible agency for managing the Ecological Reserves.

(3) Assess Existing Zone Boundaries and Adjust as Needed. The placement of existing Ecological Reserves requires periodic evaluation and adjustment as new scientific data, socioeconomic information, user group knowledge, and other information becomes available. Boundaries of some reserves may be altered to capture important habitats or ecological features. For example, if new scientific data identifies a previously unknown benthic formation unique to the Sanctuary but falling just outside a zone, the boundary may be altered to protect the feature.

Status: Boundaries of the Tortugas Ecological Reserve are based on the most current information available in 2000 and may need to be reassessed during the period of this management plan. Boundaries of the Western Sambo Ecological Reserve will be fully assessed pending the availability of sufficient funding.

Implementation: FKNMS is the agency responsible for this activity and will undertake a boundary assessment of the Western Sambo Ecological Reserve when resources permit.

(4) Evaluate Allowable Activities in Existing Zones and Make Regulatory Changes as Needed. Ecological Reserves have specific regulations that allow and disallow certain activities. Activities for each reserve require periodic evaluation and may be changed to address issues of concern. For example, if public input indicates resources are damaged by a particular activity, the possibility of changing regulations to reduce the conflict will be evaluated.

Status: The activities currently allowed within the Western Sambo Ecological Reserve have yet to be evaluated but will be pending availability of sufficient fund. Allowable activities for the Tortugas Ecological Reserve were based on extensive scientific data and public input in 2000 and do not require evaluation at this time.

Implementation: FKNMS is the agency responsible for this activity and will prioritize regulatory assessments and associated changes as resources permit.

(5) Identify and Evaluate Areas/Regions for Potential Need for Additional Marine Zoning, and Establish and Implement Zones if Appropriate. The two Ecological Reserves were established based on a thorough review of scientific data on ocean current patterns, known fish spawning aggregations, unique coral formations, and other biological resource information available at the time that each reserve was considered. Extensive socioeconomic information was also used to assess potential impacts on user groups. If new scientific data, socioeconomic information, local user group knowledge, and other information become available, additional areas or regions for the potential for new reserves will be evaluated.

Status: The identification of additional areas/regions suitable for Ecological Reserve placement has not been undertaken.

Implementation: FKNMS is the agency responsible for this activity and will prioritize identification and evaluation as resources permit. If needed, the establishment of new Ecological Reserves would occur through a process separate from this management plan review.

(6) Monitor, Evaluate, and Report on Effectiveness of Zones. Monitoring is necessary to assess the effectiveness of Ecological Reserves in preserving biodiversity and protecting habitats. Monitoring in the Western Sambo Ecological Reserve has been on-going for more than four years. Coordination of existing research and monitoring and the implementation of new monitoring programs has occurred in the Tortugas Ecological Reserve. These activities are described in the Research and Monitoring Action Plan and the *Final Supplemental Environmental Impact Statement/Supplemental Management Plan for the Tortugas Ecological Reserve*.

Status: Scientific monitoring is currently underway in both Ecological Reserves, and is further described in the Research and Monitoring Action Plan.

Implementation: FKNMS is the agency responsible for this activity and will continue to monitor the Ecological Reserves in conjunction with other programs and agencies.

(7) Evaluate Uses of Existing and New Zones, and if Appropriate, Manage Impacts as Needed. Ecological Reserves seek to protect biodiversity and preserve the full range of habitats, allowing areas to evolve in or return to a natural state. Ecological Reserves, therefore, have the highest level of protection; only non-consumptive activities compatible with resource protection are permitted. However, FKNMS recognizes that patterns of use, marine life species populations and habitats are likely to change over time. Therefore, FKNMS is committed to evaluating and managing existing and new impacts to ensure proper function and performance of Ecological Reserves.

Status: An evaluation of use or other patterns in the Ecological Reserves has not been undertaken to date but will be as sufficient funds are available.

Implementation: FKNMS is the agency responsible for this activity and will prioritize use evaluations and associated management changes as resources permit.

(8) Revise GIS and NOAA/NOS Chart Revision. FKNMS will use GIS to accurately site and establish legal boundaries for zones and assure these are provided to the NOAA/NOS Charting Division to be placed on all relevant navigational charts.

Status: This is a new activity.

Implementation: NOAA is responsible for this activity.

STRATEGY Z.3

SPECIAL-USE AREAS

Strategy Summary

Special-use Areas are set aside for scientific research and education or the recovery or restoration of injured or degraded resources. The areas may also be established to facilitate access to or use of resources, and to prevent user conflicts. Special-use Areas may also be designated to minimize adverse environmental effects of high-impact activities. Because Special-use Areas seek to facilitate special management programs such as habitat recovery, restoration, and research, or to minimize impacts on sensitive habitats, access is restricted to permitted entry only. The regulations are in Appendix C.

There are currently four permanent Special-use Areas, all designated for scientific research and monitoring (Research-only Areas). The Special-use (research-only) Areas are Conch Reef and Tennessee Reef in the Upper and Middle Keys, and Looe Key Patch Reef and Eastern Sambo in the Lower Keys. Maps and coordinates can be found at floridakeys.noaa.gov/research_monitoring/map.html

To date, Special-use Areas represent an under-utilized tool that offers the flexibility in design to achieve many conservation goals. Ideally, applying a combination of Sanctuary regulations to any given issue may be the most comprehensive approach to long-term resource protection. For example, the No-anchor Area of the Tortugas Bank for vessels more than 50 meters long was implemented in 1998. Although this zone was established under regulations not directly associated with Special-use Areas, closure to high-impact activities is an appropriate application of the designation. Another example is the temporary closure of discrete areas to aid large-scale coral reef restoration efforts.

Activities (9)

(1) Place and Maintain Buoys Along Zone Boundaries. Boundary buoys have been placed at the corner of each Special-use Area. The buoys are marked “Research-only” and buoy stickers to clarify no-entry regulations for these zones are being considered. For all Special-use Areas, buoy positions may be altered to clearly distinguish zone boundaries. FKNMS will continue regular maintenance of boundary buoys under the Waterway Management Action Plan.

Status: Buoys have been placed at the corner of each Special-use Area.

Implementation: Buoys continue to be maintained by FKNMS under the Waterway Management Action Plan.

(2) Establish and Implement Management Responsibilities. FKNMS continues to oversee all aspects of zone management for Special-use Areas. Research and monitoring efforts aimed at determining the efficacy are described in the Research and Monitoring Action Plan. Further monitoring inside and outside of Special-use (research-only) Areas is required to ascertain the effects of non-consumptive activities on resources. Although not directly a provision of Sanctuary regulations associated with Special-use Areas, the ease of enacting temporary, emergency closures should be improved and their duration lengthened to allow fast, adequate response to immediate resource impacts.

Enforcement in these areas needs to be increased. A strategy to address pressing enforcement needs for these zones by increasing officers is contained in the Enforcement Action Plan. FKNMS recognizes that public compliance with zone regulations is greatly enhanced through education. Currently the boundary buoys of Special-use (Research-only) Areas read "Research-only;" however, new stickers to clarify no-entry regulations are being considered. Additional strategies that address public education and outreach are explained in the Education and Outreach Action Plan.

Status: All four Special-use (research-only) Areas have been fully implemented.

Implementation: FKNMS will continue to manage all Special-use Areas.

(3) Assess Existing Zone Boundaries and Expand/Adjust as Needed. The placement of existing Special-use (research-only) Areas requires periodic evaluation and adjustment as new scientific research, compliance information, and other data become available. Boundaries of some areas may need adjustment to protect unique biological features or remove strain from degraded habitats. Boundary changes may also be appropriate in areas where use conflicts occur or enforcement is problematic. The configuration and regulations of some zones needs to be evaluated and altered to improve enforcement and protection.

Status: Boundaries of the Special-use Areas, including the Conch Reef Special-use (research-only) Area and adjacent Conch Reef Sanctuary Preservation Area, have yet to be assessed.

Implementation: FKNMS is the agency responsible for this activity and will undertake a boundary assessment of the Special-use Areas when resources permit. At that time the Conch Reef Special-use (research-only) Area and Conch Reef Sanctuary Preservation Area will be given priority.

(4) Evaluate Allowable Activities in Existing Zones and Make Regulatory Changes as Needed. The Special-use (research-only) Areas have stringent regulations that restrict access to only permitted entry to facilitate research and monitoring. Allowable activities for each area require periodic evaluation. Also, changes in designation from Research-only to another Special-use Area type may be appropriate where a zone is not being used as intended.

Status: The activities currently allowed within the Special-use Areas have not been evaluated to date.

Implementation: FKNMS is the agency responsible for this activity and will undertake regulatory assessments and associated changes when resources permit.

(5) Determine High Impact Activities or User Conflicts. In order to determine where implementation of Special-use Areas might be appropriate and the type of designation required, it is necessary to

assess and evaluate activities that have a high impact on resources and identify conflicting activities. The Sanctuary will accomplish this by compiling and reviewing data on use patterns and high impact areas. Additional data will be gathered to address particular concerns or issues. Input from the Sanctuary Advisory Council and the public about critical issues and areas of concern are essential to this activity.

Status: The assessment and evaluation of high impact activities and user conflicts has not been undertaken to date.

Implementation: FKNMS is the agency responsible for this activity and will prioritize this assessment and evaluation as resources permit.

(6) Determine and Establish Appropriate Zones for High-Impact or User-Conflict Activities. Special-use Areas support research and monitoring and may also be designated to recover injured or degraded resources, facilitate access or use, prevent conflicts, and confine or restrict activities. Based on the issues identified and information developed in Activity 5, and after public review, additional Special-use Areas may be developed for high impact or user conflict activities.

Status: The establishment of appropriate zones to address high impact or user conflict activities has not been undertaken.

Implementation: FKNMS is the agency responsible for this activity. This activity will be undertaken after Activity 5 is completed and as resources permit. The establishment of new Special-use Areas will occur through a process separate from this management plan review.

(7) Monitor, Evaluate, and Report on Effectiveness of Zones. In order to assess the effectiveness of Special-use Areas, zone monitoring focuses on detecting changes due to the cessation of consumptive activities. Zone monitoring is on-going in all Special-use Areas and the dissemination of results is described in the Science Management and Administration Action Plan. Zone monitoring is also required in order to ascertain the effects of non-consumptive activities on resources. FKNMS is responsible for this activity; however, partnerships, contracts, and agreements with academic, other-agency, or non-governmental programs are required for full implementation.

Status: Scientific monitoring is currently underway in all Special-use Areas and is further described in the Research and Monitoring Action Plan.

Implementation: FKNMS is the agency responsible for this activity and will continue to monitor the Special-use Areas in conjunction with other programs or agencies.

(8) Determine Permitting Process. A process for issuing permits that allows scientists access to Special-use (research-only) Areas has been fully implemented (See Strategy R.1 in the Regulatory Action Plan). If additional Special-use Areas are designated for purposes other than research, monitoring, and education, an appropriate permitting process will be determined and implemented.

Status: A permitting process has been fully implemented.

Implementation: FKNMS continues to be the agency responsible for this activity.

(9) Revise GIS and NOAA/NOS Chart. FKNMS will use GIS to accurately site and establish legal boundaries for zones and ensure these are provided to the NOAA/NOS Charting Division to be placed on all relevant navigational charts.

Status: This is a new activity.

Implementation: NOAA is responsible for this activity.

STRATEGY Z.4

WILDLIFE MANAGEMENT AREAS

Strategy Summary

Wildlife Management Areas typically include bird nesting, resting, or feeding areas, turtle nesting beaches, and other sensitive habitats including shallow flats that are important feeding areas for fish. Regulations governing access seek to protect endangered or threatened species or habitats, while providing opportunities for public use. Access restrictions include no-access buffer zones, no-motor zones, idle-speed only/no-wake zones, and closed zones. Some restrictions specify time periods when use is prohibited.

There are currently 27 WMAs in the Sanctuary. FKNMS and USFWS jointly manage 20 of the areas as part of their plan for managing backcountry portions of the Key West, Key Deer, Great White Heron, and Crocodile Lake National Wildlife Refuges. The USFWS administers these 20 areas including marking the areas with buoys and signs as appropriate. These areas are part of this plan as an integrated ecosystem management approach to resource protection. FKNMS continues to mark and manage the remaining seven WMAs.

Since 1996, several new municipalities have been incorporated in the Florida Keys. Some of the new municipalities have jurisdiction over nearshore waters. FKNMS acknowledges these municipalities and their authority to establish managed areas in the nearshore waters of the Sanctuary. If additional WMAs are established, NOAA or the responsible agency or government will ensure that the zones are implemented and managed as appropriate.

Activities (7)

(1) Continue to Place and Maintain Buoys and Signs Along Zone Boundaries. Boundary buoys and/or signs have been and will continue to be placed along the boundaries of each WMA. FKNMS continues to work with the USFWS to place and maintain buoys or markers at the Crocodile Lakes WMA.

Status: Buoys and signs continue to be added, removed, or shifted in exact location to clearly distinguish zone boundaries and clarify channels of access routes.

Implementation: FKNMS is the agency responsible for this activity.

(2) Assess Existing Zone Boundaries and Adjust as Needed. The placement of existing WMAs requires periodic evaluation and adjustment as new scientific data, socioeconomic information, local user group knowledge, and other information become available. Boundaries of some areas may need

to be shifted, expanded, or reduced to protect key species or populations, capture important habitats or ecological features, facilitate public uses, or address user conflicts. For example, if new scientific data identifies a regular breeding area for a particular species just outside the boundary of a zone, the boundary may be shifted or expanded to offer protection to that important biological feature.

Status: Boundaries of the WMAs have been marked, but they need to be assessed and adjusted as necessary.

Implementation: FKNMS is the agency responsible for this activity and will prioritize these boundary assessments as resources permit.

(3) Evaluate Allowable Activities in Existing Zones and Make Regulatory Changes as Needed. Each of the existing WMAs has specific regulations that allow and disallow certain activities. Allowable activities for each area require periodic evaluation and may need to be changed to address issues of concern. For example, if public input indicates conflicts with wildlife in an area that has allowed idle-speed-only/no-wake access, the possibility of changing the zone to no-motorized access will be evaluated.

Status: The activities currently allowed within the WMAs have yet to be evaluated.

Implementation: FKNMS is the agency responsible for this activity and will prioritize regulatory assessments and associated changes as resources permit.

(4) Identify and Evaluate Areas for Potential Need for Additional Marine Zoning, and Establish and Implement Zones if Appropriate. The 27 existing WMAs in the Sanctuary were established based on information on the locations of sensitive wildlife populations and habitats available at the time of the Draft Management Plan process in 1995. As new scientific data, socioeconomic information, local user group knowledge, and other information that demonstrate the need for additional zones become available to Sanctuary managers, areas or regions in the Sanctuary for new WMAs will be identified, evaluated and implemented through a regulatory process.

Status: The identification of additional areas/regions suitable for the placement of Wildlife Management Areas has not been undertaken.

Implementation: FKNMS is the agency responsible for this activity. The establishment of new WMAs will occur through a process separate from this management plan review.

(5) Monitor, Evaluate, and Report on Effectiveness of Zones. In order for NOAA to assess the effectiveness of WMAs in protecting sensitive wildlife populations and habitats, specific monitoring will occur. FKNMS is responsible for this activity; however, partnerships, contracts, and agreements with other academic, agency, or non-governmental programs will likely be required for full implementation (see also Strategy Z.6, Research & Monitoring Action Plan).

Status: Scientific monitoring is currently not performed within the WMAs.

Implementation: This activity will be undertaken in conjunction with the support of other programs or agencies when resources permit.

(6) Evaluate Uses of Existing and New Zones and, if Appropriate, Manage Impacts as Needed. NOAA recognizes that marine vessels, equipment, technology, and patterns of use change over time.

Changes and fluctuations in marine populations and habitats will be observed and as needed, existing and new impacts will be assessed, evaluated, and managed.

Status: An evaluation of use patterns in the WMAs has not been undertaken to date.

Implementation: FKNMS is the agency responsible for this activity and will prioritize use evaluations and associated management changes as resources permit.

(7) Revise GIS and NOAA/NOS Charts. FKNMS will use GIS to accurately site and establish legal boundaries for zones and assure these are provided to the NOAA/NOS Charting Division to be placed on all relevant navigational charts.

Status: This is a new activity.

Implementation: NOAA is the agency responsible for this activity.

STRATEGY Z.5 EXISTING MANAGEMENT AREAS

Strategy Summary

This zone type simply identifies areas managed by other agencies where restrictions already exist or officially incorporates the regulations of two previously designated sanctuaries (Key Largo and Looe Key NMS). These zones delineate existing jurisdictions of state parks, aquatic preserves, sanctuaries, and other restricted areas. The purpose is to recognize established management areas, complement existing programs, and ensure cooperation and coordination among agencies. Because some Existing Management Areas are managed by other agencies, regulations already exist under those authorities. Sanctuary regulations supplement these authorities. If management of existing areas within the Sanctuary requires additional regulations or restrictions, the measures would be developed and implemented in coordination with the agency. Regulations for some existing areas, including those for Key Largo and Looe Key NMS, are contained in Appendix C.

A total of 21 Existing Management Areas occur in the Sanctuary. Fifteen of these areas are administered by DEP, and include: Bahia Honda State Park, Curry Hammock, Fort Zachary Taylor State Historic Site, Indian Key State Historic Site, John Pennkamp Coral Reef State Park, Key Largo Hammocks State Botanical Site, Lignumvitae Key State Botanical Site (includes Shell Key State Preserve), Long Key State Recreation Area, San Pedro State Underwater Archaeological Site, Windley Key State Geological Site, Biscayne Bay and Card Sound Aquatic Preserve, Coupon Bight Aquatic Preserve, and Lignumvitae/Indian Key Aquatic Preserve; the last four of these in a close management partnership with FKNMS. Four remaining areas are managed by USFWS (Crocodile Lake National Wildlife Refuge, Great White Heron National Wildlife Refuge, Key West National Wildlife Refuge, and National Key Deer Refuge), and two by FKNMS (Key Largo NMS and Looe Key NMS). Since 1996, several new municipalities have been incorporated in the Florida Keys. Some municipalities have jurisdiction over nearshore waters. Additional managed areas established under these new authorities would be considered Existing Management Areas.

Activity

(1) *Revise GIS and NOAA/NOS Charts.* FKNMS will use GIS to accurately site and establish legal boundaries for zones and ensure these are provided to the NOAA/NOS Charting Division to be placed on all relevant navigational charts.

Status: This is a new activity.

Implementation: NOAA is responsible for this activity.

3.4.2 Mooring Buoy Action Plan

Introduction

Sanctuary Biologist John Halas first implemented the mooring buoy system used in the Key Largo National Marine Sanctuary in 1981. This simple yet effective tool for reducing anchor damage to coral reefs and seagrass beds was later implemented in Looe Key National Marine Sanctuary (1984) and eventually in other areas. Sanctuary staff worked with Reef Relief, a grassroots conservation group in Key West, and other groups to install mooring buoys at popular dive sites along the reef tract. Today, Florida Keys National Marine Sanctuary staff travels worldwide, assisting groups with mooring buoy installations that protect natural resources from anchor damage. While mooring buoys are excellent management tools, other management programs must accompany a mooring buoy program, including education, outreach, research and monitoring.

Concerns have been raised that mooring buoys may negatively impact marine resources by attracting boaters, divers, and fishermen to the areas. This plan establishes a methodology for identifying areas appropriate for mooring buoys and managing boating activities near coral reefs so that negative impacts are minimized. By allowing or directing access at selected locations, a Mooring Buoy Program can limit resource-use conflicts and damage to the resources.

The Mooring Buoy Action Plan seeks to minimize anchoring impacts to sensitive marine habitats, specifically coral reef formations, to provide reasonable access to Sanctuary resources, consistent resource protection, and to manage or restrict activities that have a detrimental impact on resources. To accomplish these goals, the Mooring Buoy Action Plan seeks to:

- Assess the characteristics of boater and diver use in coral reef areas.
- Maintain a database of boater and diver use and existing mooring buoy locations.
- Develop criteria for determining the location of additional mooring buoys to meet demand.
- Assess the impact of boater and diver use in coral reef areas.
- Develop a standard marking system for mooring buoys.
- Determine the impact of large vessels on mooring buoys and determine optimum vessel size for a variety of buoys.
- Implement vessel-size restrictions on the use of mooring buoys.

Organization of the Mooring Buoy Program

Developing a comprehensive mooring buoy plan has been a high priority since the beginning of the initial management plan and continues as an on-going strategy for protecting coral reef resources.

Responsible Institutions

FKNMS is to be the lead agency responsible for implementing the activities within this action plan. However, the mooring buoy program works in partnership with local government agencies, FWC, FWRI, USACE, USCG, NPS, and Monroe County; non-government organizations, including The Nature Conservancy, Mote Marine Laboratory, and The Ocean Conservancy also play an important role in this plan.

Prioritization of Implementation

The implementation of a mooring buoy system has been shown to be an effective management tool worldwide, especially in coral reef ecosystems. It is a simple, relatively non-controversial, and extremely visible action that will protect delicate reef structures. Accordingly, the Mooring Buoy Action Plan is among the highest priority for management action.

Staff

A minimum of nine full-time personnel are needed to maintain the mooring buoys. Currently there are eight full-time staff assigned to the Mooring Buoy Program.

Equipment

FKNMS staff, using Sanctuary vessels, maintain the mooring buoys. The Tortugas Ecological Reserve has substantially increased logistical and manpower needs. Because of the additional mooring buoy sites, a third vessel and crew are needed. Each vessel should be at least 25 to 50 feet long, and equipped with standard navigational equipment. At least one vessel should have a built-in hydraulic winch for servicing the large boundary buoys. FKNMS currently owns two complete sets of hydraulic installation equipment. One additional backup system may be required in the future.

Contingency Planning for a Changing Budget

To the extent possible, FKNMS will encourage other volunteers and private and nonprofit organizations to assist the Mooring Buoy program. FKNMS will also consider alternative funding sources, including an "Adopt-a-Buoy," volunteers, and other innovative funding mechanisms.

If an adequate budget is not available and alternative funding sources are not feasible, mooring buoy maintenance costs can be reduced by cutting the number of buoys in the system. However, the use of mooring buoys is one of the most basic and cost effective mechanisms for reducing physical impacts in sensitive areas, and reducing the number of buoys will only be considered after all other cost-saving actions have been explored.

Accomplishments

There have been several accomplishments relative to FKNMS mooring buoys since implementation of the 1996 management plan, including:

- Sanctuary staff has completely refitted all mooring buoy systems in the Sanctuary.
- Two 39-foot mooring buoy vessels (*R/V Rachel Carson* and *R/V Agassiz*) have been acquired and equipped.
- New mooring buoy staff has been hired and trained.
- Two smaller mooring buoy maintenance vessels have been acquired and made operational.
- Sanctuary staff have developed a mooring buoy installation and maintenance manual.
- The Sanctuary has increased the number of mooring buoys within its boundaries from 175 to over 500 by taking responsibility for mooring buoys previously installed by other organizations in Key West, Marathon, and Islamorada.
- The four outer boundary buoys for the Looe Key Existing Management Area continue to be maintained.
- Sanctuary staff installed 118 yellow boundary buoys (30-inch diameter) for marine zones.
- Sanctuary staff installed 120 WMA boundary buoys.
- Sanctuary staff installed mooring buoys on the *Thunderbolt* (Marathon), *Cayman Salvager* (Key West), *Spiegel Grove* (Upper Keys) and *Adolphus Busch* (Lower Keys) shipwrecks.

- Sanctuary staff installed mooring buoys and information buoys along Shipwreck Trail.
- Sanctuary staff installed five new mooring buoys in the Lower Keys and 36 new mooring buoys in the Tortugas Ecological Reserve.
- Sanctuary staff has implemented a monitoring program at mooring buoys in the Tortugas Ecological Reserve.
- A 1993-1994 survey assessed public and private boat access throughout the Sanctuary and sought to develop a low-impact access plan and direct new public access to low-impact areas. The plan's purpose is to modify as appropriate, any access affecting sensitive areas throughout the Sanctuary. This strategy is described in detail in the Waterway Management Action Plan and included in the Volunteer Action Plan.

Goals and Objectives

The goals of the Mooring Buoy Action Plan are to:

- Minimize anchoring impacts to sensitive marine habitats (specifically coral reef formations)
- Provide reasonable access to Sanctuary resources
- Provide consistent resource protection
- Manage or restrict activities that have a detrimental impact on resources.

To achieve these goals, the Sanctuary seeks to achieve the following objective:

- To limit resource-use conflicts and damage to Sanctuary resources by allowing or directing access at selected locations.

Strategies

There is one management strategy in this Mooring Buoy Action Plan.

- B.15 Mooring Buoy Management

This strategy is detailed below. Table 3.12 provides estimated costs for implementation of this strategy over the next five years.

Table 3.12 Estimated Costs of the Mooring Buoy Action Plan.

Mooring Buoy Action Plan Strategy	Estimated Annual Cost (in thousands)*					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
B.15: Mooring Buoy Management	316	332	348	366	384	1,746
Total Estimated Annual Cost	316	332	348	366	384	1,746

* Contributions from outside funding sources also anticipated.

Strategy Summary

The purpose of this strategy is to continue a comprehensive mooring buoy maintenance program. Within this program, FKNMS mooring buoy teams perform several functions, such as siting and installing mooring buoys as needed; inspecting mooring systems regularly and replacing components as necessary; and installing heavy-duty anchor systems in areas frequented by larger vessels. As part of this action plan, Sanctuary managers will establish vessel size limits and the teams will continue to evaluate developing technology and implement environmentally sound, cost effective, and efficient installations.

Activities (10)

(1) Maintain Existing Mooring Buoys. The existing system of mooring buoys must be maintained. Mooring buoy teams use volunteers when available to supplement the mooring buoy maintenance program.

Status: There are currently over 500 mooring buoys within the Sanctuary that are maintained through a combination of government agencies and private organizations; managing these existing buoys is an on-going activity.

Implementation: FKNMS, in cooperation with existing agencies and non-governmental organizations (NGOs) that maintain mooring buoys, is the lead agency. FKNMS also assists, both financially and through logistical support, other organizations that install and maintain mooring buoys. Volunteers are used to assist in some aspects of the maintenance of mooring buoys to the maximum extent feasible.

(2) Assess Current Mooring Buoy Technology. The various types of mooring buoy designs available for use will be continually reviewed, based on substrate type, boat size, water depth and sea state. Methods of limiting resource damage through mooring buoy installation will be assessed, as will vessel impacts on mooring buoys.

Status: On-going. Many components of this activity have been through an on-going analysis of mooring buoy systems in the Sanctuary and research on visitor impacts to patch reefs. Vessel impacts on mooring buoys remain to be addressed.

Implementation: FKNMS will be the lead agency responsible for implementing the assessment of vessel impacts. FKNMS will work with the Sanctuary Advisory Council, other sanctuaries and marine protected areas, and nongovernmental organizations that have experience with mooring buoy systems used by larger vessels.

(3) Review Visitor-use and Boating Data. Boating activity and visitor-use data collected by various surveys are used for mooring buoy planning. This includes targeting data on diving activity around major coral reef systems and considering the impact of special events, such as holidays and lobster season, on boating patterns. On-the-water surveys are correlated with available aerial data to determine peak usage and turnover rates in high-use areas. To enable recommendations for mooring buoy additions or deletions, visitation data will be compared with existing mooring buoy locations.

Status: On-going. A report entitled “An Evaluation of Mooring Buoys in the Florida Keys National Marine Sanctuary Based on Boating Patterns” has been produced, which addresses some of the items identified in this activity.

Implementation: FKNMS is the lead agency. Using available sources to update visitor use data, FKNMS works with the Sanctuary Advisory Council and the working group established in Activity 4 to review the information. Team OCEAN volunteers help gather visitor data.

(4) Develop Siting Criteria. Sanctuary staff will continue to develop criteria for future mooring buoy sites within the Sanctuary. Workshops will be conducted as needed, with representatives of the Sanctuary Advisory Council, affected agencies, NGOs and other interested parties to identify criteria for allocating existing buoys and placing new ones. A working group has been established to advise and facilitate the development of the mooring buoy action plan.

Status: On-going.

Implementation: FKNMS is the lead agency responsible for implementing this activity by organizing the working group and facilitating workshops.

(5) Recommend New Sites for Mooring Buoys. Areas where new mooring buoys should be installed are identified based on local knowledge, local dive industry input, visitor-use data, resource management concerns, level of demand and other relevant information. Priority areas for installation are determined.

Status: On-going.

Implementation: FKNMS is the lead agency responsible for implementing this activity. The working group established in Activity 4 will make recommendations.

(6) Conduct Site Assessments of Proposed Locations. Areas identified for the installation of new mooring buoys are surveyed to determine: 1) the health of the habitat in relation to visitor use, 2) types of use and use patterns (e.g., size of vessels, glass-bottom boat use, unusual features, etc.), and 3) the number, location, and concentration of specific mooring buoys on the reef.

Status: On-going.

Implementation: FKNMS is the lead agency. DEP biologists and the Sanctuary Advisory Council are consulted for the resource survey.

(7) Determine Costs of Implementation and Maintenance. After establishing the number of mooring buoys suitable for each primary area, installation and maintenance costs will be determined. Maintenance costs will be based on past costs at the Key Largo and Looe Key National Marine Sanctuaries and relevant NGOs (e.g., Reef Relief, etc.). The ability to fund adequate maintenance activities will be a primary factor in determining the priority areas where new mooring buoys will be installed.

Status: On-going.

Implementation: FKNMS will be the lead agency responsible for implementing this activity. Other agencies and NGOs with mooring buoy experience (e.g., the DEP, Reef Relief, etc.) will be consulted to determine installation and maintenance costs.

(8) Install Additional Mooring Buoys. Based on the recommendations developed in Activities 5 and 6, new mooring buoys will be installed at the locations identified.

Status: On-going.

Implementation: FKNMS is the lead agency.

(9) Implement Vessel Size Limits in High-Use and Sensitive Areas. The Mooring Buoy Working Group recommends that staff use education and outreach rather than regulations for this activity. The Working Group recommends determining vessel size using a combination of length and tonnage. Mooring buoys in the Sanctuary are designed for vessels less than 60 feet. Vessels using mooring buoys in the Sanctuary have increased in size over the past five years, requiring stronger and heavier duty mooring systems. Based on vessel-impact information, staff observations, and load tests, it has been determined that vessels using mooring buoys located between Key Largo and the Marquesas Keys should not exceed 60 feet in length. Vessel-size limits in the Tortugas Ecological Reserve are 100 feet in length or a combined length of 100 feet.

FKNMS staff will install large boat mooring sites on selected reef areas located throughout the Sanctuary. These designated sites will be designed for vessels larger than 60 feet in length up to 100 feet. A program to educate the public on size and weather condition limits should be implemented under the education action plan in coordination with the installation of these mooring buoys. Aesthetic and recreational crowding factors will be considered as well. After a period of review and analysis, the size limits may be proposed for incorporation into the Federal Regulations established for the Sanctuary if data supports such a move once gathered.

Status: On-going.

Implementation: FKNMS will be the lead agency responsible for implementing this activity.

(10) Evaluate Effectiveness and Influences of Mooring Buoy Placement and Make Necessary Changes. Volunteer monitoring and in-house staff monitor mooring buoy sites and compare the sites to similar nearby areas without mooring buoys. A monitoring program will be established in the Tortugas Ecological Reserve to compare mooring sites prior to and after the installation of mooring buoys, and in areas without mooring buoys that have little or no diving or boating. Mooring buoys will be removed from areas found to be detrimentally impacted by the presence of mooring buoys.

Status: On-going.

Implementation: FKNMS will be the lead agency responsible for implementing this activity. DEP/FWC will provide support.

3.4.3 Waterway Management Action Plan

Introduction

This action plan describes strategies that implement and maintain a comprehensive and effective waterway marking and management system for boaters within the FKNMS. Formerly known as the Reef/Channel Marking Action Plan, this plan was re-named to reflect the broader strategies and activities. In addition to markers, this plan incorporates several surveys and databases that aid in waterway management. Aids to Navigation (channel markers and informational markers) and regulatory markers (i.e. vessel exclusion, no motor, and preservation zones) are in place in many areas of the Sanctuary. Channel, shoal, and reef markings have reduced the damage to shallow-water resources; however, significant resource damage continues to occur in sensitive areas. Meanwhile, boating activities have increased dramatically since the plan was first developed necessitating the enhancement of waterway markings and management. This plan promotes standardized signage consistent with the International “Rules of the Road” and state standards. This comprehensive marking plan emphasizes long-term resource protection and protects shallow-water resources such as seagrass banks, patch reefs and the bank reef crest.

Marking reefs, banks, and major passages to and from Florida Bay, the Gulf of Mexico, and the Atlantic Ocean improves navigation and minimizes the damage to shallow-water resources throughout the Sanctuary. At the same time, an effective waterway management system promotes boater safety by identifying and marking hazards to navigation. Properly delineated regulatory zones (as addressed in the Marine Zoning Action Plan) together with effective waterway management alert boaters of Special-use areas and promote compliance with sanctuary regulations, while well-marked zones also greatly enhance enforcement of sanctuary regulations.

Several inventories and databases are maintained to assess current levels of boating activity and evaluate trends in shallow-water resource damage. These inventories include several studies of propeller scar data, the location of all existing markers (permitted and un-permitted), the location and function of marine facilities, depth of entrance and exit channels from subdivisions throughout the Keys, and a vessel grounding database. In addition to the inventories, changes in boating activity are monitored as new marking systems are placed in sensitive areas. These inventories and databases, further described below, are maintained as tools for planners and resource managers to evaluate the effectiveness of waterway management. Full utilization of these tools will also lead to design improvements.

Through Damage Assessment and Restoration Program activities, the FKNMS has conducted removal of grounded and sunken vessels and marine debris. FKNMS also works closely with Monroe County derelict vessel program that currently removes roughly 100 derelict vessels per year. Such debris threatens boater safety and has the potential to directly injure benthic resources and/or jeopardize water quality. Although state grant funds dedicated for this purpose have declined in recent years, the county has directed Boating Improvement Funds to overcome this shortfall. Continued funding to remove derelict vessels and marine debris through alternative funding sources is critical for effective waterway management.

This action plan is inherently linked to and complimented by several other action plans. The Boat Access Strategy (strategy B.1) is included as a component of the Mooring Buoy Action Plan, however,

the implementation scheme (description of activities and associated information) for the strategy is only included in this action plan. Waterway management/marking activities (strategy B.4) such as the vessel grounding database, prop-scar surveys, and derelict vessel removal are linked to the Damage Assessment and Restoration Action Plan. The planning and installation of regulatory markers are directly linked to the Regulatory and the Marine Zoning Action Plans. The regulations associated with the waterway marking/management strategy are included in the Regulatory Action Plan.

Goals and Objectives

The Sanctuary contains broad, shallow-water areas and significant reef tracts that require marking to improve navigation, increase boater safety, and therefore provide adequate resource protection.

Goals with respect to waterway marking-management include:

- Minimize resource damage from boating activities.
- Protect shallow-water resources.
- Provide reasonable and appropriate access while minimizing resource damage.
- Educating the public about safe and responsible boating practices.

To achieve these goals, the following objectives must be accomplished:

- Periodically assess the characteristics of boat use within the Sanctuary.
- Continually assess the extent and intensity of damage that occurs due to boating.
- Gain consensus on uniform aids to navigation, marking criteria, and regulatory marking systems.
- Promote and enhance a standardized waterway marking system consistent with international and state standards.
- Develop waterway marking criteria that protect resources, ensure reasonable boating access, and allow for easy transit.
- Continue installing new markers and maintaining existing ones.
- Evaluate the effectiveness of the waterway marking system and regulatory zones.
- Educate the public about the waterway marking system.

Implementation

Responsible Institutions

The Monroe County Growth Management Division (GMD) has primary responsibility for implementing this action plan in State of Florida waters. USCG has primary responsibility for marking federal navigation channels, including the Intra-coastal Waterway, and shipping lanes. The Sanctuary is responsible for marking its regulatory zones. The Sanctuary also coordinates the Waterway Management/Marking Working Group and promotes cooperation among the different agencies. The success of the Action Plan depends on the cooperation of federal, state, county, local agencies and the municipalities.

Personnel

About ten staff members from the Monroe County GMD and the assisting institutions were involved in the original implementation of the Waterway Management Action Plan. Two FWRI staff constructed the original GIS data layers. Three Monroe County GMD staff, including the county's Marine Planner, continue to be involved in developing this plan, submitting permit applications,

developing installation and maintenance contracts, and directing the removal of derelict vessels and marine debris. FKNMS staff is involved in the coordination of the Waterway Management Action Plan Working Group that includes Monroe County GMD, USCG, USFWS, and other trustees. The FKNMS mooring buoy team installs and maintains numerous regulatory markers addressed under this plan. FKNMS staff review permitting of markers and have recently been involved in the coordination of installing the 300-foot residential shoreline idle speed/no wake zones.

Contingency Planning for a Changing Budget

In December 2002, the County adopted a new ordinance that levies additional funds through the state vessel registration fee; about \$580,000 is available annually from Monroe County Boating Improvement Funds. State grants for the removal of derelict vessels were not renewed in recent years, so the county has used approximately \$150,000 of the Boating Improvement Funds to cover these activities in Monroe County. Many aids to navigation are funded, owned and maintained by the USCG, although recent changes in mission have limited resources available for waterway marking. The Sanctuary may purchase and install markers from vessel grounding settlements, but has not yet done so on a large-scale basis. The current level of funding will allow the program activities to be completed; additional funding simply shortens the time frame required.

Accomplishments

- Implemented a Channel Marking Master Plan, prepared by Monroe County GMD and adopted by the Board of County Commissioners. The county portion of the plan is essentially complete, with over one hundred new markers installed, eight new channels marked and maintained, and three additional banks marked.
- Worked with owners of container vessel *M/V Houston*, USCG, and the Key West Propeller Club to install eight RACON beacons (also known as radar transponder beacons) on navigational aids along the reef tract from Loggerhead Key, in the Dry Tortugas National Park, to Fowey Rocks at the north end of Biscayne National Park. The beacons transmit a signal that is displayed on the radar screens of passing ships, warning them of the location of the coral reef tract. The Sanctuary used its authority to negotiate with the ship owners for funds to purchase 10 of these highly effective beacons. The remaining two beacons are being held as replacements for the existing beacons.
- Installed new danger markers in the Sambos Complex to protect SPA reefs.
- Identified navigation problems in channels around Key West and the Middle Keys. As a result, an area north of Moser Channel through Red Bay Banks area has been remarked.
- Inventoried approximately 600 aids to navigation; included in a GIS database.
- Completed a boat-access survey of all marinas, boat ramps and docking facilities; data has been entered into a marine facilities GIS database.
- Surveyed entrance depths to all residential canals; available as GIS data layer.
- Provided updated waterway information to the *Upper Keys Boating Guide*, the locally produced *Teall's Guides*, and NOAA charts.
- Standardized, relocated, added, and when necessary, removed markers.
- Conducting on-going investigation of the root causes of prop scars in grass flats. Lignumvitae Key State Park seagrass banks have been assessed via aerial and ground surveys for vessel grounding trend analysis. A statewide survey of prop scars has been published and a four-point action plan recommended channel marking, zoning, education, and enforcement.
- Streamlined permit process and marked residential subdivision shorelines as requested to delineate the 300 foot Sanctuary idle-speed-only/no-wake zone.

- Removed a dangerous obstruction at Marker 48 and determined that the pile at 9-foot stake is no longer a threat to navigation.
- Improved marking of shoal areas using 'Danger Reef' buoys at various reefs throughout the Sanctuary such as Newfound Harbor SPA, Looe Key back reef, Bicentennial Head.

Strategies

Waterway Management/Marking is comprised of two strategies, which are detailed below.

- Strategy B.1 Boat Access
- Strategy B.4 Waterway Management/Marking

Each of these strategies is detailed below. Table 3.13 provides estimated costs for implementation of these strategies over the next five years.

Table 3.13 Estimated Costs of the Waterway Management Action Plan.

Waterway Management Action Plan Strategies	Estimated Annual Cost (in thousands)*					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
B.1: Boat Access	-	-	-	50	-	50
B.4: Waterway Management/Marking+	335	352	370	390	408	1855
Total Estimated Annual Cost	335	353	370	440	408	1,905
* Contributions from outside funding sources also anticipated.						
+ Expenditures by the U.S. Coast Guard are not included in these estimates						

STRATEGY B.1 BOAT ACCESS

Strategy Summary

The purpose of this strategy is to conduct surveys to assess public and private boat access throughout the Sanctuary. By knowing these entry and exit sites, the team can ensure channel markings to and from these areas are adequate.

Activities (4)

(1) Periodically Update Marine Facilities Survey. A field survey of each boat access site in the Keys is periodically updated. Information includes the location, type of facility, services provided, intensity of use, and type of use.

Status: Implemented and on-going.

Implementation: Monroe County Division of Marine Resources (now the Growth Management Division) completed the initial surveys in 1993³ under contract with FWRI as part of the Channel Marking Project; a second survey was conducted in 1999⁴. All data was turned over to FWRI for generation of GIS data layers. The inventory is updated by Monroe County GMD as marine facilities change or new ones come into existence. A comprehensive field survey will be conducted periodically.

(2) Survey Needs for Shallow-water Access. A survey⁵ was designed and completed that assessed the water depths at subdivision entrance points, and of shallow-water access impediments between the Atlantic Ocean, Florida Bay, and the Gulf of Mexico and subdivision entrances. The information collected is used to prioritize placement of corrective or additional markings.

Status: Implemented and on-going.

Implementation: Monroe County (DMR) (now GMD) completed the initial surveys under contract with FWRI as part of the Channel Marking Project. The Florida Department of Community Affairs (FDCA) provides information on subdivisions and needs for shallow-water access. FKNMS provided boat support for some of the surveys.

(3) Input Survey Data into a GIS. Input all data developed through the on-site surveys into a GIS database to enable use of inventories for waterway management planning and by resource managers.

Status: Implemented and on-going.

Implementation: Monroe County DMR (now GMD) completed this activity for both databases under contract with FWRI. All data has been turned over to FWRI and is updated as data changes.

³ Marine Facility Survey conducted in 1993 by County DMR (now GMD) as part of Channel Marking Master Plan process. Also called the *Marinas* data layer.

⁴ Fletcher survey. Data gathered, data entry on-going.

⁵ Survey of all subdivisions to determine which have four-foot access to bay and/or ocean. Conducted by DMR (now GMD) for Channel Marking Master Plan. Also referred to as *Subdivisions* GIS data layer.

(4) Make Survey Results Available to Resource Managers and the Public. Initiate a process to make the information developed in the marine facilities survey and shallow water access survey available to resource managers in map, graphic, and written formats. As part of FWRI's obligation to maintain data created as a result of activities carried out in the Sanctuary, this information will become more readily available over time.

Status: Implemented and on-going.

Implementation: Data is currently available through FWRI. Some of the data has been used for an *Upper Keys Boater's Guide*. (See Strategy W.28 in the Water Quality Action Plan.); additional data will be used by Monroe County GMD and FWRI for the Middle Keys and Lower Keys boater's guide.

STRATEGY B.4 WATERWAY MANAGEMENT/MARKING

Strategy Summary

The purpose of this strategy is to continue to promote and enhance a coherent waterway management and marking system throughout the Sanctuary to minimize resource damage from boating activities, promote safe navigation, and increase boater safety.

Activities (10)

(1) Improve Coordination of the Agencies Involved in Waterway Management. Re-vitalize the Waterway Management Action Plan working group to renew active discussions of priorities in waterway marking and management.

Status: On-going.

Implementation: Working group was very active for several years after implementation of the Action Plan. Activity has tapered off in recent years; Sanctuary will coordinate the regular meeting and revitalization of this group.

(2) Survey Damage from Propeller Scarring and Vessel Groundings. Assemble aerial photography, visual observations, and databases of reported vessel grounding data to obtain a complete picture of damage to shallow water resources caused by prop-scars, keel grooves, blowholes, and vessel groundings. A database was assembled from published reports⁶. A statewide prop-scar survey was completed, compiled and published by FWRI in 1995⁷. NOAA, FWRI, DEP and Monroe County have conducted additional aerial and on-water surveys. In addition, FWRI and the Sanctuary created the vessel grounding database⁸ from FWC grounding citations. "Hot spots" of resource damage can be

⁶ Kruer, C.R. 1994. Mapping Assessment of Vessel Damage to Shallow Seagrasses in the Florida Keys. A report to the Florida Dept. of Natural Resources and the Univ. of South Florida / F.I.O. 9p.

⁷ Sargent, F., T.J. Leary, D.W. Crewz, and C.R. Kruer 1995. Scarring of Florida's seagrasses: assessment and management options. FWRI technical report TR-1. 46p. Using low-level aerial surveys and photography, researchers characterized levels of light, moderate, and severe scarring. These areas were converted into a GIS data layer by FWRI.

⁸ Includes all seagrass and coral grounding cases that generated a FWCC citation; database maintained by FKNMS Damage Assessment and Restoration program.

illustrated by plotting the data. This data is then used to design/improve waterway marking schemes through partnering with USCG and Monroe County.

Status: Implemented and on-going.

Implementation: Propeller scar surveys have been compiled, and Monroe County, FKNMS and DEP continue aerial and ground surveys of boating impacts. FWRI and FKNMS created the vessel grounding database and sanctuary staff update grounding data as they are reported. FWRI is the lead agency for propeller scarring surveys. FKNMS maintains the vessel grounding database.

(3) *Inventory and Geo-reference Aids to Navigation and Regulatory Markers.* A channel marker inventory⁹ has been designed to identify, characterize and geo-reference all known markers; information has been incorporated into a GIS data layer. Positions for aids to navigation maintained by local, state, and federal agencies are integrated into the database. Used in conjunction with the vessel-grounding database, an assessment can be made of where new markers may be needed and existing markers repositioned. Each agency has a separate inventory of regulatory markers they maintain; an effort to compile all regulatory markers will be made.

Status: Implemented and on-going. The inventory will take two years to update.

Implementation: Monroe County GMD has this inventory as a GIS layer and verified all marker locations. Monroe County, NOAA, and USCG update the database to reflect changes in positions for aids to navigation.

(4) *Enhance Channel Marking Aids to Navigation.* This activity will enhance existing channel marking efforts. Based on much of the data collected and assessed as part of this plan, Monroe County implemented the Channel Marking Master Plan¹⁰, a comprehensive plan for all channels and markers in the county. The plan will be linked to channel marking schemes maintained by other local, state, and federal agencies. The GMD will continue to identify areas of concern and implement further enhancements as needed.

Status: This is an on-going activity. The county is funded for this activity through the Florida Boating Improvement Funds and other grants.

Implementation: Monroe County has essentially completed its portion of the Channel Marking Master Plan. This effort has greatly enhanced the channel marking within the county by installing over 100 new markers, maintaining eight new channels, and marking additional banks. Additional enhancements will be considered by GMD. Coordination of channel marking activities will be achieved through the Action Plan Working Group members participating in meetings of the local Marine and Port Advisory Committees, the Sanctuary Advisory Council, and providing technical input to USCG.

⁹ Channel marker inventory compiled from USCG Light List and County data as part of the Channel Marking Master Plan. Existing channel markers were checked for exact location by Monroe County DMR (now GMD). Data layer is referred to as the *ATONS* layer. In addition, an *Unpermitted Markers* data layer was compiled by Monroe County DMR (now GMD) during field surveys.

¹⁰ Channel Marking Master Plan for the Florida Keys, January 1998. Richard Jones, Channel Marking Planner. Submitted in fulfillment of DEP Agreement No. SWPP96-06 by the Monroe County Department of Marine Resources.

(5) Assess Effectiveness of Channel Marking Master Plan. In addition to installing new channel markers, several studies have been designed to assess the effectiveness of newly marked channels. Assessment consists of three primary techniques: 1) using aerial photography to assess changes in benthic communities in discrete areas following modifications to a waterway marking scheme; 2) analysis of grounding information; and 3) numbers of complaints and/or other evidence that problems have been solved. Aerial overflights have been completed for several areas¹¹ throughout the keys at various times and using a variety of methods. A coherent monitoring study was started by (now GMD) in 1997 by gathering aerial photography for five study areas: Broad Creek, Tavernier Creek, Vaca Cut, Whale Harbor Channel, and Niles Channel. The channel markings for all of the study areas, with the exception of Niles Channel, were improved between 1997 and 2000. Follow-up aerial surveys of the same areas are planned. The effectiveness of the new markings will be evaluated by changes in the shallow resources (mainly seagrasses) in these areas.

Status: Implemented and on-going.

Implementation: Monroe County is conducting pre- and post-project assessments of newly marked channels. Aerial overflights have been conducted in five areas. The vessel grounding database will also be used to assess the effectiveness of the plan.

(6) Enhance Reef Marking Aids to Navigation. Protection of the reef tract has been accomplished through several important marking improvements; however, significant and long lasting damage still occurs on the reef crest. Further enhancements are needed. The Sanctuary staff will assist USCG in planning improvements and make recommendations based on trends in boating activity and resource damage. Continued coordination and enhancement of reef marking activities will be achieved through the Action Plan Working Group.

Status: Implemented and on-going.

Implementation: RACON beacons have been installed and, along with the ATBA restrictions, have virtually eliminated large vessel groundings on the reef. At the request of FKNMS, reef markings were improved at Sambos complex by USCG. Further enhancements will be proposed through the Action Plan Working Group. The Sanctuary has lead responsibility to staff the working group and facilitate information exchange among agencies and citizen groups.

(7) Conduct Waterway Assessment and Marking System (WAMS) Survey. The USCG has the primary responsibility for installing and maintaining markers in federally maintained channels, Hawk Channel, the old Intra-Coastal Waterway (ICW), on the bank reef crest, and shoal areas outside state waters. USCG has committed to conducting a WAMS study in the area to evaluate the effectiveness of federally maintained markers and management schemes. The Sanctuary staff will assist with the study however possible, and provide technical support such as output from the vessel grounding database.

Status: On-going.

¹¹ Areas that have aerial photographs gathered before 1996 include: the north end of Big Coppitt Key, Lower Sugarloaf Sound, Kemp Channel south of U.S. 1, the north end of Ramrod Key, and the Lignumvitae Aquatic Preserve area. Two of these areas, Lower Sugarloaf Sound and Lignumvitae, received channel markings.

Implementation: USCG has made several improvements in channel markings and reef crest markings. A formal WAMS process is in the planning stages. The County's Channel Marking Master Plan has several recommendations for improvements of federally maintained markers. Data from the survey will be used to plan future improvements to the marking system.

(8) Enhance Use of Regulatory Markers and Information Signs. In addition to working with other agencies to mark channels, shoals and reefs with day boards, beacons and lights, the Sanctuary helps manage waterways through regulatory and zoning activities. The Sanctuary maintains more than 100 wildlife management buoys (including some for other agencies), approximately one hundred preservation area and ecological reserve boundary buoys, and numerous danger markers near coral heads. Regulatory markers inform boaters of regulations for idle-speed/no-wake zones, vessel exclusion zones, and other zoning designations. In addition, several agencies install information signs at entry points to waterways throughout the Florida Keys.

Status: Implemented and on-going.

Implementation: The FKNMS has the lead responsibility. FKNMS staff install and maintain several hundred regulatory markers and numerous informational markers. The installation of regulatory markers is linked to the Marine Zoning and Regulatory Action Plans.

(9) Remove Derelict Vessels, Marine Debris and other Waterway Obstructions. Another important activity for managing the waterways of the Florida Keys is the removal of abandoned vessels and marine debris that impede navigation, threaten public safety or harm the environment. Monroe County currently removes about 100 derelict vessels per year through an efficient removal program. USCG removes objects deemed to be hazards to navigation or significant threats of marine pollution. FKNMS works closely with both agencies to report and coordinate the removal of waterway obstructions. In some instances, particularly for problem projects where no agency has lead responsibility, FKNMS has located funds and contracted the removal of sunken vessels that were deemed to be a threat to sanctuary resources. This activity is related to the removal of grounded vessels under Damage Assessment and Restoration, Regulatory and Marine Zoning action plans.

Status: On-going.

Implementation: Monroe County has an efficient derelict vessel removal program. USCG is responsible for removing hazards to navigation. FKNMS staff coordinate removal of debris and when needed reduce threat to sanctuary resources. In 2006/2007 Monroe County removed over 400 derelict vessels and over 45,000 derelict traps following the impacts and dislocations of the 2004 and 2005 hurricane seasons. This large scale removal effort was partially supported through hurricane recovery funds from the Federal Emergency Management Agency.

(10) Develop Guidelines for 100-Yard Idle-speed/No-wake Shoreline Markers. Guidelines will be developed for collecting information from homeowners and homeowner associations based on reporting requirements set forth by agencies involved in issuing permits to install regulatory markers in submerged lands. Permitting agencies include USACE, DEP and the USCG. FKNMS staff provides residential shoreline No-wake/Idle-speed permit information and requirements to homeowners and homeowner associations upon request. FKNMS staff works with the public to seek

the necessary approvals or exemptions from jurisdictional agencies. Generally, those desiring permits provide: approximate latitude and longitude coordinates for the area to be marked and the names, addresses and telephone numbers for adjacent homeowners. Permit requests are evaluated by need, resource impacts, and locations before being submitted for permit approval.

FKNMS staff completes, files and pursues approvals from the agencies responsible for managing submerged lands, regulatory markers and regulations within the Sanctuary. FKNMS staff seeks approvals/exemptions from jurisdictional agencies and works with agencies to complete permit application and obtain approvals. It is the responsibility of the homeowners and homeowner associations to initiate communications with contractors for buoy installation and maintenance.

Status: On-going.

Implementation: Currently, there are four permitted sites and 17 existing regulatory markers. The FKNMS Upper Region resource manager and administrative staff are responsible for implementation of the activity.

3.4.4 Water Quality Action Plan

Introduction

Overview

Declining water quality continues to be a major concern for the Sanctuary. The Water Quality Protection Plan, mandated by Congress and developed jointly by EPA, NOAA, the State of Florida, and Monroe County, has been an evolving and effective model for identifying water-quality problems and solutions. The model has also been productive in providing the extensive monitoring and research needed to implement science-based management. However, the model has been of less help in resolving some local concerns regarding implementation.

Each activity in the Water Quality Action Plan is derived from the management strategies described in the 1996 final management plan. The strategies address sources of pollution, priority corrective actions and compliance schedules. The strategies seek to restore and maintain a balanced, indigenous population of corals, shellfish, fish and wildlife, and recreation in and on the water. The strategies include a water-quality monitoring program and opportunities for public participation in all aspects of development and implementation. This action plan is an abbreviated version of Strategies and Activities described in the *Water Quality Protection Program Document*. The Water Quality Protection Program's *Progress Report on Implementation* (March 1997) was revised and updated in May 1998, January 1999, and June 2001. The details of research and monitoring strategies related to water quality are published in the FKNMS's *Comprehensive Science Plan*.

Relationship to Other Action Plans

Many water quality strategies appear in other action plans because of the need to establish separate components for common goals. For example, in addition to addressing water quality, a strategy may have research, education, or volunteer components. If a strategy appears in more than one action plan, this is noted.

Goals and Objectives

The goal of the Water Quality Action Plan is to work with federal, state and local governments to better understand water quality problems and actively implement solutions to reverse trends and restore "healthy" water quality.

The objectives of this action plan are to work with relevant agencies and the public to increase understanding of water quality issues and address the issues through research, monitoring and the development and implementation of wastewater and stormwater master plans, as well as development of wastewater treatment facilities.

Implementation

Strategies are typically implemented by a combination of federal, state, and local effort. The U.S. EPA and the DEP lead the implementation of most strategies in this plan. Other entities, including Monroe County, the South Florida Water Management District, the Florida Department of Health, and the U.S. Coast Guard, have also led major efforts.

Costs

Based upon 1997 estimates in the *Water Quality Protection Program Document*, the cost to implement all strategies was initially estimated to be between \$290 million and \$510 million. Two expensive strategies, stormwater system retrofitting (\$200 million) and wastewater infrastructure (\$57 million to \$257 million) accounted for most of that. Excluding stormwater and wastewater strategies, the cost was estimated between \$34 million and \$55 million.

Since those estimates were made, Monroe County has updated its *Sanitary Wastewater Master Plan* and *Stormwater Master Plan*. The estimates in those documents for complete implementation of recommendations are, in the *Wastewater Master Plan*, \$520 million, and in the *Stormwater Master Plan*, \$500 million. Costs of the remaining activities have not been re-estimated, but can be assumed to be somewhat higher than original estimates. Funding comes from a combination of public (federal, state and local) and private sources. Eighteen government institutions have been identified as potential participants. Table 3.14 lists estimated costs to implement each strategy and its component activities.

Contingency Planning for Changing Budgets

The Water Quality Action Plan includes a wide variety of strategies and activities that will be implemented by various agencies and funded through various mechanisms. A separate study of potential funding sources was conducted by the EPA, and is included in the Water Quality Protection Program Phase II Report. The EPA and DEP, with guidance from the Technical Advisory Committee (established under strategy W.32, found in the Science Management and Administration Action Plan), will be responsible for reprioritizing strategies and activities depending on the available funds.

Accomplishments

Since the final management plan went into effect in 1997, the Sanctuary and its partners in water quality protection have accomplished many of its initial goals. Highlights of the accomplishments include:

- Developed the first Water Quality Protection Program for a National Marine Sanctuary, including a comprehensive Action Plan and Implementation Plan at a cost of \$1.3 million.
- Established a high-level Water Quality Steering Committee and Technical Advisory Committee.
- Fully implemented 26 of 49 high-priority activities and 37 of 95 total activities in the initial Water Quality Action Plan.
- Completed ten years of comprehensive monitoring throughout the Sanctuary related to water quality, seagrasses, and coral reef/hard-bottom communities at a total cost of \$10 million.
- Developed and implemented a Data Management Program for the Sanctuary at a cumulative cost of \$695,000.
- Funded and implemented 15 special studies and research projects designed to identify cause-and-effect relationships between pollutants and ecological impacts at a total cost of \$1.8 million.
- Assisted Monroe County to develop comprehensive wastewater and stormwater master plans.
- Assisted Monroe County to develop a Wastewater Facilities Plan for the Marathon service area.
- Constructed an advanced wastewater treatment facility and collection system for the Little Venice area of Marathon through a Title II Construction Grant in the amount of \$4,326,000 awarded by the Florida Keys Aqueduct Authority.
- Provided more than \$290,000 to the Sanctuary for public education and outreach.

- Provided a \$500,000 grant to Florida Department of Health to identify and test innovative and alternative on-site wastewater systems to reduce nutrient loading in ground and surface waters.
- Worked with the City of Key West to designate the waters surrounding the city as a no-discharge zone.
- Designated all state waters in the FKNMS as a no-discharge zone in 2002. Mobile pump-out facilities were established to support compliance with the new designation.
- Provided a \$400,000 grant to the Florida Audubon Society/Florida Keys Environmental Restoration Trust Fund for restoration projects.
- Prepared and widely distributed the *Report to Congress (1996)* on the Water Quality Protection Program, a white paper entitled “Water Quality Concerns in the Florida Keys: Sources, Effects, and Solutions,” and several annual “Progress Reports on Implementation,” describing the status of the Water Quality Protection Program.
- Implemented a half-million dollar demonstration project for Onsite Sewage Treatment & Disposal Systems (OSTDS) that compared five systems. A final report comparing the nutrient-removal capabilities, costs, and limitations of these systems is available at www.doh.state.fl.us/environment/ostds/research/researchreports.htm. The results have been used to design and install new and replacement systems with combinations of technologies that meet Florida Keys effluent-disposal standards.
- Completed the *Sanitary Wastewater Master Plan*, which is currently being implemented as a high priority.
- Improved interagency coordination has reduced wastewater pollution by refining and simplifying OSTDS permitting and increasing funds for compliance monitoring and enforcement.
- Improved stormwater management through local government implementation of stormwater management ordinances.

Strategies

The Water Quality Action Plan consists of the 18 strategies listed below. Fifteen of these strategies are included here, grouped under 8 categories, and the remaining 3 strategies are presented in other action plans.

Florida Bay/External Influence Strategies

- W.19 Florida Bay Freshwater Flow
- W.24 Researching Florida Bay Influences (see the Research & Monitoring Action Plan)

Domestic Wastewater Strategies

- W.3 Addressing Wastewater Management Systems
- W.5 Developing and Implementing Water Quality Standards
- W.7 Resource Monitoring of Surface Discharges

Stormwater Strategies

- W.11 Stormwater Retrofitting
- W.14 Instituting Best Management Practices

Marina and Live-Aboard Strategies

- B.7 Reducing Pollution Discharges
- Z.5 Special-use Areas (see Marine Zoning Action Plan)
- L.1 Elimination of Wastewater Discharge From Vessels
- L.3 Reducing Pollution From Marina Operations

- E.4 Developing Training, Workshops, and School Programs (see Education and Outreach Action Plan)

Landfill Strategy

- L.7 Assessing Solid Waste Disposal Problem Sites

Hazardous Materials Strategies

- W.15 Hazardous Materials (HAZMAT) Response
- W.16 Spill Reporting
- L.10 HAZMAT Handling

Mosquito Spraying Strategy

- W.17 Refining the Mosquito Spraying Program

Canal Strategy

- W.10 Addressing Canal Water Quality

Each of these strategies is detailed below. Table 3.14 provides estimated costs for implementation of these strategies over the next five years.

Table 3.14 Estimated Costs of the Water Quality Action Plan

Water Quality Action Plan Strategies	Estimated Annual Cost (in thousands)*					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
W.19: Florida Bay Freshwater Flow	5	5	5	5	5	25
W.3: Addressing Wastewater Management Systems	50,000	125,000	125,000	100,000	100,000	500,000
W.5: Developing and Implementing Water Quality Standards	-	-	-	-	-	0
W.7: Resource Monitoring of Surface Discharges	5	5	5	5	5	25
W.11: Stormwater Retrofitting	1,500	1,500	1,000	1,000	1,000	6,000
W.14: Instituting Best Management Practices	50	50	25	25	25	175
B.7: Pollution Discharges	200	200	200	200	200	1,000
L.1: Elimination of Wastewater Discharge from Vessels	550	200	750	350	350	2,200
L.3: Marina Operations	25	25	25	25	25	125
L.7: Assessing Solid Waste Disposal Problem Sites	20	20	20	20	20	100
W.15: HAZMAT Response	250	250	250	250	250	1,250

W.16: Spill Reporting	10	10	10	10	10	50
L.10: HAZMAT Handling	10	10	10	10	10	50
W.17: Refining the Mosquito Spraying Program	5	5	5	5	5	25
W.10: Addressing Canal Water Quality	1,000	100	100	500	100	1,800
Total Estimated Annual Cost	<i>53,630</i>	<i>127,380</i>	<i>127,405</i>	<i>102,405</i>	<i>102,005</i>	512,825

* Contributions from outside funding sources also anticipated.

Florida Bay/External Influence Strategies

Severe water quality and ecological problems have developed in Florida Bay in recent years, and the Bay has undergone rapid changes in community structure. Problems have included a massive seagrass die-off; phytoplankton blooms; sponge die-offs; mangrove die-backs; and a localized overgrazing of seagrass by dense aggregations of variegated sea urchins. All of these phenomena have the potential to cause catastrophic, cascading ecological effects throughout the ecosystem. Since 1987, much of Florida Bay has been affected by a massive, unprecedented seagrass die-off that has left tens of thousands of acres of denuded sediments. The resulting sediment suspension and nutrient release may have contributed to massive phytoplankton blooms that have affected the Bay during recent years. Sponge die-offs caused by phytoplankton blooms have resulted in reduced numbers of juvenile spiny lobsters, which reside by day under sponges for protection from predation.

Most scientists believe that recent ecological problems in Florida Bay are the result of long-term reduction in freshwater flow from the Everglades. The mechanism has not been documented, but high salinities and a long-term change from an estuarine to a marine system may be contributing factors.

These conditions in Florida Bay are a potential threat to water quality and resources in the Sanctuary. The need to deal with water-delivery problems in Florida Bay has been strongly stressed by workshop participants and other scientists throughout the development of the Water Quality Protection Program. The Florida Bay and Adjacent Coastal Ecosystems Program Management Committee is keenly aware of the role that Everglades restoration plays in future water-quality conditions in the Sanctuary. The *Comprehensive Everglades Restoration Plan* acknowledges that downstream impacts are an important concern in planning restoration activities.

Two strategies have been developed to address this issue:

- *Strategy W.19* recommends that the Steering Committee for the Water Quality Protection Program take a leading role in working to restore historical freshwater flow to Florida Bay.
- *Strategy W.24*, included in the Research and Monitoring Action Plan, supports research that will further document and quantify the influence of Florida Bay on the Sanctuary's water quality and biological resources.

STRATEGY W.19 **FLORIDA BAY FRESHWATER FLOW**

Strategy Summary

One role of the Water Quality Protection Program's Steering Committee is to ensure that restoring historical freshwater flow from South Florida and the Everglades into Florida Bay will not detrimentally impact Sanctuary resources. Sanctuary representatives work with appropriate federal, state, and local agencies to ensure that restoration plans and surface-water improvement and management plans for South Florida and the Everglades are compatible with efforts to maintain water quality within the Sanctuary. The interagency Florida Bay and Adjacent Coastal Ecosystems Program Management Committee is charged with developing restoration goals and performance

measures for Florida Bay in the *Comprehensive Everglades Restoration Plan*. Goals include restoring the quality, quantity, timing and distribution of freshwater through the Everglades and into Florida Bay.

The *Strategic Science Plan for Florida Bay*, prepared by the Florida Bay and Adjacent Marine Ecosystem Program Management Committee, focuses on science information needs for Florida Bay ecosystem restoration, including restoring more natural freshwater inflow patterns.

Activities (2)

(1) Establish a Leading Role for the Steering Committee. The Water Quality Protection Program's Steering Committee includes high-level representatives of all relevant agencies. The Steering Committee has taken a lead role in water-management issues affecting Florida Bay and Sanctuary resources.

Status: Implemented and on-going. The Steering Committee was established in 1991 and expanded in 1992 and 1995 in order to initiate activities and generate support for the recommendations in the Water Quality Protection Program. Its leading role in ecosystem restoration activities continues.

Implementation: The responsible agencies are EPA and DEP, which jointly administer the Water Quality Protection Program. All other agencies represented on the Steering Committee have a primary role, including NOAA, NPS, USFWS, USACE, Florida Department of Community Affairs (FDCA), Florida Department of Health (FDOH), SFWMD, Monroe County, municipalities, and the Florida Keys Aqueduct Authority.

(2) Participate in a Review/Revision of Water-management Strategies. Sanctuary representatives shall participate in the review and revision of restoration plans and water-management plans for Florida Bay and adjacent areas to ensure that the proposals and actions enhance and complement water-quality improvement in the Sanctuary. These plans include but are not limited to the *Comprehensive Everglades Restoration Plan*, the West Dade Wellfield, U.S. 1 widening, and the Lower East Coast Water Supply Plan.

Status: Implemented and on-going. The members of the Management Committee or their staff regularly participate in activities associated with planning and implementation of the *Comprehensive Everglades Restoration Plan*, including the Florida Bay and Adjacent Coastal Ecosystems Program Management Committee, the South Florida Environmental Restoration Task Force Working Group, Science Coordination Team, and Project Coordination Team.

Implementation: The Water Quality Protection Program Management Committee coordinates and administers water-management activities in the Sanctuary. The responsible agencies are EPA and DEP. NOAA has a primary role. The main agencies involved in water management decisions for the Everglades and Florida Bay are the NPS, SFWMD, and USACE. As the state land-planning agency for a designated Area of Critical State Concern, the FDCA is also involved. Other primary agencies are the USFWS and Monroe County.

Domestic Wastewater Strategies

The purpose of these strategies is to reduce pollution from land-based sources of domestic wastewater in the Florida Keys. Sources include cesspits, on-site treatment and disposal systems, package plants, and municipal treatment plants. Wastewater pollution from live-aboard boaters is discussed in Marina and Live-Aboard Strategies.

The first two domestic wastewater strategies (W.1 and W.2) are demonstration projects that would provide information to assist in deciding among options for the main engineering strategy (W.3) for wastewater management systems (exclusive of the City of Key West). Strategy W.4 is also an engineering strategy, but is applicable only to Key West. The remaining domestic wastewater strategies (W.5, W.7, and W.8) involve management activities designed to reduce pollution by developing water quality standards (including biocriteria) specific to the Florida Keys, and making the regulatory/management system work more efficiently.

STRATEGY W.3 ADDRESSING WASTEWATER MANAGEMENT SYSTEMS

Strategy Summary

This strategy will reduce the amount of pollutants entering groundwater by enforcing existing standards. On-site inspection programs would be implemented to identify and eliminate all cesspits and ensure that On-Site Disposal Systems (OSDSs) and package plants are in compliance with existing standards. Penalties would be imposed for non-complying systems. Cesspits are illegal and provide no sewage treatment. OSDSs provide adequate sanitary treatment and limited nutrient reduction; however, there is no routine inspection and enforcement program to ensure that these systems are operating properly. Package plants provide secondary treatment and are inspected routinely (although not frequently). The elimination of cesspits and replacement with approved OSDSs would reduce nutrient loading to groundwater and eliminate health hazards from untreated sewage. Aggressive inspection/enforcement programs for OSDSs and package plants could be expected to further reduce nutrient loadings to groundwater. In addition, this strategy would involve research to estimate the level of reduction in wastewater nutrient loading necessary to restore and maintain water quality and Sanctuary resources. Based on these nutrient reduction targets and the results of the wastewater demonstration projects (strategies W.1 and W.2), a Sanitary Wastewater Master Plan would be developed that would evaluate options for further treatment (e.g., construction of community wastewater plants, upgrading package plants to Advanced Wastewater Treatment (AWT), or the use of alternate, nutrient-removing OSDSs. The Sanitary Wastewater Master Plan would also specify details of costs, schedules, service areas, etc. for implementation.

Activities (4)

(1) Establish Inspection and Compliance Programs for Cesspits, OSTDS, and Package Plants. This activity seeks to establish on-site inspection programs to identify all cesspits and ensure that OSTDS and package plants comply with existing standards. Inspection and enforcement programs for OSTDS and package plants would ensure that these systems operate properly and reduce nutrient loading to groundwater. DEP has an on-going inspection and compliance program for package

plants. Cesspits identified would eventually be replaced with an approved OSTDS or a connection to a community wastewater-treatment plant, as recommended by the *Monroe County Sanitary Wastewater Master Plan* (described in Activity 3). Because development and implementation of the *Sanitary Wastewater Master Plan* was a long-term process, Monroe County developed an interim policy to address non-compliant wastewater-treatment systems. This activity includes a public education and outreach component that informs the public of ways to assess and improve existing wastewater treatment systems.

Status: Initiated and on-going. The OSTDS inspection and compliance program has been initiated in compliance with the Governor's Executive Order 96-108, which requires elimination of all cesspits and issuance of an operating permit for each onsite disposal system in Monroe County. A 1997 county ordinance specifies timeframes and procedures for implementing the cesspit replacement. The county ordinance served as an interim response to address non-compliant onsite wastewater systems until the June 2000 *Sanitary Wastewater Master Plan* recommended a change to central collection and treatment systems for large or multiple islands. Onsite systems or small clustered systems were recommended for less-dense areas. As a result, the focus of the cesspit identification and elimination program shifted to only the areas identified for onsite wastewater systems. Grant money is available to assist qualified property owners in replacing onsite systems. In addition, \$4 million in congressional appropriations through EPA is available to initiate an onsite wastewater utility demonstration project. A grant was made to Florida Keys Aqueduct Authority (FKAA), which administers this project.

Implementation: DEP and FDOH are the responsible agencies. Other primary agencies involved are the EPA, Monroe County, and local municipalities.

(2) Evaluate Development of Nutrient-Reduction Targets. The goal of this activity was to identify and evaluate strategies for developing nutrient reduction targets for wastewater and stormwater in the Sanctuary. The information helped the EPA and the State of Florida to determine if nutrient reduction targets should be developed and if so, how development should proceed.¹²

Status: Completed. Further review may be required based upon State of Florida requirements.

Implementation: A 1995 workshop concluded that the best short-term approach to reduce nutrient loading from wastewater is a technology-based approach, rather than establishment of nutrient-reduction targets. It was generally agreed that nutrient sources for canals and nearshore waters are known and that these problems can and should be addressed quickly with best-available technology. Workshop participants generally agreed that over the long-term it may be appropriate to develop resource-based, nutrient-reduction targets. The Water Quality Protection Program Steering

¹² In 1999, the Florida Legislature adopted treatment and disposal standards for the Florida Keys. New and existing or expanding facilities with design capacities of 100,000 gallons per day or greater, must meet AWT standards (5 mg/l CBOD, 5 mg/l TSS, 3 mg/l TN, 1 mg/l TP). New and expanding facilities with design capacities of less than 100,000 gpd must achieve 10 mg/l CBOD, 10 mg/l TSS, 10 mg/l TN, and 1 mg/l TP no later than 2010. Additionally, design specifications were adopted into legislation for Class V injection wells. Facilities with a capacity of greater than 1,000,000 gpd are required to case disposal wells to a minimum depth of 2,000 feet. Facilities with a capacity of less than 1,000,000 gpd are required to case disposal wells to 60 feet. Surface water discharges are prohibited.

Committee (WQSC) approved these recommendations in May 1996. The EPA and FDOH led this activity.

(3) Implement a Master Plan. Completion of this activity would result in the implementation of the preferred wastewater-treatment option specified in the *Sanitary Wastewater Master Plan*. The plan recommends that regional wastewater treatment plants be built in Key Largo, Islamorada, Marathon, Big Pine Key, Cudjoe Key, Big Coppitt, and Stock Island. This would provide a high level of treatment for approximately 95 percent of the wastewater flows outside Key West. In addition, the plan recommends that 17 existing package plants be upgraded and expanded to serve local areas.

Status: The City of Key West upgraded its treatment facility to meet AWT standards and retrofitted collection systems to significantly reduce infiltration and inflow. In addition, the City retired the ocean outfall and disposes of treated wastewater to a deep well (approximately 3,000 feet). The ocean outfall is retained for emergency use. The City of Key Colony Beach upgraded its treatment facility to meet AWT standards. Key Colony Beach is also addressing infiltration problems. The City of Islamorada began the selection process for treatment facilities for each of its four islands and a Technical Review Committee has made recommendations to its City Council. The committee reviewed the selected treatment and disposal methods and found them consistent with recommendations in the *Monroe County Wastewater Master Plan*.

Key Largo Wastewater Treatment District was formed with the election of inaugural commissioners in November 2002. The District's mission includes the introduction of advanced wastewater treatment and disposal infrastructure to serve all residents and commercial operations on the unincorporated island of Key Largo by 2010. In 2003, contracts to design and build a 0.183 million gallon per day wastewater treatment plant and to install collection systems in Key Largo Trailer Village and Key Largo Park were awarded. Those two communities were identified as hotspots in the Monroe County Wastewater Master Plan. In 2005, the District's activities focused on administration of the engineering design of these projects. The District expects to complete construction of these initial projects and begin the operation of the treatment plant by mid 2006. The District is also planning to construct a main collection line for the northern half of the island, install collection systems in additional communities along the new main, and expand the treatment plant to accommodate the increased flow that these new projects will generate. Engineering design of the new projects was initiated in April 2005.

Implementation: The primary agencies are Monroe County, Key Largo Wastewater Treatment District, and FKAA within the unincorporated areas of the County. Other primary agencies involved are EPA, DEP, FDCA, the municipalities, and FDOH. The City of Islamorada has taken primary responsibility for its wastewater improvements and is progressing along lines similar to those recommended in the Monroe County plan. The City of Marathon has adopted the FKAA as its wastewater authority. The FKAA has completed construction of the Little Venice (Marathon) facility, which was dedicated in June 2004, and is preparing a request for proposals for sewage collection and treatment system for greater Marathon. The FKAA is also in the early planning phases for wastewater improvements at Conch Key, Hawks Cay and Bay Point Subdivision on Saddlebunch Key.

Strategy Summary

This strategy will reduce the impacts of pollution on Sanctuary resources by determining water quality conditions to ensure resource protection. The intent is to implement water quality standards as guidance in determining permitted discharge limitations. Outstanding Florida Water (OFW) standards will be used until research indicates that new, more-stringent regulations are necessary.

Activities (2)

(1) Develop and Evaluate Indicators. This activity will identify and evaluate indicators (biochemical and ecological measures to provide early warning of widespread ecological problems) in each type of ecosystem. Examples are tissue C:N:P ratios, alkaline phosphatase activity, and shifts in community structure by habitat. These measures could be incorporated into the Sanctuary's Water Quality Monitoring Program and provide the basis for resource-oriented water-quality standards.

Status: The DEP has initiated a process to develop appropriate bioassessment methods and criteria for various water body types. Field tests and data analysis have been initiated in streams, lakes, and wetlands throughout the state. At present, there are no plans to incorporate biocriteria in Water Quality Standards for marine waters. Florida, in response to draft numeric nutrient criteria published by EPA, is initiating efforts to develop new water quality standards for nutrients. This strategy is also included in the Research and Monitoring Action Plan.

Implementation: The EPA and DEP are the responsible agencies through the Sanctuary Management Plan's Research/Special Studies Program. NOAA and NMFS may have a research role. FKNMS research staff will monitor any developments in this area.

(2) Develop Water Quality Standards. This activity will develop water quality standards, including nitrogen and phosphorus standards and biocriteria, appropriate to Sanctuary resources. The intent is to implement water quality standards as guidance in determining permitted discharge limits. Outstanding Florida Waters (OFW) standards will be used until research indicates that new, more stringent regulations are necessary.

Status: The existing water quality standards for marine waters are published in Rule 62-302.530 of the Florida Administrative Code (FAC). Chapter 62-302 FAC. also designates the Keys' ambient waters as OFWs, subject to special protection. The intent of the designation is to maintain existing ambient water quality and provide authority to regulate activities that may cause pollution of those waters. Existing water-quality standards already prohibit discharges that may cause biological imbalance in the receiving waters. There are no current plans to develop new water quality standards for nutrients specific to waters of the Keys however on-going research or emergent information may require action in this area.

Implementation: The lead agency for any revisions to the state's water quality standards will be DEP, which would initiate formal rule-making procedures. Once enacted, the new standards would be implemented at the time new permits are issued or existing permits reissued. Other primary agencies will be EPA and FDOH.

Strategy Summary

This strategy will help to evaluate environmental impacts of point-source discharges by requiring all National Pollutant Discharge Elimination System (NPDES)-permitted surface dischargers to develop resource monitoring programs. This could be accomplished in one of two ways: 1) EPA could eliminate the baseline exemption for resource monitoring under the Ocean Discharge Program as it applies to the Keys. All surface dischargers, except the City of Key West sewage treatment plant, are currently exempted from developing resource monitoring programs because the end of their discharge pipe does not extend beyond the baseline (the mean low-tide line); or 2) DEP, through the State of Florida's permitting authority, could require resource monitoring when individual NPDES permits come up for renewal. This approach would probably be easier because it can be accomplished under existing rules, whereas eliminating EPA's baseline exemption would require a federal rule change.

Activity

(1) Require Resource Monitoring. This activity seeks to evaluate environmental impacts of discharges by requiring all NPDES-permitted surface dischargers to develop monitoring programs.

Status: On-going. Monitoring of the City Electric cooling-water outfall on Stock Island continues. In October 2001, Key West began using a deep well for disposal of wastewater effluent, retaining the ocean outfall for emergency use only. This change eliminated the other major surface water point discharge in the region. It is not anticipated that any new surface water discharges will be permitted in the future.

Implementation: EPA and DEP are the responsible agencies.

Stormwater Strategies

Since the 1996 management plan, two of the strategies developed to reduce pollution from stormwater runoff in the Keys have been completed. Strategies W.12 and W.13 worked together to require enactment of stormwater management ordinances and master plans that would cover the entire Keys. These plans are now being implemented through strategy W.11 that involves engineering modifications at hot spots to control pollutants in stormwater runoff. Another strategy, W.14, involves the development and implementation of widely used Best Management Practices and public education to reduce pollutants entering stormwater runoff.

STRATEGY W.11 STORMWATER RETROFITTING

Strategy Summary

This strategy will reduce loadings of sediment, toxics, and nutrients to Sanctuary waters through engineering methods applied to stormwater hot spots (e.g., commercial and industrial facilities) and limited sections of U.S. 1.

Activity

(1) Retrofit Hot Spots and Portions of U.S. 1. This activity involves using grass parking, swales, pollution-control structures, and detention/retention facilities to control pollutants in stormwater runoff. Swales and detention facilities are being installed along portions of U.S. 1. Engineering actions are underway to control stormwater runoff in areas handling toxic and hazardous materials.

Status: Implemented and on-going. This activity has a high priority in Monroe County's and Islamorada's Stormwater Management Master Plans and implementation began in 2002. It is estimated that it will take approximately five years to completely retrofit hot spots. The City of Key Colony Beach is addressing stormwater runoff by creating swales and retention basins. The City of Key West has an inadequate stormwater-management system with many outfalls discharging untreated stormwater. The City has begun construction of new stormwater control and treatment structures.

Implementation: Monroe County is the responsible agency for stormwater retrofitting. Other primary agencies involved are the DEP, Florida Department of Transportation (FDOT), and SFWMD.

STRATEGY W.14 INSTITUTING BEST MANAGEMENT PRACTICES

Strategy Summary

This strategy will reduce pollution by instituting a series of "Best Management Practices" and a public education program to prevent pollutants from entering stormwater runoff.

Activity

(1) Develop and Implement Best Management Practices and a Public Education Program. This activity seeks to reduce pollution from stormwater runoff through a variety of programs, including

street sweeping; ordinances to control fertilizer application on landscaping; collection locations and public education regarding the proper use and disposal of fertilizers, pesticides, motor oil, and other hazardous chemicals; and strenuous litter-control programs.

Status: On-going. DEP provides public information on proper disposal of oil and is currently preparing information on proper disposal of boater wastes. DEP has several stormwater public education materials available on its Web site. Local governments have provided some information on best management practices for residential stormwater. Local ordinances require use of best management practices for stormwater on residential construction projects.

Implementation: The responsible agencies are local governments. Other primary agencies are the DEP, FDCA, SFWMD and FDACS. Educational aspects are coordinated with the Sanctuary's educational staff.

Marina and Live-Aboard Strategies

These five strategies and activities aim to reduce pollution from marinas and live-aboard boaters. Strategy B.7 seeks to reduce pollution by restricting discharges and educating the public. Strategy Z.5, found in the Marine Zoning Action Plan, concentrates live-aboards in areas where wastewater-treatment facilities can be provided. Strategy L.1 (expanded to include previous strategy L.6) increases the availability of pump-out facilities. Strategy L.3 will reduce pollution from marina operations. Finally, strategy E.4, included in the Education and Outreach Action Plan, will reduce pollution from boaters and marinas in general by expanding an existing education and environmental-awareness program.

STRATEGY B.7 REDUCING POLLUTION DISCHARGES

Strategy Summary

This summary aims to strengthen implementation and enforcement of existing regulations to reduce pollution discharges and the impact of discharges on the marine environment.

Activities (3)

(1) Implement the 1994 Florida Clean Vessel Act. The Florida Clean Vessel Act prohibits boaters from discharging raw sewage into state waters, effective October 1, 1994. In addition, all vessels 26 feet or more in length with an enclosed cabin and berthing facilities are required to have a toilet on board. Houseboats and floating structures must, by October 1, 1996, have permanently installed toilets attached to Type III marine sanitation devices (a holding tank), or directly connect their toilets to shore-side plumbing. Full implementation and enforcement of the Clean Vessel Act is expected to reduce sewage in Sanctuary waters.

Status: On-going.

Implementation: The FWC enforces the Clean Vessel Act. FKNMS works with EPA and the state to phase in implementation in federal waters after public review of the draft rules and public hearings, prior to issuance of final regulations. Sanctuary regulations prohibit discharge from all marine sanitation discharges in the Ecological Reserves and SPAs.

(2) Enforce No-discharge Zones. At the request of the City of Key West, EPA was asked to designate no-discharge zones in accordance with provisions of marine-sanitation devices where live-aboard vessels congregate, and where there is a history of water-quality violations. In 2000, EPA designated all waters within the city's 600-foot jurisdiction as a no-discharge zone. The Steering Committee passed a resolution recommending that Monroe County pursue designation of a no-discharge zone for state waters in the Keys. In turn, the Monroe County Board of County Commissioners passed a resolution requesting that the Governor petition EPA to declare all state waters in the Sanctuary as a no-discharge zone. EPA published the proposed rule in the Federal Register and the comment period expired on October 26, 2001. EPA responded to all public comments and announced a final determination in the Federal Register, effective June 19, 2002.

Status: On-going.

Implementation: The EPA is the responsible agency. Enforcement procedures and responsibilities are being coordinated through an interagency management committee. DEP and Monroe County have assisting roles.

(3) Develop and Implement a Public Education Program. This activity would create a program to educate the boating public about ways to reduce pollution from vessels. The program would include providing information about the Clean Vessel Act and other regulations affecting discharges from vessels. This activity is also included in the Education and Outreach Action Plan.

Status: FKNMS has worked with the City of Key West and Reef Relief to develop and implement a "Pump it, Don't Dump it!" boater-education program. Marina and pump-out locations have been incorporated in *The Upper Keys Boater Guide*, published by Florida Fish and Wildlife Research Institute and Monroe County. This information and a detailed fact sheet are posted on Monroe County's Web site. An intergovernmental task force will prepare an implementation plan for the designation of all state waters within the Sanctuary as a no-discharge zone. The plan includes a public education and outreach component. An interagency committee has developed a management plan for the Keys-wide no-discharge zone.

Implementation: FWC is the lead agency, with assistance from EPA and NOAA.

STRATEGY L.1 ELIMINATION OF WASTEWATER DISCHARGE FROM VESSELS

Strategy Summary

This strategy will work to eliminate discharge of wastewater, whether treated or not, from all vessels into Sanctuary waters. Although sewage discharges from vessels may be a relatively minor contributor to the total pollutant load, vessels are normally moored or anchored in confined waters that may be more susceptible to the impacts of such loading. By requiring marinas to provide pump-out facilities, two problems will be resolved: 1) boats in marinas that do not currently pump out will be provided the means to do so; and 2) boats that moor outside of marinas can take advantage of the increased number and availability of pump-out facilities.

Activities (5)

(1) Develop a Plan to Eliminate Vessel Sewage Discharge. This activity has resulted in the development of a comprehensive plan to address problems associated with sewage discharges from live-aboards and other vessels. The plan includes elements such as requiring all marinas to install pump-out facilities; enforcing pump-out use; establishing mobile pump-out services; establishing mooring fields; and evaluating the treatment and disposal of pumped out wastewater.

Status: EPA published in the Federal Register the intent to declare all state waters in the Sanctuary as a no-discharge zone. The deadline for public comments expired on October 26, 2001. EPA responded to the public comments and published them and its decision in the Federal Register, effective June 19, 2002. An interagency task force developed an implementation plan that will recommend the number of pump-out facilities to adequately serve the boating public. Additional financial assistance for marinas currently without pump-

out facilities is being pursued. The implementation plan also includes education and enforcement components.

Implementation: EPA has designated all state waters in the Sanctuary as a no-discharge zone. Implementation is by Monroe County and the municipalities. The DEP and FDCA have a primary role. The EPA, USCG and NOAA continue to assist.

(2) Require Marinas to Install Pump-out Facilities. This activity seeks to require all marinas (10 or more slips, as defined by the state) to provide pump-out services, greatly increasing their number and accessibility.

Status: In progress. Monroe County and several municipalities have prepared ordinances; adoptions are anticipated throughout 2002.

Implementation: This activity is implemented by local ordinances requiring marinas offering overnight docking to boats over a given length to have stationary or mobile equipment to pump holding tanks. Monroe County has actively sought funding and plans to coordinate with marinas to facilitate compliance.

(3) Establish Mobile Pump-out Services. Establish mobile pump-out services through local governments or franchises with private contractors to pump out live-aboard vessels and other anchored or moored vessels located outside of marinas.

Status: On-going. Key West's Garrison Bight Marina provides mobile pump-out facilities for vessels using the local mooring field. A mobile pump-out facility is also in place in Boot Key Harbor.

Implementation: Local governments are responsible to assure that pump-out facilities are available for vessels located outside of marinas.

(4) Establish Mooring Field. Establish mooring fields at congested anchorages throughout the Keys as a means of managing transient and live-aboard boaters and ensuring compliance with sewage disposal regulations.

Status: On-going. Monroe County is increasing the number of moorings at existing mooring fields as well as planning for the implementation of moorings at least three other locations in the Keys. Studies are being conducted to look at the feasibility of installing moorings at Blackwater Sound, Community Harbor and Pine Channel.

Implementation: The Monroe County GMD will be responsible for the planning, permitting, funding, and implementation of additional mooring fields. The County will likely partner with privately owned marinas to manage the mooring fields.

(5) Enforce Pump-out Use. This activity seeks to enforce use of pump-out facilities. Coordinated enforcement procedures are being developed as part of the implementation plan. Historically, pump-out usage had been low, in part because there was no law requiring it. Also, more pump-out facilities are needed in areas identified in the implementation plan. One enforcement tool considered is the issuance of a sticker for boats anchored in or passing through the Sanctuary. Each time a vessel's holding tanks are pumped, the sticker could be date stamped. If the vessel does not have its tanks pumped within a given length of time based on its size and occupancy, a citation would be issued.

Status: An interagency committee is developing an enforcement strategy for the no-discharge zone. Coordination is expected to be formalized through memoranda of understanding and inter-local agreements.

Implementation: FWC, USCG, Monroe County Sheriff's Department, and local governments to coordinate enforcement.

STRATEGY L.3 REDUCING POLLUTION FROM MARINA OPERATIONS

Strategy Summary

This strategy aims to reduce pollution from marina operations by establishing appropriate infrastructure and information resources.

Activities (2)

(1) Prevent Discharge of Pollutants from Marinas. This activity would establish paved and curbed containment areas for boat-maintenance activities, such as hull scraping and repainting, mechanical repairs, fueling, and lubrication. It would create secondary containment, generally in the form of curbing or synthetic liners, for areas where significant quantities of hazardous or toxic materials are stored. Procedures to avoid or reduce fuel spillage during refueling operations would be evaluated.

Status: The voluntary Florida Clean Marina Program is being implemented and periodic workshops encourage non-participating marinas to join. DEP has been conducting compliance inspections and audits of marinas and boat yards. Inspections target marinas that are the subject of complaints or which have large, full-service marinas. Marinas are encouraged to limit boat-maintenance areas. Waste containment is required. DEP has suggested that EPA provide an overview of the NPDES permitting requirements and a list of marinas that have applied for or received permits.

Implementation: The responsible agency is the DEP. Local governments (Monroe County and the municipalities) may have an assisting role. The NPDES stormwater discharge rule is the mechanism to implement this activity. In 1990, the EPA enacted rules to control stormwater discharges from a variety of uses, known as the NPDES Permit Application Regulations for Stormwater Discharges. The rules require applicants to describe plans to eliminate pollutants generated by marina activities. Applicants must identify the Best Management Practices used. Marina owners are encouraged to participate in environmentally oriented organizations, such as the Marine Industry Association and the Florida Clean Marina Program.

(2) Encourage Marina Owners to Provide a User Manual with Local Environmental Information.

The information could include locations of pump-out facilities and trash receptacles, as well as sensitive habitats.

Status: Implemented and on-going. Yearly discharge prevention and response certificate inspections are conducted at marinas with diesel-fuel operations. During inspections, marinas receive educational materials, information about approved clean-up methods, proper handling of used oils, and local hazardous-waste collection locations. DEP's draft Best Management Practices for marinas is also distributed. The Florida Clean Marina Program's

booklet, "Clean Boating Habits," is available to boaters through local marinas, Marine Industries Association, and Florida Sea Grant agents.

Implementation: The responsible agencies are Monroe County and municipalities working with DEP.

Landfill Strategy

This strategy addresses potential pollution problems due to leaching from landfills. All landfill sites in the Florida Keys, with the exception of the Cudjoe Key expansion, were developed prior to current regulations that require bottom liners and leachate collection. At many sites, filling with solid waste probably occurred below the water table in the early stages. Consistent with common practice at the time, there was probably little or no control over materials deposited in the landfills. These conditions result in a significant potential for ground- and surface-water contamination.

Although the potential exists for problems, monitoring data do not indicate leaching or water quality degradation due to landfills; therefore, no corrective actions are currently proposed. However, two investigative activities are proposed under strategy L.7, Sanitary Waste Disposal Problem Sites. These activities involve searching for and assessing abandoned landfills and dumps, and intensifying existing monitoring programs around landfills to ensure that no leaching into marine waters is occurring, and implementing remedial actions if problems are discovered.

STRATEGY L.7 ASSESSING SOLID WASTE DISPOSAL PROBLEM SITES

Strategy Summary

This strategy aims to address contamination of marine waters from landfills through assessment, monitoring, and, when required, remedial action.

Activities (3)

(1) Conduct a Historical Landfill Search and Assessment. Conduct a comprehensive search for abandoned landfills and dumps. Evaluate sites to determine if they contain hazardous materials or cause environmental problems. Knowledgeable state and local government personnel believe there are a number of abandoned landfills and dumps, many on private property, within the Florida Keys. A comprehensive program needs to be set up to locate, map, and evaluate these historic, casual dumps.

Status: Implemented and on-going. The locations of landfills have been identified; however, illegal dumping is a continuing problem, and DEP continues to identify abandoned, unlined, and unmonitored sites. Funds are lacking for cleanup and disposal of illegally dumped wastes. The U.S. Navy is assessing and conducting remedial action at former solid waste disposal sites on Navy properties.

Implementation: Monroe County, working with the DEP, is the responsible agency. The U.S. Navy has a primary role in dealing with landfills on its properties. The EPA has an assisting role.

(2) Intensify Landfill Monitoring. Intensify existing monitoring around landfills to ensure that no leaching is occurring into marine waters. Identify and monitor old landfills that were never permitted, and therefore have no closure plans or closure permits. This activity seeks to ensure that existing monitoring programs are adequate to detect leaching from landfills. Current data from landfills do not indicate a leaching problem; however, the number of monitored locations is small and

should be increased. In addition, this strategy seeks monitoring of older landfills that are not now monitored. Monroe County is currently complying with all state and federal monitoring guidelines.

Status: Fully implemented and on-going. All permitted landfills in Monroe County are closed. Landfills at Key Largo, Long Key, Cudjoe Key, and Stock Island have been properly closed with a top liner and a permit requirement includes quarterly monitoring.

Implementation: The responsible agency is DEP. The U.S. Navy has a primary role in dealing with landfills on its properties. EPA has an assisting role.

(3) Evaluate and Implement Remedial Actions. If problems are discovered, evaluate and implement appropriate remedial action, such as boring or mining, upgrading, closure, collecting and treating leachate, constructing slurry walls, or hauling.

Status: On-going. To date, no need for remedial action has been determined.

Implementation: The responsible agency is Monroe County, working with DEP. The U.S. Navy has a primary role for landfills on its properties. EPA has an assisting role.

Hazardous Materials Strategies

These strategies and activities aim to reduce the likelihood of pollution from spills of hazardous materials in and near the Keys. The current management strategy appears to be functioning adequately; however, some actions could be taken to further reduce the potential for accidental spills. These management strategies would enhance HAZMAT response (W.15), improve spill reporting (W.16), and develop an inventory of hazardous materials handling and use in the Keys (L.10).

STRATEGY W.15 HAZMAT RESPONSE

Strategy Summary

This strategy seeks to reduce the chances that a spill of oil or other hazardous materials will have a significant negative impact on Sanctuary resources. This will be accomplished by improving coordination and cooperation among the federal, state, and local agencies responding to spills; by encouraging improvements in response and containment technologies appropriate to the Keys and by creating a spill contingency plan for the Sanctuary that includes crew and equipment staged in the Keys. The strategy recognizes that hazardous materials spills are handled independently of marine spills and improvement measures will be developed for both response programs.

Activities (3)

(1) Develop and Periodically Revise Sanctuary Spill Contingency Plan. This activity would involve creating and periodically revising the spill contingency plan for the Sanctuary that includes crew and equipment staged in the Keys (possibly including skimmers). The plan should cover spills of a size not responded to by the USCG and should include training and education of a local response team. The USCG Marine Safety Office in Miami will coordinate marine HAZMAT response. Because spills of hazardous materials are handled independent of marine spills, improvement measures will be developed for both response programs.

Status: On-going. DEP has personnel on-call 24 hours a day for initial response to environmental emergencies. Oil spill equipment is available at the Port of Key West. The USCG has a Marine Safety Office located in Marathon. The USCG has the responsibility to develop a HAZMAT protocol and has officially adopted the National Interagency Incident Command System as its response management system when responding to oil and hazardous substance spills. That system unifies the efforts of industry, and federal, state, and local government agencies and the entity responsible for the pollution incident. The USCG has designated response regions. The Sanctuary is part of the South Florida Oil Spill Contingency Plan Area Committee. An "Area Contingency Plan" includes area contacts.

Implementation: USCG and DEP are responsible. NOAA, Monroe County and FDCA assist.

(2) Improve Coordination and Cooperation. This activity seeks to improve coordination and cooperation between federal, state, and local agencies responding to spills.

Status: Initiated and on-going. The National Preparedness for Response Exercise Program (PREP) was developed in conjunction with the Oil Pollution Act of 1990 to provide a workable

exercise program. PREP is a unified federal effort and satisfies the exercise requirements of USCP, EPA, Research and Special Programs Administration, Office of Pipeline Safety, and the Minerals Management Service. PREP exercises are an opportunity to improve the response plan and response system. Participation in PREP exercises allows agencies to work together and facilitates response in the event of a pollution incident. The Florida Coastal Management Program has hosted a series of Florida Summits, attended by DEP Bureau of Emergency Response, NOAA, USCG, and FWRI staff. In addition, regional coordination is conducted at contingency plan meetings, regularly held by USCG in Miami.

Implementation: The responsible agencies are USCG, DEP, NOAA, Monroe County, and the FDCA assist.

(3) Improve Response/Containment Technologies. This activity encourages improvements in response and containment technologies appropriate to the Keys.

Status: Initiated and on-going. FWRI has compiled an environmental sensitivity atlas and developed a computerized spill-analysis system. The USCG's Area Contingency Plan is updated annually. Sanctuary personnel participate as observers in the National Preparedness for Response Program field exercises. NOAA conducts training workshops in Key West and Key Largo on spill response.

Implementation: USCG and DEP are the responsible agencies. NOAA, FWRI, Monroe County, and FDCA assist.

STRATEGY W.16 SPILL REPORTING

Strategy Summary

This strategy will ensure that Sanctuary managers are informed of all spills (e.g., of petroleum products) in and near the Sanctuary.

Activities (2)

(1) Establish a spill-reporting system. This activity establishes a reporting system to ensure that all spills documented by various agencies are reported to Sanctuary managers. In particular, small spills occur frequently, are under-reported, and may have a significant cumulative effect on water quality.

Status: Implemented and on-going. A reporting system is in place. Education is required to increase awareness of the reporting program.

Implementation: The responsible agency is the USCG. Other primary agencies involved are NOAA and DEP. DEP assists in reporting land-based spills that might affect FKNMS waters. The National Response Center is notified of all spills.

(2) Establish and Maintain a Sanctuary Spills Database. This activity establishes and maintains a geo-referenced database for the Sanctuary to track spill information (locations, quantities, types of material, environmental impacts).

Status: Implemented and on-going. DEP has established and maintains a database that includes marine and upland spills and coastal emergency response incidents. It is DEP's

responsibility, in conjunction with USCG, to initially determine the severity of a coastal discharge or pollution incident within its jurisdiction. The Bureau of Emergency Response maintains a spill database, seeks reimbursement for expenses, and assesses natural resource damage. Education is required to increase reporting of all spills.

Implementation: USCG is the responsible agency with assistance from DEP and NOAA.

STRATEGY L.10 HAZMAT HANDLING

Strategy Summary

This strategy supports the importance of inventorying and assessing the handling of hazardous materials in the Florida Keys. Such oversight is a preventative measure increasing protection of the marine environment from potential spills or mishandling.

Activity

(1) Conduct a HAZMAT Assessment/Inventory. This activity involves conducting an assessment and inventory of hazardous materials handling and use in the region, including facilities, types and quantities of materials, and transportation. Information is added to GIS databases.

Status: Monroe County Emergency Management Authority has a *Hazardous Materials Plan* that is revised annually. The plan includes a list of facilities with reportable quantities of hazardous materials. DEP regulates hazardous wastes, but not materials.

Implementation: The responsible agency is DEP. Other primary agencies involved are DEP, Monroe County Emergency Management Authority, and Monroe County Health Department, which maintains a database on hazardous materials. FDCA has an assisting role.

Mosquito Spraying Strategy

This strategy seeks to reduce pollution from pesticides used in mosquito control. Currently, there is little information on environmental concentrations and effects of pesticides in the Sanctuary. Additional data concerning pesticide concentrations in sediments and biological tissues throughout the Sanctuary will be collected through the Water Quality Research Program. Strategies for major changes to the Mosquito Control Program are not appropriate at this time. Additional data from the Water Quality Research and Monitoring Program will help to determine if major changes are warranted.

STRATEGY W.17 REFINING THE MOSQUITO SPRAYING PROGRAM

Strategy Summary

This strategy seeks to reduce the amount of pesticides entering Sanctuary waters by refining the existing aerial spraying program. Ground spraying by truck is the current method of choice for controlling the adult mosquito population. However, aerial spraying is initiated when the mosquito population reaches a certain threshold, as determined by mosquito landing counts at test sites. Although the Monroe County Mosquito Control District attempts to avoid marine areas during aerial spraying, the potential for pesticides to reach marine waters could be further reduced.

Activities (2)

(1) Review the Aerial Spraying Threshold. The threshold for initiating aerial spraying will be reviewed to determine whether it can be raised.

Status: No action has been taken on this activity at this time. EPA funded a special study in 1997 to assess potential impacts of mosquito spray chemicals and their breakdown products. Although the study was not conclusive, it did determine that sprayed chemicals reach surface waters in concentrations that are of concern. The study raises continuing concerns about the impacts of the chemicals on non-target organisms. More research is required.

Implementation: The responsible agency will be the Florida Department of Agriculture and Consumer Services (FDACS) and FDCA will have an assisting role.

(2) Review Flight Plans and Equipment. The aerial spraying program should be reviewed to determine whether refining flight lines, alternative spray technologies, or the use of improved equipment could reduce the amount of pesticide released over water.

Status: Ultra low-volume aerial spray has been adopted. Use of ultra low-volume spray has significantly reduced the volume of pesticide applied and has eliminated the use of fogging oil contamination. However, the area being sprayed is now harder to define because the spray is not visible. The drift of finer particles released in ultra low-volume spray needs further definition. No other actions have been taken on this activity at this time.

Implementation: FDACS is the responsible agency. FDCA has an assisting role.

Canal Strategy

This canal strategy strives to reduce water-quality problems in canals. Although many water quality problems are linked to wastewater discharges from cesspits and septic tanks of homes along canals and stormwater discharges, others may be due to a canal's structure and orientation. These physical factors can lead to low flushing and the buildup of weed wrack, which consumes oxygen and releases nutrients as it decays. The strategy described here would inventory and characterize canals and investigate technologies to determine whether it would be worthwhile to implement corrective actions, such as weed gates and aeration systems, to improve water quality. Any plan for implementing such improvements in canal circulation and flushing would have to be developed in coordination with plans for dealing with stormwater and wastewater pollution from cesspits and septic tanks, which contribute to water quality problems in many canal systems. The goal is to reduce nutrient loading to other surface waters from canal systems.

STRATEGY W.10 ADDRESSING CANAL WATER QUALITY

Strategy Summary

This strategy will improve water quality in nearshore, confined areas, with emphasis on dead-end canals and basins where reduced circulation increases the risk of reduced dissolved oxygen, retention of both dissolved and particulate pollutants, and potential impacts on benthic and pelagic environments. A comprehensive management plan will be developed for improving water quality in nearshore confined basins and canals. Improvement strategies will be implemented in all canals and basins identified as hot spots throughout the Sanctuary.

Activities (7)

(1) Evaluate and Revise Hot Spot List. A priority list of areas of degraded water is required to effectively focus needs for remedial action and efficiently utilize available resources.

Status: Initial list development was completed. Period review and revisions to the list are ongoing. A hot spot list was developed as part of Phase I of the Water Quality Protection Program. That list was revised by the SFWMD as a result of a workshop held in early 1996. The SFWMD list includes recommended actions to improve water quality at priority hot spots. The list has been updated for the Monroe County Sanitary Wastewater Master Plan and Stormwater Master Plan.

Implementation: The responsible agency is South Florida Water Management District. Other agencies with primary roles are EPA, DEP, Monroe County, and the City of Key West.

(2) Inventory and Characterize Canals. An inventory of dead-end canals and other confined water bodies will be conducted to identify areas where reduced circulation increases the risk of depressed dissolved oxygen, retention of both dissolved and particulate pollutants and potential impacts on benthic and pelagic environments. Canals with water quality problems attributable mainly to their physical structure, flushing rates, and orientation (e.g., allowing weed wrack buildup), would be targeted for improvements.

Status: On-going. In 2001, a contract was granted to inventory canals in the Keys and prioritize potential canal improvement projects. The inventory is expected by Fall 2002.

Implementation: The responsible agency is Monroe County and FDCA. Other agencies with primary roles are EPA, DEP, and the municipalities.

(3) Develop and Evaluate Improvement Strategies. A comprehensive management plan will be developed for improving water quality in nearshore confined basins and canals. Potential methods of improving water quality (e.g., aeration, weed gates, and air curtains) will be tested in limited areas to determine whether widespread application is appropriate.

Status: On-going. In 2001, a contract was granted to conduct an inventory of canals in the Keys and prioritize potential canal-improvement projects. This project is underway.

Implementation: The responsible agencies will be Monroe County and FDCA. Other agencies with primary roles will be EPA, DEP, and the municipalities.

(4) Identify and Compile Technologies. This activity seeks to identify and compile a list of technologies for improving water quality in canals.

Status: On-going. In 2001, a contract was granted to conduct an inventory of canals in the Keys and prioritize potential canal improvement projects. This project is underway.

Implementation: The responsible agency is Monroe County and FDCA. Other agencies with primary roles are EPA, DEP and the municipalities.

(5) Develop Community Education and Involvement Program. This activity involves developing a community education program, including citizen monitoring.

Status: A volunteer citizen monitoring program (Florida Bay Watch) was established by The Nature Conservancy, which published quarterly and annual reports on the weekly analyses of canal and nearshore water quality provided by Florida International University. Florida Bay Watch was terminated in 2002. Florida Keys Watch was initiated in 2002 and provides information on bacteria and virus concentrations in canals. This activity is also included in the Education and Outreach action plan.

Implementation: The responsible agency is DEP and EPA. Other agencies with primary roles are Monroe County and the municipalities.

(6) Conduct Canal System Restoration Pilot Project.

Status: On-going. Residential canals at Sunset Acres (Key Largo) have been opened to tidal flushing. Permits for opening the canals included shallowing, implementing a stormwater collection system, eliminating onsite sewage treatment systems, and monitoring. Pre- and post-project monitoring have been performed. In May 2001, a multi-year monitoring project was initiated in canals and nearshore waters of Little Venice (Marathon). Water-quality data was collected weekly from ten stations for approximately two years before completion of the central wastewater collection and treatment systems. Monitoring will continue for approximately two years after all homes and businesses are connected. This project is expected to demonstrate changes to water quality in canals and nearshore waters with improved sewage treatment practices.

Implementation: The responsible agency is Monroe County and FDCA. Other agencies with primary roles are EPA, DEP and the municipalities.

(7) Implement Improvement Strategies. Effective improvement strategies identified through previous activities will be implemented in all canals and basins identified as hot spots.

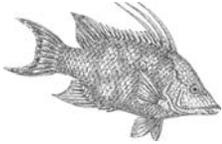
Status: On-going. Physical improvements have been made at two canal systems (Cudjoe Gardens and Jolly Roger Estates) by local homeowner associations. Both projects include monitoring before and after improvements. The on-going canal inventory study cited above will develop a prioritized list of canal improvement projects and cost estimates.

Implementation: The responsible agency is Monroe County and FDCA. Other agencies with primary roles are EPA, DEP, and the municipalities.

PREVIOUS STRATEGIES

The following strategies from the 1996 management plan are not included in this action plan because they have been completed and do not require further action:

- W.1 OSTDS Demonstration Project
- W.2 WT Demonstration Project
- W.4 Evaluating Wastewater Disposal, City of Key West
- W.8 OSTDS Permitting
- W.12 Stormwater Permitting
- W.13 Stormwater Management
- L.2 Assessing Marina Siting and Design



3.5 ADMINISTRATION, COMMUNITY RELATIONS AND POLICY COORDINATION

This management division includes two action plans: the Operations Action Plan and the Evaluation Action Plan. Effective Sanctuary management requires an administrative infrastructure and an operations program that supports the various management programs. The action plans in this management division describe the Sanctuary administrative and operations approaches to management and provide a mechanism to evaluate the effectiveness of Sanctuary management.

While often overlooked in the development of a management plan, this management division is an essential element to the overall management of the Sanctuary. This section describes the necessary administrative needs and operational requirements to support effective marine protected area management.

3.5.1 Operations Action Plan

Introduction

This action plan is different from the others in that it is divided into four sub-sections: 1) Sanctuary Administration; 2) Community Relations; 3) Policy Development; and 4) The Sanctuary Advisory Council. Each of these sub-sections represents a primary function of FKNMS operations and contains the following information:

- A description of the function
- Accomplishments since inception of the 1996 management plan
- Strategies and activities.

Goals and Objectives

The goals of the Operation Action Plan are to:

- Provide highly effective, day-to-day administrative functions
- Establish effective community outreach
- Develop and implement policy coordination.

To achieve these goals, the Sanctuary will work towards the following objectives:

- Ensuring cooperation among Sanctuary management and agencies with jurisdiction within or adjacent to the Sanctuary.
- Promoting informed decisions based on the best available research and analysis, taking into account the environmental, economic, and social impacts.
- Complementing coordination among appropriate authorities to enforce existing laws that fulfill Sanctuary goals.

Function 1: Sanctuary Administration

Summary

A professional administrative team that provides the services necessary to meet its trustee responsibilities carries out the Sanctuary's day-to-day operations. When the Sanctuary was designated and two existing sanctuaries (at Key Largo and Looe Key) were included into the broader boundary, their administrative functions had to be integrated. The Sanctuary is administered under a single administrative umbrella at headquarters, with two regional offices in Key Largo and Key West. There are several key components to Sanctuary administration, such as:

Human Resources

The staff is composed of federal and state employees, contractors, and volunteers, managed in accordance with policies established by the Federal Office of Management and Budget, Department of Commerce, NOAA, and the State of Florida. Elements of the human resources function include:

- *Recruitment and Retention* - Managers, on an on-going basis, evaluate position needs and possibilities for new recruitment. Managers follow federal and state policies and use open competition to attract the greatest number of qualified candidates and provide equal opportunity employment.
- *Training and Career Enhancement* - Training and development programs assist in achieving the Sanctuary's mission and performance objectives by improving employee and organizational performance. Employees, supervisors, management, NOAA's Workforce Management Office and the DEP Bureau of Personnel Services share responsibility for performance-based learning.
- *Employee Performance and Recognition* - A supervisor traditionally completes annual performance appraisals that are the basis for personnel action, including promotion and pay increases. Supervisors are encouraged to acknowledge outstanding accomplishments by staff via promotions, financial awards, and the Sanctuary's Team Member of the Year Award.
- *Discontinuation of Service* - Supervisors conduct exit interviews with employees who separate from service. The results are shared with Sanctuary management and recommendations from departing employees are considered when appropriate.
- *Time and Attendance* - Two staff members maintain official time and attendance records for federal and state staff. Employees who participate in projects relating to enforcement and damage assessment and restoration are required to maintain additional records for cost documentation purposes. These records are often used to obtain reimbursement through the legal system for vessel groundings.
- *Safety* - Occupant Emergency Plans, Continuity of Operations Plans and Hurricane Plans are prepared and updated annually for each Sanctuary site. Copies are distributed and posted. Program managers strive to recognize work-place hazards and improve working conditions to the greatest extent possible, with guidance from NOAA's Environmental Compliance and Safety Office. Federal and state labor laws and workman's compensation information are posted at all Sanctuary offices. FKNMS participates in annual safety week drills as well as annual first aid/CPR/AED staff training.

Financial Administration

The Sanctuary's financial administration includes annual financial planning for upcoming state and federal fiscal years, budget tracking, managing the financial portions of memoranda of agreement, and purchasing in accordance with federal and state policy and regulations. Elements of the financial administration function include:

- *Budget Planning and Tracking* - The Sanctuary management team is responsible for budget planning with the assistance of the Sanctuary's financial officer, including development of an Annual Operating Plan consistent with NMSP activities. National activities currently include education, research, marine zoning, enforcement, site characterization, GIS cultural resources, management plan review, system-wide monitoring, damage assessment and restoration, volunteer, outreach, water quality, Sanctuary Advisory Council, and core operations.

- *Alternative Sources of Funding* - Alternative fund sources include donations, civil penalty payments, and interagency fund transfers. Fundraising is also accomplished by nonprofit organizations, including Sanctuary Friends of the Florida Keys and the National Marine Sanctuary Foundation. Civil penalty funds, by law, generally can be used only for resource management and response costs and equipment. Additional funds come from parties responsible for repairing resource damage such as the National Fish and Wildlife Foundation, which administers fines related to ocean dumping.
- *Purchasing* - Administrators and managers adhere to numerous federal and state purchasing regulations stipulating required sources of supply, time frames, forms, approvals, and payment procedures. Some staff members have government purchase cards; the cardholder is accountable for using the card in accordance with government regulations. The financial officer is accountable for overseeing purchase orders, tracking expenses, alternative-fund accounting, issuing VISA checks, and overseeing purchase card use, among other responsibilities.

Information Technology

Information-technology support is provided through the sanctuary administrative office with regional office involvement. A computer-assessment team meets regularly to improve collaboration and communication and facilitate cooperation among field offices with the automated data processing and information technology staff at headquarters. The team assesses current hardware and software profiles for each office, oversees hardware and software purchases, assesses current and future needs, develops long-range plans, and evaluates requests for additions or upgrades.

In 1998, staff developed and implemented the Web site that is continuously updated. The local contact works with the NMSP Headquarters' webmaster assures that the site is relevant, timely, and useful. The webmaster responds to requests received through the site and logs comprehensive data about traffic, which is used to continually enhance and update this public service.

International Coordination

Over the last decade, coral reef health has become a global issue. Many of the issues addressed in this management plan are relevant to coral reef communities worldwide. International groups and foreign countries routinely contact the Sanctuary and the national program to discuss programs and conduct tours. The staff plans to develop a formal international program in the FKNMS coordinated with the NMSP international program.

Sanctuary Friends

Sanctuary Friends Foundation of the Florida Keys, Inc. is a nonprofit membership organization dedicated to raising awareness and building support for the programs, policies and goals of the Sanctuary. This organization, established in 2000, has a membership of nearly 100 individuals. A major membership campaign and a fundraising drive are upcoming.

Reporting

The Sanctuary staff generates reports as a necessary mechanism to share information with NOAA headquarters, the state, other agencies, stakeholders, and the public. The reports are available in hard copy and on the Sanctuary's web page. The Sanctuary management team provides weekly, monthly, and quarterly reports to fulfill various requirements established by NOAA and DEP. The reports

provide accountability for programs, funding, management and regulation. In addition, staff prepares an annual State of the Sanctuary Report, and annual reports to the Florida Governor and Cabinet.

Hurricane Planning

Each office annually reviews and updates its unique hurricane plan that addresses buildings, vessels, vehicles, equipment and evacuation. Evacuation plans are based on hurricane alerts issued by the National Weather Service. When evacuation plans are implemented, each person reports to a member of the management team on the progress of preparations. Offsite contact with evacuated personnel continues until the evacuation order is lifted.

Security

Building security in federal offices became a high priority after the 1995 bombing in Oklahoma City and the 2001 large-scale terrorist attacks on U.S. soil. For the Sanctuary, this translates into offices secured by lock and key and under electronic surveillance at all offices and sites. Where possible, a locked fence encloses outside storage. Sanctuary managers regularly evaluate security. Other property, including vessels and vehicles require separate security. Many of the Sanctuary's vessels are kept at marinas, and, although security measures vary, marina operators are meeting overall security goals. Staff security includes identification cards and fingerprinting of new employees and contractors according to Homeland Security Presidential Directive -12 (HSPD-12). Each of the FKNMS regional office locations has an Occupant Emergency Plan, a Continuity of Operations Plan and a Hurricane Plan. Each plan is reviewed and updated on an annual basis.

Real Estate

Staff are currently located in a combination of NOAA-rented office space and NOAA-owned property, with the exception of law enforcement offices at the Marathon Government Center. The Sanctuary acquired 2.94 acres and two former Navy buildings in Key West in December of 1999, through the Base Realignment and Closure program. The complex of buildings constructed on this property between 2004-2006 has been named The Dr. Nancy Foster Florida Keys Environmental Complex (Foster Complex), in recognition of Dr. Foster's tremendous contribution to protection of the nation's marine environment. It is the only real estate owned by the Sanctuary at this time. Congress appropriated approximately \$12 million to develop the site for offices and a world-class, multi-agency visitor center called the Florida Keys Eco-Discovery Center. The site houses the FKNMS headquarters office and Lower Keys regional offices, a maintenance facility, and docks that consolidates HQ and Lower Keys regional staff and vessels at one location. FKNMS staff moved into the Foster Complex in June/July 2006. The Florida Keys Eco-Discovery Center opened to the public in October 2006 with a grand opening celebration in January 2007.

Facilities

The Sanctuary currently leases its office and storage space in the Upper and Middle Keys areas. The Sanctuary owns the Foster Complex facilities which includes office, storage and maintenance space. Most leases include utilities, cleaning, building maintenance and repairs, grounds maintenance, parking, storage, and conference rooms. Dock space is leased in the Upper Keys. Dock space is provided by partner agencies in the Middle Keys, and owned in the Lower Keys.

Equipment and Supplies

Equipment includes vehicles, vessels, engines, machinery (e.g., mooring-buoy drills), and associated electronics, computers and traditional office equipment. Regional property custodians maintain a property inventory and maintenance schedules. Administrative staff orders material and supplies for offices and other routine functions as needed.

Records Retention

The administrative office ensures that federal and state records are maintained according to official record disposition schedules appropriate to each type of record and agency of origin. FKNMS has recently made arrangement for some of its records required to be retained for longer than ten years under the NOAA Records Disposition Schedule to be stored at the National Archives and Records Administration storage facility in Atlanta, Georgia. Storage of these records will ensure their property management and safety.

Communications

Sanctuary communications include written, verbal and electronic communication via office telephones, cellular phones, pagers, and two-way vessel radios, all governed by federal and state policies, directives, and regulations. The administrative assistant at each office is responsible for keeping current with policies and regulations. The three offices have a telephone system with voice messaging to maximize office efficiency. Cellular phones are used between administrative staff and staff on the water. Staff members who are assigned cellular telephones are responsible for the equipment and ensuring use for government purposes only. Two-way radios are installed on many vessels. Staff regularly evaluates its service providers to ensure that the most cost-effective pricing plans are in effect.

Maintenance

The office buildings in the Upper and Middle Keys are leased and regular maintenance is covered under the terms of the lease. The office buildings at the Foster Complex in Key West are maintained by FKNMS staff, are covered by warranty or annual service contracts as appropriate. The staff completes routine and preventive maintenance on its equipment, buildings, vehicles and vessels, including engines. The maintenance program is geared to lifecycle management and to ensure productive and safe use.

Vessels and Vehicles

Sanctuary programs require a variety of vehicles and vessels. All vehicles and vessels are used only for official government activity. Regulatory enforcement requires in-shore, offshore and long-range patrol capabilities and such vessels range from 28 feet to 63 feet. The Damage Assessment and Restoration program uses smaller vessels to access resource damage in shallow areas. The Law Enforcement Program uses a combination of smaller vessels for nearshore activities and the recently acquired 57' catamaran P/V *Peter Gladding* for off-shore enforce such as in the areas near the Dry Tortugas. Staff uses vehicles to travel to and from official meetings, to tow boats, transport gear, and to assist visiting dignitaries. Many vehicles are leased from the General Services Administration and staff abides by its regulations. The remaining vehicles are owned by either NOAA or the State of Florida. The Sanctuary's Vessel Policy covers operation, use, and maintenance, seeks to provide safe and productive vessel use and has become a model for other NOAA programs.

Accomplishments

There have been several administrative accomplishments since implementation of the 1996 management plan, including:

- Fully integrated the administration of two existing National Marine Sanctuaries and the newer, larger Sanctuary into a single unit with some functions retained by the regional offices.
- Successful implementation of Annual Operating Plan in the most complex and challenging National Marine Sanctuary in the nation.
- Developed and implemented a financial accounting system that has been adopted by other National Marine Sanctuaries to track expenditures by budget category (printing, travel, vessel repairs, salaries) and program (education and outreach, maritime heritage resources, enforcement).
- On-going recruitment in accordance with federal and state guidelines to hire and retain the highest caliber and best-qualified workforce.
- Created and implemented employee-recognition programs.
- Established and implemented regular management team meetings. Participants include the Superintendent, Chief of Staff, and the Upper Region and Lower Region managers. In addition, the superintendent holds “All Hands Meetings” at least once a year to bring the entire team together to discuss issues and share information.
- Continuous pursuit of alternative sources of funding, including from the National Fish and Wildlife Foundation, which administered fines resulting from litigation related to ocean dumping.
- Helped establish and continues support for Sanctuary Friends Foundation of the Florida Keys, Inc., a nonprofit organization that promotes the Sanctuary mission and goals, and raises funds for the Sanctuary.
- Developed and implemented hurricane plans for all three offices and Sanctuary vessels. Implementation has minimized hurricane damage to offices, vessels and vehicles.
- Acquired 2.94 acres and two buildings at Truman Annex in Key West for a world class, multi-agency visitor center and facilities for the Lower Keys regional office.
- Participated in the planning, design and oversight of the \$12 million Dr Nancy Foster Florida Keys Environmental Complex, featuring the world-class interagency visitor center the Florida Keys Eco-Discovery Center.
- Completed the co-location of the Lower Keys Regional staff and operations and the FKNMS headquarters staff to the Foster Complex.
- Successfully completed construction of the Florida Keys Eco-Discovery Center and opened it to general visitation by the public. To date, the Center has hosted more than 20,000 visitors from 50 US states and 20 countries on 6 continents.
- Participated in the design and planning of the 57 foot catamaran *P/V Peter Gladding* which is an enforcement vessel dedicated to patrolling the Tortugas Ecological Reserve and other parts of the FKNMS.
- Organized and implemented two regional offices with one each in the Upper Keys and Lower Keys.
- Developed and implemented a vessel policy for the operation, use, and maintenance of Sanctuary vessels as well as continued participation on the NMSP Small Vessel Working Group.

Function 2: Community Relations

Summary

Good community relations are an essential component of Sanctuary management. In addition, the Keys community is socially complex with a large turnover of residents and an ever-changing tourist population. In order to keep new residents and visitors informed, the media is regularly involved. Key components of the Sanctuary are administrative and operational policies that are consistent with federal and state policies and site-specific policies that address local needs.

There are several on-going Community Relations activities including:

- The Sanctuary's half-hour television show, "Waterways," produced in partnership with the National Park Service and the U.S. Environmental Protection Agency. The show is aimed at increasing awareness of the marine and terrestrial environments of the Florida Keys and the Everglades, and the efforts underway to protect and conserve them.
- Media packets that provide background information on current issues and topics to assist journalists in reporting on Sanctuary issues.
- News releases to address breaking news, notify the public of opportunities to participate in Sanctuary management decisions, and increase awareness of Sanctuary initiatives.
- Press conferences to brief media representatives and editors on significant issues through presentations and question-and-answer sessions with relevant personnel.
- Press trips to help media representatives gain firsthand knowledge of Sanctuary resources, threats to the ecosystem, and initiatives to protect and conserve them.
- Radio and television appearances by Sanctuary team members to publicize a variety of topics related to the sanctuary.
- Video production and editing of stock footage and other video products to document resources, threats to sanctuary resources, and sanctuary program activities and accomplishments.
- Regularly maintained communication plans on major issues to outline how the public receives timely and accurate information from the Sanctuary.

Accomplishments

Community relations activities were separated from the Education and Outreach function in 1993 with the hiring of a public-outreach coordinator. Since then, the program has achieved many accomplishments, including:

- Worked with the EPA and NPS, to produce over 230 episodes of "Waterways," a television show focusing on the unique aspects of the South Florida environment and the Sanctuary's efforts to understand and protect it.
- Coordinated outreach efforts leading to the establishment of the Tortugas Ecological Reserve by conducting media visits and providing information in various formats to national media entities and the public.
- Coordinated media coverage of reef restoration projects, including a comprehensive public awareness campaign for the *Columbus Iselin* restoration. The campaign included public meetings to inform dive shops, other businesses and local residents; production of a video explaining the restoration for dive shops to show to customers; production of a laminated card

explaining the restoration for use on board dive boats; coordination of a VIP and media trip to view the restoration site, which resulted in national coverage, including Reuters, *The Miami Herald* and The Associated Press.

- Coordinated media coverage for activities of the Sanctuary Advisory Council.
- Worked with Reef Relief, the City of Key West, Florida Fish and Wildlife Conservation Commission, and the USCG to conduct a public awareness campaign to achieve compliance with the new no-discharge zone designation for City of Key West Waters, including developing brochures and posters and conducting a series of visits with local editors.
- Developed and distributed press releases for all Sanctuary public meetings on significant issues, such as the Particularly Sensitive Sea Area proposal, correct use of mooring buoys, and installation of new buoys.
- Participated in or coordinated taped and live interviews, for local radio stations.
- Coordinated media coverage for three years of Sustainable Seas Expeditions in the Sanctuary; publicized and staged open houses.
- Provided images for use in publications and on the Internet, as well as provided footage for video projects, including television news and documentaries, and features on the Discovery and National Geographic channels.
- Coordinated media coverage for the placement of the world's first underwater geodetic survey marker, located at Molasses Reef.

Function 3: Policy Development and Coordination

Summary

This description is not intended as a comprehensive list of Sanctuary policies but as a guide for how policy matters are developed and addressed. Some facets of the policy structure are well established, while others have been identified for further development. There are three principal areas related to FKNMS policy development and coordination: administrative, resource and legal.

Administrative Policy

The Sanctuary is managed through a joint-trustee agreement between NOAA and the state. As such, the program is staffed with personnel from NOAA, DEP, and FWC. Each agency is subject to a unique set of agency directives, policies, and procedures. The Sanctuary's regional management structure relies on these staff members cooperating as a functionally seamless unit.

Administrative policies integrate the policies of federal and state agencies. This is accomplished through Standard Operating Procedures, maintaining supervisory and administrative staff familiar with specific policies, and holding regular management team meetings to identify and rectify potential inconsistencies. In addition, the Sanctuary Superintendent holds "All Hands Meetings" at least once a year to bring the entire Sanctuary team together to discuss issues and share information. The administrative officer focuses on developing and implementing consistent administrative policy to ensure compliance with agency directives and provide staff with clear administrative direction.

The Sanctuary superintendent is responsible for conducting management team meetings that include the superintendent, Upper Keys and Lower Keys regional managers and Chief of Staff. The Chief of Staff and regional managers may be required to assist in developing agendas.

Resource Policy

The Sanctuary recognizes the importance of active involvement in regional, national, and international policy-making that affects marine resources and marine protected areas. As one of the primary agencies involved in marine-resource management in South Florida and one of the world's largest marine protected areas, the Sanctuary and its staff are often consulted on emerging issues and practices. In many cases, the Sanctuary has a vested interest in the activities of other agencies and groups. Further, the visibility of the Sanctuary in the community as a leader in marine-resource management generates frequent inquiries regarding its policy or position on specific issues. Thus, supervised by the superintendent, the Sanctuary's administrative office coordinates policy development and distribution. Policy development and dissemination often involve NOAA headquarters, the state, regional staff, and other organizations. The policy-development process may use the Sanctuary Advisory Council or the Technical Advisory Committee to review an issue and determine its potential effects on Sanctuary resources or to provide a forum for public education and participation. Whenever possible, the Sanctuary relies on peer-reviewed science for policy development. In certain cases, a lack of scientific understanding on an issue may require the Sanctuary to initiate or request additional study before rendering an opinion.

Topics on which the Sanctuary has been asked for an opinion include:

- Artificial reefs
- Beach nourishment
- Central sewage
- Dredging
- Exotic species removal
- Fish and shark feeding
- Fishery management
- Climate Change
- Light pollution
- Marine mammal stranding
- Personal watercraft
- Shark attacks
- Transportation projects

Legal Review and Interpretation

As a regulatory entity, the Sanctuary is involved with activities that require legal review and interpretation. The administrative office coordinates legal reviews and seeks interpretations from state and federal legal or administrative staff.

The Sanctuary management team oversees the permit program, including the application, issuance, tracking and related assessments (see also the Regulatory Action Plan, Strategy R.1 - Maintain the Existing Permit Program). Under its regulatory authority, the Sanctuary may issue permits to conduct otherwise prohibited activities if the activities further the understanding and conservation of Sanctuary resources. Permits are generally issued for research, management, and educational projects and are tracked using a standardized database. Recently, a no-cost, paperless permit system was instituted to track entrance to and egress from the Tortugas North Ecological Reserve. The permit helps ensure that mooring buoys are available for permit holders and that vessels visiting the reserve understand the regulations. Another type of permit, also free, allows for the collection of baitfish from

the SPAs and requires holders to report catch and location data annually to the Sanctuary. Research, education, and bait fishing permits are centrally reviewed and processed in the Lower Region office; Tortugas North access permits are issued from the Marathon and Lower Region offices.

In addition to these permits, the Sanctuary works with federal and state agencies to review applications for sea floor dredging and filling to ensure that construction projects of significant scope or size, or those that threaten marine resources through cumulative impacts, are minimized or mitigated.

Accomplishments

There have been several policy-related accomplishments since implementation of the 1996 management plan, such as:

- Creation of the first Sanctuary Advisory Council in the National Marine Sanctuary Program.
- Implementation of on-going working groups as subcommittees of the Sanctuary Advisory Council that include its members, Sanctuary staff, and the general public, to address the action plans and other issues of community concern and interest.
- Establishment of Sanctuary policies on an as needed basis consistent with federal and state guidelines, policy and legislation.
- Worked closely with NMSP headquarters on the 2000 reauthorization of the National Marine Sanctuary Act to allow Sanctuaries to receive donations and disperse funds to non-governmental agencies for services provided.
- Worked closely with NMSP representatives to develop national, program policies to address issues in a consistent manner. This includes staff participation in national-level teams responsible for Management Plan Reviews, Education and Outreach plan development and implementation, and the Science/Research and Monitoring plan development.

Strategies

There are three strategies associated with this function:

- OP.1 Addressing Administrative Policy Issues
- OP.2 Addressing Resource Policy Issues
- OP.3 Addressing Legal Issues

Each of these strategies is detailed below. Table 3.15 provides estimated costs for implementation of each strategy over the next five years.

Table 3.15 Estimated Costs of the Operations Action Plan/Policy Development and Coordination Function.

Operations Action Plan Strategies	Estimated Annual Cost (in thousands)					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
OP.1: Addressing Administrative Policy Issues	500	525	550	575	600	2,750
OP.2: Addressing Resource Policy Issues	260	275	285	300	315	1,435

OP.3: Addressing Legal Issues	240	250	265	275	290	1,320
Total Estimated Annual Cost	<i>1,000</i>	<i>1,050</i>	<i>1100</i>	<i>1,150</i>	<i>1,205</i>	5,505

STRATEGY OP.1 ADDRESSING ADMINISTRATIVE POLICY ISSUES

Summary

The FKNMS is managed thru a co-trustee agreement between the State of Florida and NOAA. FKNMS staff come from three different agencies – two state and one federal. Successfully implementing this coordinated management requires clear and consistent administrative policies that meet not only the needs of the individual government agencies, but also the goals of the Sanctuary and the implementation of this management plan. Three activities have been identified to continue achieving the integration of policies and procedures that has allowed successful co-management since the Sanctuary was established.

Activities (3)

(1) Develop Standard Operating Procedures. Develop and maintain standard operating procedures based on federal, state and agency directives and regulations in order to provide staff and programs with consistent and clear direction.

Status: On-going.

Implementation: Currently, FKNMS has standard operating procedures for many program activities. The administrative office provides specific guidance. The administrative office, through direction and oversight of the superintendent, implements this activity. The administrative office will explore more formal development of standard operating procedures and continue to provide formal policy guidance. Topics to be addressed in a manner specific to the Sanctuary include such things as controlled correspondence, Freedom of Information Act requests, personnel, procurement, security, travel, and vessel and vehicle operations.

(2) Continue Staff Training. FKNMS maintains a staff familiar with applicable agency directives and regulations through a variety of training and communication strategies, including information technology-based reference and guidance.

Status: On-going.

Implementation: The administrative office is responsible for implementing this activity. FKNMS regional office staff may be required to assist.

(3) Conduct Management Team Meetings. The superintendent conducts regular meetings of the management team to address administrative policy matters and includes Upper Keys and Lower Keys regional managers and Chief of Staff.

Status: On-going.

Implementation: The superintendent convenes regular meetings of the management team and administrative policy issues are discussed at each of the meetings. These meetings have provided an important forum for addressing administrative policy issues and their implementation remains a priority.

STRATEGY OP.2 ADDRESSING RESOURCE POLICY ISSUES

Summary

There are in excess of 25 local, state and federal agencies in the Florida Keys. Successful management of the Sanctuary requires that sanctuary staff coordinate closely with these agencies in the development of local policies that address resource health and conservation. Two activities have been identified to implement this strategy.

Activities (2)

(1) Promote Interagency Collaboration in Policy Making. The administrative office communicates with organizations and agencies involved in resource impacts or regulation to: 1) determine potential effects to Sanctuary management interests; 2) help develop policy statements, and 3) consult with affected agencies regarding Sanctuary related policies.

Status: On-going.

Implementation: FKNMS continues its involvement with local, regional, national, and international organizations on policies affecting marine resources. The administrative office is responsible for implementation. Regional and national headquarters staff may be requested to assist.

(2) Provide Policy Information to the Public. Communicate valid and emerging resource concerns to the general public.

Status: On-going.

Implementation: The administrative office is responsible for organizing implementation of this activity, working with the Sanctuary Advisory Council, the public outreach and education coordinators, and other appropriate staff.

STRATEGY OP.3 ADDRESSING LEGAL ISSUES

Summary

The FKNMS administrative office coordinates legal reviews and interpretations as part of implementing a number of the activities described in this management plan. Permitting and regulatory development are two key areas heavily linked to legal considerations (see also the Regulatory Action Plan); however, legal guidance is also required for a variety of policy, management, and administrative functions.

Activity

(1) Strengthen Legal Review and Interpretation. The administrative office coordinates legal reviews and seeks interpretations from federal and state legal staff. Efforts to improve this coordination function and delivery of legal expertise might be expected to further enable efficient and effective management of the Sanctuary in achieving its goals.

Status: On-going

Implementation: FKNMS staff coordinate with legal counsel in federal and state government. Ways to strengthen this coordination are identified when possible.

Function 4: The Sanctuary Advisory Council

Summary

The Florida Keys National Marine Sanctuary and Protection Act called for the establishment of the National Marine Sanctuary Program's first Sanctuary Advisory Council to provide advice to Sanctuary Managers.

The Sanctuary Advisory Council was an integral part of the planning process when the original management plan was developed and continues to be a vital link to the community. The council represents user communities, including the dive industry, environmental community, boating community, commercial and recreational fishermen, the maritime heritage resources community and the research and education communities. The council meets every other month for regular sessions and hosts special meetings as needed to address Sanctuary resource issues and the five-year review of the Sanctuary's management plan. In addition, working groups, which function as sub-committees, address specific action plans and issues of concern.

Sanctuary Advisory Council members are selected through a multi-step process. Vacant positions are advertised locally in newspapers and on the radio, nationally in the Federal Register and by word of mouth through current council members. Application forms are available online, from the advisory council coordinator, or at any sanctuary office. After the application closing date, applications are reviewed by the Sanctuary management team, council chair and co-chair and the Regional Superintendent. Their recommendations are subjected to a LEXIS/NEXIS check. This check identifies any potential problems with natural resource law violations. Upon clearance through this check, recommendations are sent to the Governor of Florida for acceptance or rejection. Accepted applications are then sent to the Director of the National Marine Sanctuary Program for final approval. All approved applicants then take their seats at the next advisory council meeting, and unsuccessful candidates are notified.

Accomplishments

Advisory Council accomplishments since implementation of the 1996 management plan include:

- Recommended reconfiguration of the Area-to-be-Avoided to make international ship traffic safer. Eight RACON beacons have been installed to alert vessels of their proximity to the reef tract.
- Recommended that the NMSP seek International Maritime Organization designation of the Florida Keys as a Particularly Sensitive Sea Area. The designation was made in 2002.
- Formed the Tortugas 2000 Working Group, which included a broad spectrum of stakeholders, to design the largest marine protected area in North American waters. The group's *Preferred Alternative* was accepted by the Governor and Cabinet of the State of Florida, NOAA, the

South Atlantic Fisheries Management Council and the Gulf of Mexico Fisheries Management Council. The no-take Tortugas Ecological Reserve was officially implemented in 2001.

- Formed more than ten Action Plan Working Groups to review and commented on the *Florida Keys Draft Revised Management Plan*.
- Formed a Personal Watercraft Working Group to explore options for reducing resource impacts from this vessel type. As a result, WMAs have been implemented in particularly sensitive roosting areas and shallow seagrass areas.
- Addressed a number of highly contentious, local issues by holding special meetings that heard from expert panels, reviewed evidence, and made recommendations to the appropriate regulatory bodies. The Sanctuary Advisory Council forwarded recommendations on commercial sponging in Sanctuary waters as well as the special two-day sport lobster (mini-season) to the Florida Fish & Wildlife Conservation Commission (FWC.) Sanctuary Advisory Council recommendations on the marine mammal stranding network operations in the Florida Keys were addressed by NMFS.
- Formed a Large Vessel Working Group to address turbidity problems in the Key West area. The group reviewed information on the special dredging project conducted for the U.S. Navy in Key West Harbor and Shipping Channel and investigated the impacts of cruise ships on Sanctuary resources, with consistent input from the cruise industry. Sanctuary Advisory Council recommendations were taken by Sanctuary managers to the appropriate authorities in the Navy, USACE, the State of Florida, and NOAA.
- Based on a Working Group recommendation, asked Sanctuary managers to expand the special Baitfish Permit to allow selective taking of baitfish from certain SPAs using hairhooks. This pilot program was implemented in 2004.
- Developed *Desired Future Conditions* for the Biscayne National Park Fisheries Management Plan through a Working Group that operated in conjunction with the Park Service.
- Hosted FWC board members and members of the National Marine Sanctuary Program's Marine Protected Area Technical Advisory Council at mixers in 2003 and 2004.
- Participated in events coordinated by the National Marine Sanctuary Foundation in the Florida Keys as well as the Sanctuary sponsored meeting "Connectivity: Science, People and Policy in the Florida Keys National Marine Sanctuary" held in Key West in 2004.
- Provided instrumental support to the Sanctuary Friends of the Florida Keys, a non-profit organization dedicated to supporting the mission of the Florida Keys National Marine Sanctuary.

3.5.2 EVALUATION ACTION PLAN

Introduction

As part of an effort to improve overall management of sanctuaries, on-going and routine performance evaluation is a priority for the NMSP. Both site-specific and programmatic efforts are underway to better understand the Program's ability to meet stated objectives and to address the issues identified in this management plan.

Throughout the management plan review process, FKNMS staff have been working with NMSP staff to develop performance measures for the action plans in this management plan.

Goals and Objectives

The goals of the Evaluation Action Plan are to:

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

The objectives of this Action Plan are to:

- Present a set of performance targets that demonstrate progress towards desired outcomes for each action plan.
- Effectively and efficiently incorporate performance measurement into the regular cycle of NMSP management.

Implementation

Evaluating performance as a formal part of the regular cycle of management is a relatively new concept for the NMSP. Periodic reviews have taken place over the course of the Program's existence, but a process for integrating a system for performance evaluation has not been implemented up to now. With the Program's new focus on the management plan review process, the importance of this system was elevated and the fact that very little had been done to measure management performance was an issue that staff (both site and headquarters), the Advisory Councils and the public recognized as one that should be addressed.

As a result, NMSP headquarters staff began working on models for integrating performance measurement into the management plan review process as well as for evaluating overall performance of the national program. The idea behind these models was simple, but implementing them has been challenging due to the inherent difficulties of performance measurement (developing quantifiable outcome-based targets, projecting outward for results, estimating needs, relying on outputs or products for results reporting, etc.). With the measures in this management plan, however, FKNMS is

initiating the performance measurement process and, therefore, beginning to establish a baseline of information that can be used by the NMSP and the state to evaluate effectiveness of both the site and the Program over time. *Strategy EV.1-Measuring Sanctuary Performance Over Time* describes this process in more detail.

Strategy

There is one strategy in this Evaluation (EV) action plan:

- EV.1 Measuring Sanctuary Performance Over Time

This strategy is detailed below. Table 3.16 provides estimated costs for implementation of each strategy over the next five years.

Table 3.16 Estimated Costs of the Evaluation Action Plan.

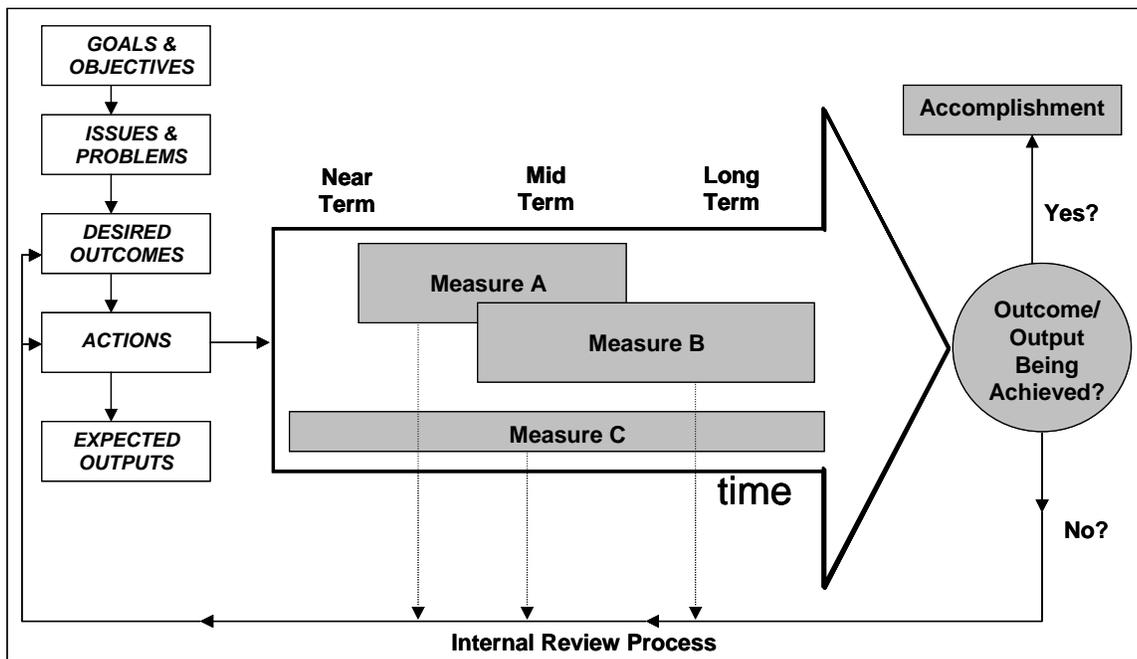
Strategy	Estimated Annual Cost (in thousands)*					Total Estimated 5 Year Cost
	YR 1	YR 2	YR 3	YR 4	YR 5	
EV.1: Measuring Sanctuary Performance Over Time	-	-	-	-	-	-
Total Estimated Annual Cost	-	-	-	-	-	-

* Because this is an internal exercise, it is estimated that costs for implementing this strategy will involve staff time only.

Strategy Summary

This strategy details the process by which the Sanctuary will measure its management performance over time. Figure 3.1 depicts the basic idea behind this process, which will be implemented in all sanctuaries undergoing management plan review.

Figure 3.1 NMSP Performance Evaluation Logic Model



Issues and problems are identified during the scoping process relative to site goals and objectives. Staff then work to develop desired outcomes (targets based on a desired change in the status quo of something, such as the sanctuary's environmental condition or management capacities). Actions (as identified in each of the action plans) are then grouped under the relevant outcomes. Expected outputs, or products, are also identified. Performance measures are then drafted, which identify the means by which the sanctuary will evaluate its progress towards achievement of the desired outcomes. As represented by the large arrow in Figure 3.1, measures can (and should) be developed to provide information on results over time, from the near term (within one year, for example) to the long term (over the span of ten years or more, for example). As these measures are monitored over time, data is collected on progress towards the achievement of outcomes and the production of outputs. Outcomes that are being achieved and outputs that are being produced are reported as accomplishments; inability to achieve outcomes or produce outputs are also reported, but as areas that are falling short of targets. In these areas, staff will work to identify the obstacles that are preventing management from reaching targets (represented in Figure 3.1 by the arrow that runs along the bottom of the graphic). This internal review is one of the primary benefits of performance evaluation process as it provides an opportunity for staff to think carefully about why particular actions are not meeting stated targets and how they can be altered to do so.

All performance measures for this revised management plan are found in tables 3.17 - 3.30. The information produced by performance measures in sanctuary management plans will be used not

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

There are four activities in this action plan. Each is designed to carry the Sanctuary through the performance evaluation process and integrate performance measurement into the regular cycle of site management. In the case of this action plan, it is not anticipated that there will be any additional costs beyond core operational expenses (labor and administrative overhead).

Activities (4)

(1) Assess Implementation of the FKNMS Management Plan Annually. This assessment will be conducted internally on an annual basis by FKNMS staff and will consider the progress and effectiveness of activities implemented over the previous year.

Status: Formal, annual assessments will begin with implementation of this revised management plan.

Implementation: FKNMS will lead this effort, coordinating with direct partners – notably FWC and EPA – as appropriate.

(2) Collaboratively Evaluate the Action Plans Found in this Document. As the NMSP continues to increase the rigor of its self-evaluation, the program would also like to increase the frequency with which partners formally join with the Sanctuary in assessing the effectiveness of our joint-management actions. Toward this end, regular evaluation of the action plans within this document is proposed. It is envisioned that each quarter, Sanctuary staff will facilitate collaborative evaluation of one action plan. As a result, a systematic rotation through the action plans will be completed every four years.

Status: Begins with implementation of this revised management plan.

Implementation: FKNMS will lead this effort collaborating with appropriate partners, notably the Sanctuary Advisory Council.

(3) Monitor Existing Performance Measures Consistently Over Time. FKNMS staff will conduct routine performance evaluations to collect and record data on Sanctuary performance over time. Using this data, staff will determine effectiveness by a) evaluating progress towards achievement of each action plan's desired outcomes and b) assessing the role or added value of those outcomes in the overall accomplishment of site goals and objectives. Effectiveness will be evaluated for both FKNMS performance measures as well as NMSP national performance measures where applicable. The performance measures that will be used in this exercise are outlined in Table 3.17 – Table 3.30 (below).

Status: Begins with implementation of this revised management plan.

Implementation: FKNMS will lead this effort, collaborating with partners – notably DEP, FWC and EPA – as appropriate.

(4) Report Results. Results from performance monitoring will be collected, analyzed and used to populate and inform the NMSP Report Card and, when necessary, state, NOS or NOAA-wide performance requirements. Performance data may also be presented in a site-specific annual report that would explain each measure, how it was evaluated, the site team that conducted the evaluation, and next steps. Based on this analysis, site staff, in cooperation with the Sanctuary Advisory Council, will identify accomplishments as well as work to determine those management actions that need to be changed to better meet their stated targets. The targets themselves may also be analyzed to determine their validity (if, for instance, they are too ambitious or unrealistic given current site capacities). The public may have opportunity to comment on the Sanctuary’s perception of its performance, ways in which the site could be more effective and methods for improving performance measurement when evaluation is on the agenda at future Sanctuary Advisory Council meetings.

Status: Begins with implementation of this revised management plan.

Implementation: FKNMS will lead this effort, collaborating with partners – notably DEP, FWC and EPA – as appropriate.

Table 3.17 Science Management and Administration Action Plan Performance Measure

Desired Outcome(s) For Science Management and Administration Action Plan			
Facilitate, permit, and manage scientific projects that propose to conduct prohibited activities. Broadly disseminate science program findings, with a focus on integrating this information into regional science efforts. Utilize technical expertise, both local and regional, in Sanctuary decision making.			
Performance Measures	Means of Evaluation	Baseline	NMSP Measure
By 2012, the number of research reports generated through permits will remain stable or have increased relative to expected fluctuations.	FKNMS will continue to manage a program to evaluate permit applications, issue research permits for pertinent research, and ensure receipt of permit reports.	Percent of research reports received for 2002 permits: 49% ¹	N/A
By 2012, the frequency of science reports and presentations will remain stable or increase to disseminate pertinent scientific findings.	FKNMS will continue to publish summaries of scientific findings and present results at scientific conferences and other meetings.	Number of reports and presentations in 2006: 1 and 2	
By 2012, the frequency of Technical Advisory Committee meetings and expert panels will remain stable.	FKNMS will continue to consult the Technical Advisory Committee and convene expert panels for the Sanctuary Advisory Council.	Frequency of meetings and panels: annual and biennial.	

¹ Percent reports received is based on a total of 93 research permits and amendments issued for the year 2002, and a total of 46 reports being submitted for the same group of permits and amendments.

Table 3.18 Science Research and Monitoring Action Plan Performance Measure

Desired Outcome(s) For Research and Monitoring Action Plan			
Resource and funding agencies with responsibilities for coral reef ecosystems increase efforts to identify and target critical knowledge gaps through cooperative assessment and planning.			
Performance Measures	Means of Evaluation	Baseline	NMSP Measure
By 2008, the second version of the Comprehensive Science Plan will be completed.	FKNMS will continue to update the Comprehensive Science Plan and finalize it for publication.	Number of CSP Revisions: 1	N/A
By 2011, the long term Zone Monitoring Program will be sustained at current sampling levels.	FKNMS will continue implementation of the zone monitoring program and prepare annual summaries of these efforts in relation to targeted Living Marine Resources.	Number of Zone Monitoring events: 5	Living Marine Resources

Table 3.19: Education and Outreach Action Plan Performance Measures

Desired Outcome(s) For Education and Outreach Action Plan			
Public interest and understanding of sanctuary issues and opportunities is mobilized to encourage responsible stewardship.			
Performance Measures	Evaluation	Baseline	NMSP Measure
By 2011, sanctuary centers and exhibits at partner locations will reach 500,000 people.	FKNMS will track the number of exhibition locations and visitor exposure.	Number of people reached by exhibits - 0	Public Awareness

Table 3.20: Volunteer Action Plan Performance Measures

Desired Outcome(s) for Volunteer Action Plan			
Increased involvement and integration of volunteers in FKNMS public awareness, and resource protection activities leads to increased productivity for targeted activities and enhances public stewardship of the sanctuary.			
Performance Measures	Evaluation	Baseline	NMSP Measure
By 2010, the Volunteer Program will increase the number of volunteer-hours contributed to sanctuary programs by 25%.	FKNMS will continue to track the number of volunteers and respective hours.	2500 hours	Volunteer

Table 3.21: Regulatory Action Plan Performance Measures

Desired Outcome(s) For Regulatory Action Plan			
To continue implementing an efficient and effective permitting program. To review and refine Sanctuary regulations based on management experience.			
Performance Measures	Means of Evaluation	Baseline	NMSP Measure
By 2010, the percentage of permits that are issued timely and correctly ¹ will increase to 100%.	FKNMS will track the issuance of permits via the OSPREY database and national program definition of "timely and correctly."	Percent of permits issued timely and correctly (2005) ² : 55%	Permits
By 2010, revised and updated sanctuary regulations will be published in the Federal Register Notice.	FKNMS will review and revise Sanctuary regulations and conduct the required NEPA analyses associated with the revisions.	Sanctuary regulatory revisions (2006): 0	N/A

¹ "Timely and correctly" is defined in the April 2006 National Permit Coordinators Workshop handbook as the percent of permits that received a "meets performance measure of 80%, excluding Decision Memo evaluation" score.

² Calculation made as follows: 49 permits were assessed from 1/1/05 to 8/18/05 by NMSP headquarters (includes one representative baitfish permit). 27 of those 49 permits (55%) received the "meets performance measure of 80%, excluding Decision Memo evaluation" score."

Table 3.22: Enforcement Action Plan Performance Measures

Desired Outcome(s) For Enforcement Action Plan			
Sanctuary resources are comprehensively protected through the sustained presence of law enforcement			
Performance Measures	Means of Evaluation	Baseline	NMSP Measure
By 2012, FKNMS law enforcement officers will maintain a 60%, or higher, allocation of their time on duty in a water patrol status.	FKNMS FWCC Law Enforcement Officers will continue to track duty hour status through use of "Activity Net" or comparable system.	60%	N/A

Table 3.23: Damage Assessment and Restoration Program Action Plan Performance Measures

Desired Outcome(s) For Damage Assessment and Restoration Program Action Plan			
To protect or restore the marine resources of the Sanctuary and to support the legal processes related to litigating resource injury claims.			
Performance Measures	Means of Evaluation	Baseline	NMSP Measure
By 2010, injury assessments will be conducted and assessment document prepared and ready for distribution to appropriate recipients within two weeks of the initial occurrence of the grounding (or other impact) incident.	FKNMS Damage Assessment and Restoration Program (DARP) team will keep track of the amount of time it takes to complete and distribute an assessment document from the time of occurrence.	Current data shows that the program averages 16 weeks from incident to completion and distribution of the Injury Assessment Report.	Habitat
By 2010, all seagrass and coral reef injury sites within the FKNMS will either be restored, in the process of restoration, or have a restoration plan in place and awaiting implementation within three months of the initial occurrence of the incident.	FKNMS Damage Assessment and Restoration Program (DARP) will keep track of the amount of time it takes to complete and distribute restoration plans, as well as the implementation of restoration alternative selected, from the time of occurrence.	Current data shows that the program averages 15 months to finalize a restoration plan, 31 months to implement restoration, and 38 months to implement restoration from the time of occurrence. Note: unless the restoration is deemed an emergency, restoration cannot be implemented until the case has been settled and funds have been distributed for use.	Habitat

By 2012, a certification training program will be in place and functioning to prepare towing and salvage operators working within the FKNMS. It may be integrated into a salvage operation activity permit structure should one be created.	FKNMS Damage Assessment and Restoration Program (DARP) team, with input from the Florida Fish and Wildlife Conservation Commission Division of Law Enforcement, will determine when the certification training program is functioning.	No permitting system or training program in place to educate salvors regarding minimal impact gear and best practices techniques of vessel removal	Habitat, Permit, Enforcement
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Table 3.24: Maritime Heritage Resources Action Plan Performance Measures

Desired Outcome(s) For Maritime Heritage Resources Action Plan			
Historical archeological resources are managed and protected.			
Performance Measures	Means of Evaluation	Baseline	NMSP Measure
By 2012, five additional historical shipwrecks will be documented and mapped with an accompanying Archaeological Report	Completion of projects and receipt and acceptance of Archaeological Reports from projects conducted	4 reports completed as of 2006.	MHR
By 2012, the FKNMS Atlas of Maritime Heritage Resources will have been updated twice and contain the most accurate information available	FKNMS will accumulate corrections, and additions to the database throughout the 5 year period for input into the Atlas. The Florida Master Site Files is maintained as public record by the Florida Bureau of Archeological Resources.	Draft Atlas created in 2006	MHR

Table 3.25: Marine Zoning Action Plan Performance Measures

Desired Outcome(s) For Marine Zoning Action Plan			
To maintain or increase species diversity, populations of key species, and habitat quality within zoned areas. To increase user compliance and satisfaction with zoned areas.			
Performance Measures	Means of Evaluation	Baseline	NMSP Measure
By 2010, the number of stony coral species in zoned areas will remain stable or increase over time relative to baseline fluctuations. ⁴	FKNMS will continue to support monitoring of zoned areas by the UNCW Coral Reef Rapid Assessment Monitoring and Modeling project, FWC Coral Reef Evaluation and Monitoring	Number of stony coral species at two habitat types and locations (2002) ¹ : Western Sambo	Living Marine Resources

	Program, and other projects to track species numbers.	Ecological Reserve (low-relief spur and groove habitat type): 27 Carysfort Reef SPA (low-relief hard-bottom habitat type): 22	
By 2010, the populations of key species in zoned areas will remain stable or increase over time relative to baseline fluctuations. ⁴	FKNMS will continue to support monitoring of zoned areas by the FWC and other projects to track species populations, such as spiny lobster	Mean abundance ² of legal-sized spiny lobsters in the Western Sambo Ecological Reserve (all habitats combined) during the closed fishing season (July 1998) ³ : 11.78	Living Marine Resources
By 2010, the habitat quality within zoned areas will remain stable or improve.	FKNMS will continue to support monitoring of zoned areas by the UNCW Coral Reef Rapid Assessment Monitoring and Modeling project, FWC Coral Reef Evaluation and Monitoring Program, and other projects to track habitat quality.	Mean percent cover of stony corals at two habitat types and locations (2002) ¹ : Western Sambo Ecological Reserve (low-relief spur and groove habitat type): 10.3% Carysfort Reef SPA (low-relief hard-bottom habitat type): 2.5%	Habitat

¹ Miller, S. L., D.W. Swanson, M. Vermeij, and D. Eaken, "Rapid Assessment and Monitoring of Coral Reef Habitats on the Florida Reef Tract, Summer 2002," in *National Oceanic and Atmospheric Administration, Florida Keys National Marine Sanctuary, U.S. Environmental Protection Agency, and State of Florida 2002-03 Sanctuary Science Report: An Ecosystem Report Card After Five Years of Marine Zoning*. May 2006; 378 pp.

² Abundance = # lobsters / 1 hour search time

³ Cox, C. and J. H. Hunt. "Change in size and abundance of Caribbean spiny lobsters *Panulirus argus* in a marine reserve in the Florida Keys National Marine Sanctuary, USA." *Mar Ecol Prog Ser.* Vol. 294: 227-239, 2005.

⁴ Baseline Fluctuations are defined as the variation documented in a long-term data set.

Table 3.26: Mooring Buoy Action Plan Performance Measures

Desired Outcome(s) For Mooring Buoy Action Plan			
Sensitive habitats in high use areas of the Sanctuary will be protected from anchor damage			
Performance Measures	Means of Evaluation	Baseline	NMSP Measure
By 2012, the FKNMS will continue to maintain, at minimum, the current number of mooring buoys at 95% availability.	FKNMS mooring buoy maintenance team provides written reports monthly on percent of buoys available for vessel mooring and zone marking	465 buoys	N/A

Table 3.27: Waterway Management Action Plan Performance Measures

Desired Outcome(s) For Waterway Management Action Plan			
Decline in boating related environmental damage to the submerged resources of the Sanctuary.			
Performance Measures	Evaluation	Baseline	NMSP Measure
By 2012, there will be a 10% reduction in the incidents of vessel groundings.	FKNMS will track the number of reported vessel groundings	500-600 vessel grounding reports per annum	Habitat, Living Marine Resources
By 2012 there will be a 10% reduction in total acres heavily scarred by boat propellers	FKNMS will track the number of acres of seagrass flats heavily scarred by boat propellers taking into account those areas under restoration and in recovery.	30,000 acres of grassflats heavily scarred by boat propellers	Habitat, Living Marine Resources

Table 3.28: Water Quality Action Plan Performance Measures

Desired Outcome(s) For This Action Plan			
Overall water quality is improved throughout the sanctuary and statistically validated through long term monitoring data			
Performance Measures	Means of Evaluation	Baseline	NMSP Measure
By 2010, FKNMS will have completed regulatory review ¹ , for the potential for inclusion of federal Waters within the FKNMS as a no-discharge zone consistent with the state waters of the FKNMS.	FKNMS will maintain an administrative record regarding this process.	0 – No Current Action	Water Quality
By 2012, FKNMS will maintain the current level of water quality monitoring, and undertake 3 special studies based on results of these data.	FKNMS will develop long term monitoring and special study reports to be maintained and published on the internet	Stations sampled quarterly =54 Special Studies=0	Water Quality

¹ The term *regulatory review* implies that FKNMS will:

- develop a recommended, or draft, preferred alternative, following requirements of the National Environmental Policy Act (NEPA);
- develop a proposed rulemaking if appropriate; and
- deliver the associated documents to HQ for the beginning of the clearance process.

Table 3.29: Operations Action Plan - Administration Function Performance Measures

Desired Outcome(s) For Operations Action Plan - Administration Function			
Increased protection of Sanctuary Resources through efficient use and leveraging of resources			
Performance Measures	Means of Evaluation	Baseline	NMSP Measure
Through 2012 FKNMS will continue to maintain strategic partnerships through memoranda of agreement and implement, at least, one joint project under each agreement that results in leveraging of fiscal resources or expertise, and/or meets a priority activity under this management plan. .	FKNMS will maintain records of executed agreements and associated activities under these agreements.	0 ¹ – Currently, various projects are in process under executed agreements.	Partnerships

¹ A baseline of 0 successfully implemented projects is being used to allow the accurate measure of new projects completed under this plan based on the date of its implementation.

Table 3.30: Operations Action Plan - Sanctuary Advisory Council Function Performance Measures

Desired Outcome(s) For Operations Action Plan -Sanctuary Advisory Council Function			
Meaningful stakeholder participation is maintained or strengthened to implement the vision, mission, goals and objectives of the FKNMS.			
	Means of Evaluation	Baseline	NMSP Measure
By 2010, the Sanctuary Advisory Council will provide significant input on 30 priority projects ¹	Council input on these types of issues will be recorded in the meeting minutes at each council meeting. With the aid of written and/or recorded meeting minutes, each sanctuary advisory council coordinator will track any significant input on a priority project/issue that occurred during the council meeting. Coordinators will also provide a brief justification (one or two sentences) as to why the input is "significant" and "priority".	6 - per year	SAC



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Appendix A - The National Marine Sanctuaries Act

*Title 16, Chapter 32, Sections 1431 et seq. United States Code
As amended by Public Law 106-513, November 2000*

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SECTION 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 cases 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 chapter 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 chapter.

SECTION 302. Definitions

As used in this chapter, the term -

- (1) "draft management plan" means the plan described in section 1434(a) (1) (C) (v) of this title;
- (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 1443(b) (2) of this title;
 - (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 1443 of this title;
- (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;
and
- (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 1431 of this title.

SECTION 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 chapter;
 - (2) the area is of special national significance due to -
 - (A) its conservation, recreational, ecological, historical, scientific, cultural, archaeological, 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 stated in paragraph (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) of this section, 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), and (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 chapter;
 - (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.

SECTION 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 the Office of the Federal Register, submit a copy of that notice and the draft sanctuary designation documents prepared pursuant to paragraph (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 1433(a) of this title with respect to the area.
 - (F) An assessment of the considerations under section 1433(b) (1) of this title.

- (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 chapter and the goals and objectives of the proposed designation. In preparing the draft regulations, a Regional Fishery Management Council shall use as guidance the national standards of section 301(a) of the Magnuson-Stevens Act (16 U.S.C. 1851) to the extent that the standards are consistent and compatible with the goals and objectives of the proposed designation. The Secretary shall prepare the fishing regulations, if the Council declines to make a determination with respect to the need for regulations, makes a determination which is rejected by the Secretary, or fails to prepare the 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)(1)(C) of this section, 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) of this section. 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 national 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 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) of this section 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 chapter 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 five years after the date of designation of any national marine sanctuary, and thereafter at intervals not exceeding five 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 chapter. 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) Thunder Bay National Marine Sanctuary; or
 - (B) Northwestern Hawaiian Islands National Marine Sanctuary.

SECTION 305. Application of regulations; international negotiations and cooperation

- (a) Regulations. This chapter and the regulations issued under section 1434 of this title shall be applied in accordance with generally recognized principles of international law, and in accordance with 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 furtherance of the purposes and policies of this chapter and consistent with applicable regional and multilateral arrangements for the protection and management of special marine areas.

SECTION 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 chapter by -
 - (A) refusing to permit any officer authorized to enforce this chapter 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 chapter;
 - (B) resisting, opposing, impeding, intimidating, harassing, bribing, interfering with, or forcibly assaulting any person authorized by the Secretary to implement this chapter or any such authorized officer in the conduct of any search or inspection performed under this chapter; or
 - (C) knowingly and willfully submitting false information to the Secretary or any officer authorized to enforce this chapter in connection with any search or inspection conducted under this chapter; or

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

SECTION 307. Enforcement

- (a) In general. The Secretary shall conduct such enforcement activities as are necessary and reasonable to carry out this chapter.
- (b) Powers of authorized officers. Any person who is authorized to enforce this chapter may -
 - (1) board, search, inspect, and seize any vessel suspected of being used to violate this chapter or any regulation or permit issued under this chapter and any equipment, stores, and cargo of such vessel;
 - (2) seize wherever found any sanctuary resource taken or retained in violation of this chapter or any regulation or permit issued under this chapter;
 - (3) seize any evidence of a violation of this chapter or of any regulation or permit issued under this chapter;
 - (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 person has committed an act prohibited by section 1436(3) of this title.
- (c) Criminal offenses
 - (1) Offenses. A person is guilty of an offense under this subsection if the person commits any act prohibited by section 1436(3) of this title.
 - (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, 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 chapter or any person authorized to implement the provisions of this chapter, or places any such person in fear of imminent bodily injury, shall be fined under title 18, 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 chapter or any regulation or permit issued under this chapter 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 chapter or any regulation or permit issued under this chapter 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 chapter or of any regulation or permit issued under this chapter 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 1443 of this title. 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 chapter.
- (3) Disposal of sanctuary resources Any sanctuary resource seized pursuant to this chapter 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 chapter or of any regulation or permit issued under this chapter were taken or retained in violation of this chapter or of a regulation or permit issued under this chapter.
- (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 9607(f)(1) of title 42.
- (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 chapter or any regulation or permit issued under this chapter.
- (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 chapter or any regulation or permit issued under this chapter; 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 chapter or of any regulation or permit issued under this chapter, 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, 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.
- (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 1443 of this title, 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 chapter 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 chapter, 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.

SECTION 308. Regulations

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

SECTION 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) of this section and the purposes and policies of this chapter.
- (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) of this section and developing interpretive facilities under subsection (d) of this section, the Secretary may consult or coordinate with Federal, interstate, or regional agencies, States or local governments.

SECTION 310. Special use permits

- (a) Issuance of permits. The Secretary may issue special use permits which authorize the conduct of specific activities in a national marine sanctuary if the Secretary determines

- such authorization is necessary -
- (1) to establish conditions of access to and use of any sanctuary resource; or
 - (2) to promote public use and understanding of a sanctuary resource.
- (b) Public notice required. The Secretary shall provide appropriate public notice before identifying any category of activity subject to a special use permit under subsection (a) of this section.
- (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 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 1437 of this title; 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.

SECTION 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 chapter.
- (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 chapter.
- (c) Donations. The Secretary may accept donations of funds, property, and services for use in designating and administering national marine sanctuaries under this chapter. Donations accepted under this section shall be considered as a gift or bequest to or for the use of the United States.
- (d) Acquisitions. The Secretary may acquire by purchase, lease, or exchange, any land, facilities, or other property necessary and appropriate to carry out the purposes and policies of this chapter.
- (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 chapter.
- (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 chapter.

SECTION 312. Destruction or loss of, or injury to, sanctuary resources

- (a) Liability
 - (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) interest on that amount calculated in the manner described under section 2705 of title 33.
 - (2) Liability in rem. Any vessel used to destroy, cause the loss of, or injure any sanctuary resource shall be liable in rem to the United States for response costs and damages resulting from such destruction, loss, or injury. The amount of that liability shall constitute a maritime lien on the vessel and may be recovered in an action in rem in any district court of the United States that has jurisdiction over the vessel.
 - (3) Defenses. A person is not liable under this subsection if that person establishes that -

- (A) the destruction or loss of, or injury to, the sanctuary resource was caused solely by an act of God, an act of war, or an act or omission of a third party, and the person acted with due care;
 - (B) the destruction, loss, or injury was caused by an activity authorized by Federal or State law; or
 - (C) the destruction, loss, or injury was negligible.
- (4) Limits to liability Nothing in sections 181 to 188 of title 46, Appendix, or section 192 of title 46, Appendix, shall limit the liability of any person under this chapter.
- (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 1432(6) of this title.
- (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) of this section 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 9607(f) (1) of title 42, 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) of this section 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.

SECTION 313. Authorization of appropriations

There are authorized to be appropriated to the Secretary -

- (1) to carry out this chapter -
 - (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.

SECTION 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.
- (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).

SECTION 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 1852 of this title; 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 November 4, 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.

SECTION 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) of this section.
 - (c) Restrictions. The Secretary may restrict the use of the symbols published under subsection (a) of this section, 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) of this section 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) of this section, including to sell any item bearing such a symbol, unless authorized by the Secretary under subsection (a)(4) of this section or subsection (f) of this section; 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) of this section by any person engaged in a collaborative effort with the Secretary to carry out the purposes and policies of this chapter 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, corporations, 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.

SECTION 317. 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 chapter, 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 B - The Florida Keys National Marine Sanctuary and Protection Act

Public Law 101-605 (H.R. 5909)

SECTION 1. SHORT TITLE. This Act may be cited as the "Florida Keys National Marine Sanctuary and Protection Act."

SEC. 2. FINDINGS. The Congress finds and declares the following:

- (1) The Florida Keys extend approximately 220 miles southwest from the southern tip of the Florida peninsula.
- (2) Adjacent to the Florida Keys land mass are located spectacular, unique, and nationally significant marine environments, including seagrass meadows, mangrove islands, and extensive living coral reefs.
- (3) These marine environments support rich biological communities possessing extensive conservation, recreational, commercial, ecological, historical, research, educational, and esthetic values which give this area special national significance.
- (4) These environments are the marine equivalent of tropical rain forests in that they support high levels of biological diversity, are fragile and easily susceptible to damage from human activities, and possess high value to human beings if properly conserved.
- (5) These marine environments are subject to damage and loss of their ecological integrity from a variety of sources of disturbance.
- (6) Vessel groundings along the reefs of the Florida Keys represent one of many serious threats to the continued vitality of the marine environments of the Florida Keys which must be addressed in order to protect their values.
- (7) Action is necessary to provide comprehensive protection for these marine environments by establishing a Florida Keys National Marine Sanctuary, by restricting vessel traffic within such Sanctuary, and by requiring promulgation of a management plan and regulations to protect sanctuary resources.
- (8) The agencies of the United States must cooperate fully to achieve the necessary protection of sanctuary resources.

(9) The Federal Government and the State of Florida should jointly develop and implement a comprehensive program to reduce pollution in the waters offshore the Florida Keys to protect and restore the water quality, coral reefs, and other living marine resources of the Florida Keys environment.

POLICY AND PURPOSE

SEC. 3.(a) POLICY.—It is the policy of the United States to protect and preserve living and other resources of the Florida Keys marine environment.

(b) PURPOSE.—The purpose of this Act is to protect the resources of the area described in section 5(b), to educate and interpret for the public regarding the Florida Keys marine environment, and to manage such human uses of the Sanctuary consistent with this Act. Nothing in this Act is intended to restrict activities that do not cause an adverse effect to the resources or property of the Sanctuary or that do not pose harm to users of the Sanctuary.

DEFINITION

SEC. 4. As used in this Act, the term “adverse effect” means any factor, force, or action that would independently or cumulatively damage, diminish, degrade, impair, destroy, or otherwise harm—

(1) any sanctuary resource, as defined in section 302(8) of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1432(8)); or

(2) any of those qualities, values, or purposes for which the Sanctuary is designated.

SANCTUARY DESIGNATION

SEC. 5.(a) DESIGNATION.—The area described in subsection (b) is designated as the Florida Keys National Marine Sanctuary (in this Act referred to as the “Sanctuary”) under title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1431 et seq.). The Sanctuary shall be managed and regulations enforced under all applicable provisions of such title III as if the Sanctuary had been designated under such title.

(b) AREA INCLUDED.—(1) Subject to subsections (c) and (d), the area referred to in subsection (a) consists of all submerged lands and waters,

including living marine and other resources within and on those lands and waters, from the mean high water mark to the boundary described under paragraph (2), with the exception of areas within the Fort Jefferson National Monument. The Sanctuary shall be generally identified and depicted on National Oceanic and Atmospheric Administration charts FKNMS 1 and 2, which shall be maintained on file and kept available for public examination during regular business hours at the Office of Ocean and Coastal Resource Management of the National Oceanic and Atmospheric Administration and which shall be updated to reflect boundary modifications under this section.

(2) The boundary referred to in paragraph (1)—

(A) begins at the northeasternmost point of Biscayne National Park located at approximately 25 degrees 39 minutes north latitude, 80 degrees 5 minutes west longitude, then runs eastward to the 300-foot isobath located at approximately 25 degrees 39 minutes north latitude, 80 degrees 4 minutes west longitude;

(B) then runs southward and connects in succession the points at the following coordinates:

(i) 25 degrees 34 minutes north latitude, 80 degrees 4 minutes west longitude,

(ii) 25 degrees 28 minutes north latitude, 80 degrees 5 minutes west longitude, and

(iii) 25 degrees 21 minutes north latitude, 80 degrees 7 minutes west longitude;

(C) then runs southward to the northeastern corner of the existing Key Largo National Marine Sanctuary located at 25 degrees 16 minutes north latitude, 80 degrees 8 minutes west longitude;

(D) then runs southwesterly approximating the 300-foot isobath and connects in succession the points at the following coordinates:

(i) 25 degrees 7 minutes north latitude, 80 degrees 13 minutes west longitude,

(ii) 24 degrees 57 minutes north latitude, 80 degrees 21 minutes west longitude,

(iii) 24 degrees 39 minutes north latitude, 80 degrees 52 minutes west longitude,

(iv) 24 degrees 30 minutes north latitude, 81 degrees 23 minutes west longitude,

(v) 24 degrees 25 minutes north latitude, 81 degrees 50 minutes west longitude,

(vi) 24 degrees 22 minutes north latitude, 82 degrees 48 minutes west longitude,

(vii) 24 degrees 37 minutes north latitude, 83 degrees 6 minutes west longitude,

(viii) 24 degrees 40 minutes north latitude, 83 degrees 6 minutes west longitude,

(ix) 24 degrees 46 minutes north latitude, 82 degrees 54 minutes west longitude,

(x) 24 degrees 44 minutes north latitude, 81 degrees 55 minutes west longitude,

(xi) 24 degrees 51 minutes north latitude, 81 degrees 26 minutes west longitude, and

(xii) 24 degrees 55 minutes north latitude, 80 degrees 56 minutes west longitude;

(E) then follows the boundary of Everglades National Park in a southerly then northeasterly direction through Florida Bay, Buttonwood Sound, Tarpon Basin, and Blackwater Sound;

(F) after Division Point, then departs from the boundary of Everglades National Park and follows the western shoreline of Manatee Bay, Barnes Sound, and Card Sound;

(G) then follows the southern boundary of Biscayne National Park and the northern boundary of Key Largo National Marine Sanctuary to the southeasternmost point of Biscayne National Park; and

(H) then follows the eastern boundary of the Biscayne National Park to the beginning point specified in subparagraph (A).

(c) AREAS WITHIN STATE OF FLORIDA.—The designation under subsection (a) shall not take effect for any area located within the waters of the State of Florida if, not later than 45 days after the date of enactment of this Act, the Governor of the State of Florida objects in writing to the Secretary of Commerce.

(d) BOUNDARY MODIFICATIONS.—No later than the issuance of the draft environmental impact statement for the Sanctuary under section 304(a) (1) (C) (vii) of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1434(a) (1) (C) (vii)), in consultation with the Governor of the State of Florida, if appropriate, the Secretary of Commerce may make minor modifications to the boundaries of the Sanctuary as necessary to properly protect sanctuary resources. The Secretary of Commerce shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Merchant Marine and Fisheries of the House of Representatives a written notification of such modifications. Any boundary modification made under this subsection shall be reflected on the charts referred to in subsection (b) (1).

PROHIBITION OF CERTAIN USES

SEC. 6. (a) VESSEL TRAFFIC.—(1) Consistent with generally recognized principles of international law, a person may not operate a tank vessel (as that term is defined in section 2101 of title 46, United States Code) or a vessel greater than 50 meters in length in the Area to Be Avoided described in the Federal Register notice of May 9, 1990 (55 Fed. Reg. 19418-19419).

(2) The prohibition in paragraph (1) shall not apply to necessary operations of public vessels. For the purposes of this paragraph, necessary operations of public vessels shall include operations essential for national defense, law enforcement, and responses to emergencies that threaten life, property, or the environment.

(3) The provisions of paragraphs (1) and (2), including the area in which vessel operations are prohibited under paragraph (1), may be modified by regulations issued jointly by the Secretary of the department in which the Coast guard is operating and the Secretary of Commerce.

(4) This subsection shall be effective on the earliest of the following:

(A) the date that is six months after the date of enactment of this Act,

(B) the date of publication of a notice to mariners consistent with this section, or

(C) the date of publication of new nautical charts consistent with this section.

(b) MINERAL AND HYDROCARBON LEASING, EXPLORATION, DEVELOPMENT, AND PRODUCTION.—No leasing, exploration, development, or production of minerals or hydrocarbons shall be permitted within the Sanctuary.

COMPREHENSIVE MANAGEMENT PLAN

SEC. 7.(a) PREPARATION OF PLAN.—The Secretary of Commerce, in consultation with appropriate Federal, State, and local government authorities and with the Advisory Council established under section 208, shall develop a comprehensive management plan and implementing regulations to achieve the policy and purpose of this Act. The Secretary of Commerce shall complete such comprehensive management plan and final regulations for the Sanctuary not later than 30 months after the date of enactment of this Act. In developing the plan and regulations, the Secretary of Commerce shall follow the procedures specified in sections 303 and 304 of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1433 and 1434), except those procedures requiring the delineation of Sanctuary boundaries and development of a resource assessment report. Such comprehensive management plan shall—

(1) facilitate all public and private uses of the Sanctuary consistent with the primary objective of Sanctuary resource protection;

(2) consider temporal and geographical zoning, to ensure protection of sanctuary resources;

(3) incorporate regulations necessary to enforce the elements of the comprehensive water quality protection program developed under section 8 unless the Secretary of Commerce determines that such program does not meet the purpose for which the Sanctuary is designated or is otherwise inconsistent or incompatible with the comprehensive management plan developed under this section;

(4) identify priority needs for research and amounts needed to—

(A) improve management of the Sanctuary, and in particular, the coral reef ecosystem within the Sanctuary; and

(B) identify clearly the cause and effect relationships between factors threatening the health of the coral reef ecosystem in the Sanctuary;

(5) establish a long-term ecological monitoring program and database, including methods to disseminate information on the management of the coral reef ecosystem.

(6) identify alternative sources of funding needed to fully implement the plan's provisions and supplement appropriations under section 9 of this Act and section 313 of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1444).

(7) ensure coordination and cooperation between Sanctuary managers and other Federal, State, and local authorities with jurisdiction within or adjacent to the Sanctuary;

(8) promote education, among users of the Sanctuary, about coral reef conservation and navigational safety; and

(9) incorporate the existing Looe Key and Key Largo National Marine Sanctuaries into the Florida Keys National Marine Sanctuary except that Looe Key and Key Largo Sanctuaries shall continue to be operated until completion of the comprehensive management plan for the Florida Keys Sanctuary.

(b) PUBLIC PARTICIPATION.— The Secretary of Commerce shall provide for participation by the general public in development of the comprehensive management plan.

(c) TERMINATION OF STUDIES.— On the date of enactment of this Act, all congressionally mandated studies of existing areas in the Florida Keys for designation as National Marine Sanctuaries shall be terminated.

FLORIDA KEYS WATER QUALITY

SEC. 8.(a) WATER QUALITY PROTECTION PROGRAM.—(1) Not later than 18 months after the date of enactment of this Act, the Administrator of the Environmental Protection Agency and the Governor of the State of Florida, in consultation with the Secretary of Commerce, shall develop a comprehensive water quality protection program for the Sanctuary. If the Secretary of Commerce determines that such comprehensive water quality protection program does not meet the purpose for which the Sanctuary is designated or is otherwise inconsistent or incompatible with the comprehensive management plan prepared under section 7, such water quality program shall not be included in the comprehensive management plan. The purposes of such water quality program shall be to—

(A) recommend priority corrective actions and compliance schedules addressing point and nonpoint sources of pollution to restore and maintain the chemical, physical, and biological integrity of the Sanctuary, including restoration and maintenance of a balanced, indigenous population of corals, shellfish, fish and wildlife, and recreational activities in and on the water; and

(B) assign responsibilities for the implementation of the program among the Governor, the Secretary of Commerce, and the Administrator in accordance with applicable Federal and State laws.

(2) The program required by paragraph (1) shall, under applicable Federal and State laws, provide for measures to achieve the purposes described under paragraph (1), including—

(A) adoption or revision, under applicable Federal and State laws, by the State and the Administrator of applicable water quality standards for the Sanctuary, based on water quality criteria which may utilize biological monitoring or assessment methods, to assure protection and restoration of the water quality, coral reefs, and other living marine resources of the Sanctuary;

(B) adoption under applicable Federal and State laws of enforceable pollution control measures (including water quality-based effluent limitations and best management practices) and methods to eliminate or reduce pollution from point and nonpoint sources;

(C) establishment of a comprehensive water quality monitoring program to (i) determine the sources of pollution causing or contributing to existing or anticipated pollution problems in the Sanctuary, (ii) evaluate

the effectiveness of efforts to reduce or eliminate those sources of pollution, and (iii) evaluate progress toward achieving and maintaining water quality standards and toward protecting and restoring the coral reefs and other living marine resources of the Sanctuary;

(D) provision of adequate opportunity for public participation in all aspects of developing and implementing the program; and

(E) identification of funding for implementation of the program, including appropriate Federal and State cost sharing arrangements.

(b) COMPLIANCE AND ENFORCEMENT. — The Administrator of the Environmental Protection Agency, the Secretary of Commerce, and the Governor of the State of Florida shall ensure compliance with the program required by this section, consistent with applicable Federal and State laws.

(c) CONSULTATION. — In the development and implementation of the program required by paragraph (1), appropriate State and local government officials shall be consulted.

(d) IMPLEMENTATION. —

(1) The Administrator of the Environmental Protection Agency and the Governor of the State of Florida shall implement the program required by this section, in cooperation with the Secretary of Commerce.

(2)(A) The Regional Administrator of the Environmental Protection Agency shall with the Governor of the State of Florida establish a Steering Committee to set guidance and policy for the development and implementation of such program. Membership shall include representatives of the Environmental Protection Agency, the National Park Service, the United States Fish and Wildlife Service, the Army Corps of Engineers, the National Oceanic and Atmospheric Administration, the Florida Department of Community Affairs, the Florida Department of Environmental Regulation, the South Florida Water Management District, and the Florida Keys Aqueduct Authority; three individuals in local government in the Florida Keys; and three citizens knowledgeable about such program.

(B) The Steering Committee shall, on a biennial basis, issue a report to Congress that —

(i) summarizes the progress of the program;

(ii) summarizes any modifications to the program and its recommended actions and plans; and

(iii) incorporates specific recommendations concerning the implementation of the program.

(C) The Administrator of the Environmental Protection Agency and the Administrator of the National Oceanic and Atmospheric Administration shall cooperate with the Florida Department of Environmental Regulation to establish a Technical Advisory Committee to advise the Steering Committee and to assist in the design and prioritization of programs for scientific research and monitoring. The Technical Advisory Committee shall be composed of scientists from federal agencies, State agencies, academic institutions, private non-profit organizations, and knowledgeable citizens.

(3)(A) The Regional Administrator of the Environmental Protection Agency shall appoint a Florida Keys Liaison Officer. The Liaison Officer, who shall be located within the State of Florida, shall have the authority and staff to—

(i) assist and support the implementation of the program required by this section, including administrative and technical support for the Steering Committee and Technical Advisory Committee;

(ii) assist and support local, State, and Federal agencies in developing and implementing specific action plans designed to carry out such program;

(iii) coordinate the actions of the Environmental Protection Agency with other Federal agencies, including the National Oceanic and Atmospheric Administration and the National Park Service, and State and local authorities, in developing strategies to maintain, protect, and improve water quality in the Florida Keys;

(iv) collect and make available to the public publications, and other forms of information that the Steering Committee determines to be appropriate, related to the water quality in the vicinity of the Florida Keys; and

(v) provide for public review and comment on the program and implementing actions.

(4)(A) There are authorized to be appropriated to the Administrator of the Environmental Protection Agency \$2,000,000 for fiscal year 1993, \$3,000,000 for fiscal year 1994, and \$4,000,000 for fiscal year 1995, for the purpose of carrying out this section.

(B) There are authorized to be appropriated to the Secretary of Commerce \$300,000 for fiscal year 1993, \$400,000 for fiscal year 1994, and \$500,000 for fiscal year 1995, for the purpose of enabling the National Oceanic and Atmospheric Administration to carry out this section.

(C) Amounts appropriated under this paragraph shall remain available until expended.

(D) No more than 15 percent of the amount authorized to be appropriated under subparagraph (A) for any fiscal year may be expended in that fiscal year on administrative expense.

ADVISORY COUNCIL

SEC. 9.(a) ESTABLISHMENT. — The Secretary of Commerce, in consultation with the Governor of the State of Florida and the Board of County Commissioners of Monroe County, Florida, shall establish an Advisory Council to assist the Secretary in the development and implementation of the comprehensive management plan for the Sanctuary.

(b) MEMBERSHIP. — Members of the Advisory Council may be appointed from among (1) Sanctuary managers, (2) members of other government agencies with overlapping management responsibilities for the Florida Keys marine environment, and (3) representatives of local industries, commercial users, conservation groups, the marine scientific and educational community, recreational user groups, or the general public.

(c) EXPENSES. — Members of the Advisory Council shall not be paid compensation for their service as members and shall not be reimbursed for actual and necessary traveling and subsistence expenses incurred by them in the performance of their duties as such members.

(d) ADMINISTRATION. — The Advisory Council shall elect a chairperson and may establish subcommittees, and adopt bylaws, rules, and such

other administrative requirements and procedures as are necessary for the administration of its functions.

(e) STAFFING AND OTHER ASSISTANCE. — The Secretary of Commerce shall make available to the Advisory Council such staff, information, and administrative services and assistance as the Secretary of Commerce determines are reasonably required to enable the Advisory Council to carry out its functions.

AUTHORIZATION OF APPROPRIATIONS

SEC. 10. (a) AUTHORIZATION FOR SECRETARY OF COMMERCE. — Section 313(2) (C) of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1444(2) (C)) is amended by striking “\$3,000,000” and inserting in lieu thereof “\$4,000,000.”

(b) AUTHORIZATION FOR EPA ADMINISTRATOR. — There are authorized to be appropriated to the Administrator of the Environmental Protection Agency \$750,000 for each of the fiscal years 1991 and 1992.

(c) REPORT. — The Secretary of Commerce shall, not later than March 1, 1991, submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Merchant Marine and Fisheries of the House of Representatives a report on the future requirements for funding the Sanctuary through fiscal year 1999 under title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 14321 et seq.).

Approved November 16, 1990.

Appendix C - FKNMS Regulations

15 CFR part 922, subpart P – Florida Keys National Marine Sanctuary
Source: 62 FR 32161, June 12, 1997, unless otherwise noted.

§ 922.160 Purpose.

- (a) The purpose of the regulations in this subpart is to implement the comprehensive management plan for the Florida Keys National Marine Sanctuary by regulating activities affecting the resources of the Sanctuary or any of the qualities, values, or purposes for which the Sanctuary is designated, in order to protect, preserve and manage the conservation, ecological, recreational, research, educational, historical, and aesthetic resources and qualities of the area. In particular, the regulations in this part are intended to protect, restore, and enhance the living resources of the Sanctuary, to contribute to the maintenance of natural assemblages of living resources for future generations, to provide places for species dependent on such living resources to survive and propagate, to facilitate to the extent compatible with the primary objective of resource protection all public and private uses of the resources of the Sanctuary not prohibited pursuant to other authorities, to reduce conflicts between such compatible uses, and to achieve the other policies and purposes of the Florida Keys National Marine Sanctuary and Protection Act and the National Marine Sanctuaries Act.
- (b) Section 304(e) of the NMSA requires the Secretary to review management plans and regulations every five years, and make necessary revisions. Upon completion of the five year review of the Sanctuary management plan and regulations, the Secretary will repropose the regulations in their entirety with any proposed changes thereto, including those regulations in subparts A and E of this part that apply to the Sanctuary. The Governor of the State of Florida will have the opportunity to review the re-proposed regulations before they take effect and if the Governor certifies such regulations as unacceptable, they will not take effect in State waters of the Sanctuary.

§ 922.161 Boundary.

The Sanctuary consists of an area of approximately 2900 square nautical miles (9,800 square kilometers) of coastal and ocean waters, and the submerged lands thereunder, surrounding the Florida Keys in Florida. Appendix I to this subpart sets forth the precise Sanctuary boundary.

[66 FR 4369, Jan. 17, 2001]

§ 922.162 Definitions.

(a) The following definitions apply to the Florida Keys National Marine Sanctuary regulations. To the extent that a definition appears in §922.3 and this section, the definition in this section governs.

Acts means the Florida Keys National Marine Sanctuary and Protection Act, as amended, (FKNMSPA) (Pub. L. 101-605), and the National Marine Sanctuaries Act (NMSA), also known as Title III of the Marine Protection, Research, and Sanctuaries Act, as amended, (MPRSA) (16 U.S.C. 1431 et seq.).

Adverse effect means any factor, force, or action that independently or cumulatively damages, diminishes, degrades, impairs, destroys, or otherwise harms any Sanctuary resource, as defined in section 302(8) of the NMSA (16 U.S.C. 1432(8)) and in this section, or any of the qualities, values, or purposes for which the Sanctuary is designated.

Airboat means a vessel operated by means of a motor driven propeller that pushes air for momentum.

Areas To Be Avoided means the areas in which vessel operations are prohibited pursuant to section 6(a)(1) of the FKNMSPA (see §922.164(a)). Appendix VII to this subpart sets forth the geographic coordinates of these areas, including any modifications thereto made in accordance with section 6(a) (3) of the FKNMSPA.

Closed means all entry or use is prohibited.

Coral means the corals of the Class Hydrozoa (stinging and hydrocorals); the Class Anthozoa, Subclass Hexacorallia, Order Scleractinia (stony corals) and Antipatharia (black corals).

Coral area means marine habitat where coral growth abounds including patch reefs, outer bank reefs, deepwater banks, and hardbottoms.

Coral reefs means the hard bottoms, deep-water banks, patch reefs, and outer bank reefs.

Ecological Reserve means an area of the Sanctuary consisting of contiguous, diverse habitats, within which uses are subject to conditions, restrictions and prohibitions, including access restrictions, intended to minimize human influences, to provide natural spawning, nursery, and permanent residence areas for the replenishment and genetic protection of marine life, and also to protect and preserve natural assemblages of habitats and species within areas representing a broad diversity of resources and habitats found within the Sanctuary. Appendix IV to this subpart sets forth the geographic coordinates of these areas.

Existing Management Area means an area of the Sanctuary that is within or is a resource management area established by NOAA or by another Federal authority of competent jurisdiction as of the effective date of these regulations where protections above and beyond those provided by Sanctuary-wide prohibitions and restrictions are needed to adequately protect resources. Appendix II to this subpart sets forth the geographic coordinates of these areas.

Exotic species means a species of plant, invertebrate, fish, amphibian, reptile or mammal whose natural zoogeographic range would not have included the waters of the Atlantic Ocean, Caribbean, or Gulf of Mexico without passive or active introduction to such area through anthropogenic means.

Fish means finfish, mollusks, crustaceans, and all forms of marine animal and plant life other than marine mammals and birds.

Fishing means:

- (1) The catching, taking, or harvesting of fish; the attempted catching, taking, or harvesting of fish; any other activity which can reasonably be expected to result in the catching, taking, or harvesting of fish; or any operation at sea in support of, or in preparation for, any activity described in this subparagraph (1).
- (2) Such term does not include any scientific research activity which is conducted by a scientific research vessel.

Hardbottom means a submerged marine community comprised of organisms attached to exposed solid rock substrate. Hardbottom is the substrate to which corals may attach but does not include the corals themselves.

Idle speed only/ no-wake means a speed at which a boat is operated that is no greater than 4 knots or does not produce a wake.

Idle speed only/ no-wake zone means a portion of the Sanctuary where the speed at which a boat is operated may be no greater than 4 knots or may not produce a wake.

Length overall (LOA) or length means, as used in §922.167 with respect to a vessel, the horizontal distance, rounded to the nearest foot (with 0.5 ft and above rounded upward), between the foremost part of the stem and the aftermost part of the stern, excluding bowsprits, rudders, outboard motor brackets, and similar fittings or attachments.

Live rock means any living marine organism or an assemblage thereof attached to a hard substrate, including dead coral or rock but not individual mollusk shells (e.g., scallops, clams, oysters). Living marine organisms associated with hard bottoms, banks, reefs, and live rock may include, but are not limited to: sea anemones (Phylum Cnidaria: Class Anthozoa: Order Actinaria); sponges (Phylum Porifera); tube worms (Phylum Annelida), including fan worms, feather duster worms, and Christmas tree worms; bryozoans (Phylum Bryozoa); sea squirts (Phylum Chordata); and marine algae, including Mermaid's fan and cups (*Udotea* spp.), corraline algae, green feather, green grape algae (*Caulerpa* spp.) and watercress (*Halimeda* spp.).

Marine life species means any species of fish, invertebrate, or plant included in sections (2), (3), or (4) of Rule 46-42.001, Florida Administrative Code, reprinted in Appendix VIII to this subpart.

Military activity means an activity conducted by the Department of Defense with or without participation by foreign forces, other than civil engineering and other civil works projects conducted by the U.S. Army Corps of Engineers.

No-access buffer zone means a portion of the Sanctuary where vessels are prohibited from entering regardless of the method of propulsion.

No motor zone means an area of the Sanctuary where the use of internal combustion motors is prohibited. A vessel with an internal combustion motor may access a no motor zone only through the use of a push pole, paddle, sail, electric motor or similar means of operation but is prohibited from using its internal combustion motor.

Not available for immediate use means not readily accessible for immediate use, e.g., by being stowed unbaited in a cabin, locker, rod holder, or similar storage area, or by being securely covered and lashed to a deck or bulkhead.

Officially marked channel means a channel marked by Federal, State of Florida, or Monroe County officials of competent jurisdiction with navigational aids except for channels marked idle speed only/no wake.

Personal watercraft means any jet or air-powered watercraft operated by standing, sitting, or kneeling on or behind the vessel, in contrast to a conventional boat, where the operator stands or sits inside the vessel, and that uses an inboard engine to power a water jet pump for propulsion, instead of a propeller as in a conventional boat.

Prop dredging means the use of a vessel's propulsion wash to dredge or otherwise alter the seabed of the Sanctuary. Prop dredging includes, but is not limited to, the use of propulsion wash deflectors or similar means of dredging or otherwise altering the seabed of the Sanctuary. Prop dredging does not include the disturbance to bottom sediments resulting from normal vessel propulsion.

Prop scarring means the injury to seagrasses or other immobile organisms attached to the seabed of the Sanctuary caused by operation of a vessel in a manner that allows its propeller or other running gear, or any part thereof, to cause such injury (e.g., cutting seagrass rhizomes). Prop scarring does not include minor disturbances to bottom sediments or seagrass blades resulting from normal vessel propulsion.

Residential shoreline means any man-made or natural:

- (1) Shoreline,
- (2) Canal mouth,
- (3) Basin, or

- (4) Cove adjacent to any residential land use district, including improved subdivision, suburban residential or suburban residential limited, sparsely settled, urban residential, and urban residential mobile home under the Monroe County land development regulations.

Sanctuary means the Florida Keys National Marine Sanctuary.

Sanctuary Preservation Area means an area of the Sanctuary that encompasses a discrete, biologically important area, within which uses are subject to conditions, restrictions and prohibitions, including access restrictions, to avoid concentrations of uses that could result in significant declines in species populations or habitat, to reduce conflicts between uses, to protect areas that are critical for sustaining important marine species or habitats, or to provide opportunities for scientific research. Appendix V to this subpart sets forth the geographic coordinates of these areas.

Sanctuary wildlife means any species of fauna, including avifauna, that occupy or utilize the submerged resources of the Sanctuary as nursery areas, feeding grounds, nesting sites, shelter, or other habitat during any portion of their life cycles.

Seagrass means any species of marine angiosperms (flowering plants) that inhabit portions of the seabed in the Sanctuary. Those species include, but are not limited to: *Thalassia testudinum* (turtle grass); *Syringodium filiforme* (manatee grass); *Halodule wrightii* (shoal grass); *Halophila decipiens*, *H. engelmannii*, *H. johnsonii*; and *Ruppia maritima*.

Special-use Area means an area of the Sanctuary set aside for scientific research and educational purposes, recovery or restoration of Sanctuary resources, monitoring, to prevent use or user conflicts, to facilitate access and use, or to promote public use and understanding of Sanctuary resources. Appendix VI to this subpart sets forth the geographic coordinates of these areas.

Stem means the foremost part of a vessel, consisting of a section of timber or fiberglass, or cast, forged, or rolled metal, to which the sides of the vessel are united at the fore end, with the lower end united to the keel, and with the bowsprit, if one is present, resting on the upper end.

Stern means the aftermost part of the vessel.

Tank vessel means any vessel that is constructed or adapted to carry, or that carries, oil or hazardous material in bulk as cargo or cargo residue, and that—

- (1) Is a United States flag vessel;
- (2) Operates on the navigable waters of the United States; or
- (3) Transfers oil or hazardous material in a port or place subject to the jurisdiction of the United States [46 U.S.C. 2101].

Traditional fishing means those commercial or recreational fishing activities that were customarily conducted within the Sanctuary prior to its designation as identified in the Environmental Impact Statement and Management Plan for this Sanctuary.

Tropical fish means any species included in section (2) of Rule 46-42.001, Florida Administrative Code, reproduced in Appendix VIII to this subpart, or any part thereof.

Vessel means a watercraft of any description, including, but not limited to, motorized and non-motorized watercraft, personal watercraft, airboats, and float planes while maneuvering on the water, capable of being used as a means of transportation in/on the waters of the Sanctuary. For purposes of this part, the terms “vessel,” “watercraft,” and “boat” have the same meaning.

Wildlife Management Area means an area of the Sanctuary established for the management, protection, and preservation of Sanctuary wildlife resources, including such an area established for the protection and preservation of endangered or threatened species or their habitats, within which access is restricted to minimize disturbances to Sanctuary wildlife; to ensure protection and preservation consistent with the Sanctuary designation and other applicable law governing the protection and preservation of wildlife resources in the Sanctuary. Appendix III to this subpart lists these areas and their access restrictions.

- (b) Other terms appearing in the regulations in this part are defined at 15 CFR 922.3, and/or in the Marine Protection, Research, and Sanctuaries Act (MPRSA), as amended, 33 U.S.C. 1401 et seq. and 16 U.S.C. 1431 et seq.

[62 FR 32161, June 12, 1997, as amended at 66 FR 4369, Jan. 17, 2001]

§ 922.163 Prohibited activities – Sanctuary-wide.

- (a) Except as specified in paragraph (b) through (e) of this section, the following activities are prohibited and thus are unlawful for any person to conduct or to cause to be conducted:
 - (1) Mineral and hydrocarbon exploration, development and production. Exploring for, developing, or producing minerals or hydrocarbons within the Sanctuary.
 - (2) Removal of, injury to, or possession of coral or live rock.
 - (i) Moving, removing, taking, harvesting, damaging, disturbing, breaking, cutting, or otherwise injuring, or possessing (regardless of where taken from) any living or dead coral, or coral formation, or attempting any of these activities, except as permitted under 50 CFR part 638.
 - (ii) Harvesting, or attempting to harvest, any live rock from the Sanctuary, or possessing (regardless of where taken from) any live rock within the Sanctuary, except as authorized by a permit for the possession or harvest from aquaculture operations in the Exclusive Economic Zone, issued by the National Marine Fisheries Service pursuant to applicable regulations under the appropriate Fishery Management Plan, or as authorized by the applicable State authority of competent jurisdiction within the Sanctuary for live rock cultured on State submerged lands leased from the State of Florida, pursuant to applicable State law. See §370.027, Florida Statutes and implementing regulations.
 - (3) Alteration of, or construction on, the seabed. Drilling into, dredging, or otherwise altering the seabed of the Sanctuary, or engaging in prop-dredging; or constructing, placing or abandoning any structure, material, or other matter on the seabed of the Sanctuary, except as an incidental result of:
 - (i) Anchoring vessels in a manner not otherwise prohibited by this part (see §§922.163(a) (5) (ii) and 922.164(d) (1) (v));

- (ii) Traditional fishing activities not otherwise prohibited by this part;
 - (iii) Installation and maintenance of navigational aids by, or pursuant to valid authorization by, any Federal, State, or local authority of competent jurisdiction;
 - (iv) Harbor maintenance in areas necessarily associated with Federal water resource development projects in existence on July 1, 1997, including maintenance dredging of entrance channels and repair, replacement, or rehabilitation of breakwaters or jetties;
 - (v) Construction, repair, replacement, or rehabilitation of docks, seawalls, breakwaters, piers, or marinas with less than ten slips authorized by any valid lease, permit, license, approval, or other authorization issued by any Federal, State, or local authority of competent jurisdiction.
- (4) Discharge or deposit of materials or other matter.
- (i) Discharging or depositing, from within the boundary of the Sanctuary, any material or other matter, except:
 - (A) Fish, fish parts, chumming materials, or bait used or produced incidental to and while conducting a traditional fishing activity in the Sanctuary;
 - (B) Biodegradable effluent incidental to vessel use and generated by a marine sanitation device approved in accordance with section 312 of the Federal Water Pollution Control Act, as amended, (FWPCA), 33 U.S.C. 1322 et seq.;
 - (C) Water generated by routine vessel operations (e.g., deck wash down and graywater as defined in section 312 of the FWPCA), excluding oily wastes from bilge pumping; or
 - (D) Cooling water from vessels or engine exhaust;
 - (ii) Discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter that subsequently enters the Sanctuary and injures a Sanctuary resource or quality, except those listed in paragraph (a)(4)(i) (A) through (D) of this section

- and those authorized under Monroe County land use permits or under State permits.
- (5) Operation of vessels.
 - (i) Operating a vessel in such a manner as to strike or otherwise injure coral, seagrass, or any other immobile organism attached to the seabed, including, but not limited to, operating a vessel in such a manner as to cause prop-scarring.
 - (ii) Having a vessel anchored on living coral other than hardbottom in water depths less than 40 feet when visibility is such that the seabed can be seen.
 - (iii) Except in officially marked channels, operating a vessel at a speed greater than 4 knots or in manner which creates a wake:
 - (A) Within an area designated idle speed only/no wake;
 - (B) Within 100 yards of navigational aids indicating emergent or shallow reefs (international diamond warning symbol);
 - (C) Within 100 feet of the red and white “divers down” flag (or the blue and white “alpha” flag in Federal waters);
 - (D) Within 100 yards of residential shorelines; or
 - (E) Within 100 yards of stationary vessels.
 - (iv) Operating a vessel in such a manner as to injure or take wading, roosting, or nesting birds or marine mammals.
 - (v) Operating a vessel in a manner which endangers life, limb, marine resources, or property.
 - (6) Conduct of diving/snorkeling without flag. Diving or snorkeling without flying in a conspicuous manner the red and white “divers down” flag (or the blue and white “alpha” flag in Federal waters).
 - (7) Release of exotic species. Introducing or releasing an exotic species of plant, invertebrate, fish, amphibian, or mammals into the Sanctuary.
 - (8) Damage or removal of markers. Marking, defacing, or damaging in any way or displacing, removing, or tampering with any official signs, notices, or placards, whether temporary or permanent, or with any

- navigational aids, monuments, stakes, posts, mooring buoys, boundary buoys, trap buoys, or scientific equipment.
- (9) Movement of, removal of, injury to, or possession of Sanctuary historical resources. Moving, removing, injuring, or possessing, or attempting to move, remove, injure, or possess, a Sanctuary historical resource.
 - (10) Take or possession of protected wildlife. Taking any marine mammal, sea turtle, or seabird in or above the Sanctuary, except as authorized by the Marine Mammal Protection Act, as amended, (MMPA), 16 U.S.C. 1361 et seq., the Endangered Species Act, as amended, (ESA), 16 U.S.C. 1531 et seq., and the Migratory Bird Treaty Act, as amended, (MBTA) 16 U.S.C. 703 et seq.
 - (11) Possession or use of explosives or electrical charges. Possessing, or using explosives, except powerheads, or releasing electrical charges within the Sanctuary.
 - (12) Harvest or possession of marine life species. Harvesting, possessing, or landing any marine life species, or part thereof, within the Sanctuary, except in accordance with rules 46-42.001 through 46-42.003, 46-42.0035, and 46-42.004 through 46-42.007, and 46.42.009 of the Florida Administrative Code, reproduced in Appendix VIII to this subpart, and such rules shall apply *mutatis mutandis* (with necessary editorial changes) to all Federal and State waters within the Sanctuary.
 - (13) Interference with law enforcement. Interfering with, obstructing, delaying or preventing an investigation, search, seizure, or disposition of seized property in connection with enforcement of the Acts or any regulation or permit issued under the Acts.
- (b) Notwithstanding the prohibitions in this section and in §922.164, and any access and use restrictions imposed pursuant thereto, a person may conduct an activity specifically authorized by, and conducted in accordance with the scope, purpose, terms, and conditions of, a National Marine Sanctuary permit issued pursuant to §922.166.

- (c) Notwithstanding the prohibitions in this section and in §922.164, and any access and use restrictions imposed pursuant thereto, a person may conduct an activity specifically authorized by a valid Federal, State, or local lease, permit, license, approval, or other authorization in existence on the effective date of these regulations, or by any valid right of subsistence use or access in existence on the effective date of these regulations, provided that the holder of such authorization or right complies with §922.167 and with any terms and conditions on the exercise of such authorization or right imposed by the Director as a condition of certification as he or she deems reasonably necessary to achieve the purposes for which the Sanctuary was designated.
- (d) Notwithstanding the prohibitions in this section and in §922.164, and any access and use restrictions imposed pursuant thereto, a person may conduct an activity specifically authorized by any valid Federal, State, or local lease, permit, license, approval, or other authorization issued after the effective date of these regulations, provided that the applicant complies with §922.168, 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 reasonably necessary to protect Sanctuary resources and qualities. Amendments, renewals and extensions of authorizations in existence on the effective date of these regulations constitute authorizations issued after the effective date of these regulations.
- (e)(1) All military activities shall be carried out in a manner that avoids to the maximum extent practical any adverse impacts on Sanctuary resources and qualities. The prohibitions in paragraph (a) of this section and §922.164 do not apply to existing classes of military activities which were conducted prior to the effective date of these regulations, as identified in the Environmental Impact Statement and Management Plan for the Sanctuary. New military activities in the Sanctuary are allowed and may be exempted from the prohibitions in paragraph (a) of this section and in §922.164 by the Director after consultation between the Director and the Department of Defense pursuant to section 304(d) of the NMSA. When a military activity is modified such that it is likely to destroy, cause the

loss of, or injure a Sanctuary resource or quality in a manner significantly greater than was considered in a previous consultation under section 304(d) of the NMSA, or it is likely to destroy, cause the loss of, or injure a Sanctuary resource or quality not previously considered in a previous consultation under section 304(d) of the NMSA, the activity is considered a new activity for purposes of this paragraph. If it is determined that an activity may be carried out, such activity shall be carried out in a manner that avoids to the maximum extent practical 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 the Department of Defense, the cognizant component shall promptly coordinate with the Director for the purpose of taking appropriate actions to prevent, respond to or mitigate the harm and, if possible, restore or replace the Sanctuary resource or quality.
- (f) The prohibitions contained in paragraph (a) (5) of this section do not apply to Federal, State and local officers while performing enforcement duties and/or responding to emergencies that threaten life, property, or the environment in their official capacity.
- (g) Notwithstanding paragraph (b) of this section and paragraph (a) of §922.168, in no event may the Director issue a permit under §922.166 authorizing, or otherwise approve, the exploration for, leasing, development, or production of minerals or hydrocarbons within the Sanctuary, the disposal of dredged material within the Sanctuary other than in connection with beach renourishment or Sanctuary restoration projects, or the discharge of untreated or primary treated sewage (except by a certification, pursuant to §922.167, of a valid authorization in existence on the effective date of these regulations), and any purported authorizations issued by other authorities after the effective date of these regulations for any of these activities within the Sanctuary shall be invalid.
- (h) Any amendment to these regulations shall not take effect in Florida State waters until approved by the Board of Trustees of the Internal Improvement Trust Fund

of the State of Florida. Any fishery regulations in the Sanctuary shall not take effect in Florida State waters until established by the Florida Marine Fisheries Commission.

§ 922.164 Additional activity regulations by Sanctuary area.

In addition to the prohibitions set forth in §922.163, which apply throughout the Sanctuary, the following regulations apply with respect to activities conducted within the Sanctuary areas described in this section and in Appendix (II) through (VII) to this subpart. Activities located within two or more overlapping Sanctuary areas are concurrently subject to the regulations applicable to each overlapping area.

- (a) Areas to be avoided. Operating a tank vessel or a vessel greater than 50 meters in registered length is prohibited in all areas to be avoided, except if such vessel is a public vessel and its operation is essential for national defense, law enforcement, or responses to emergencies that threaten life, property, or the environment. Appendix VII to this subpart sets forth the geographic coordinates of these areas.
- (b) Existing management areas –
 - (1) Key Largo and Looe Key Management Areas. The following activities are prohibited within the Key Largo and Looe Key Management Areas (also known as the Key Largo and Looe Key National Marine Sanctuaries) described in Appendix II to this subpart:
 - (i) Removing, taking, damaging, harmfully disturbing, breaking, cutting, spearing or similarly injuring any coral or other marine invertebrate, or any plant, soil, rock, or other material, except commercial taking of spiny lobster and stone crab by trap and recreational taking of spiny lobster by hand or by hand gear which is consistent with these regulations and the applicable regulations implementing the applicable Fishery Management Plan.
 - (ii) Taking any tropical fish.
 - (iii) Fishing with wire fish traps, bottom trawls, dredges, fish sleds, or similar vessel-towed or anchored bottom fishing gear or nets.

- (iv) Fishing with, carrying or possessing, except while passing through without interruption or for law enforcement purposes: pole spears, air rifles, bows and arrows, slings, Hawaiian slings, rubber powered arbaletes, pneumatic and spring-loaded guns or similar devices known as spearguns.
 - (2) Great White Heron and Key West National Wildlife Refuge Management Areas. Operating a personal watercraft, operating an airboat, or water skiing except within Township 66 South, Range 29 East, Sections 5, 11, 12 and 14; Township 66 South, Range 28 East, Section 2; Township 67 South, Range 26 East, Sections 16 and 20, all Tallahassee Meridian, are prohibited within the marine portions of the Great White Heron and Key West National Wildlife Refuge Management Areas described in Appendix II to this subpart.
- (c) Wildlife management areas.
- (1) Marine portions of the Wildlife Management Areas listed in Appendix III to this subpart or portions thereof may be designated “idle speed only/no-wake,” “no-motor” or “no-access buffer” zones or “closed”. The Director, in cooperation with other Federal, State, or local resource management authorities, as appropriate, shall post signs conspicuously, using mounting posts, buoys, or other means according to location and purpose, at appropriate intervals and locations, clearly delineating an area as an “idle speed only/no wake”, a “no-motor”, or a “no-access buffer” zone or as “closed”, and allowing instant, long-range recognition by boaters. Such signs shall display the official logo of the Sanctuary.
 - (2) The following activities are prohibited within the marine portions of the Wildlife Management Areas listed in Appendix III to this subpart:
 - (i) In those marine portions of any Wildlife Management Area designated an “idle speed only/no wake” zone in Appendix III to this subpart, operating a vessel at a speed greater than idle speed only/no wake.

- (ii) In those marine portions of any Wildlife Management Area designated a “no-motor” zone in Appendix III to this subpart, using internal combustion motors or engines for any purposes. A vessel with an internal combustion motor or engine may access a “no-motor” zone only through the use of a push pole, paddle, sail, electric motor or similar means of propulsion.
 - (iii) In those marine portions of any Wildlife Management Area designated a “no-access buffer” zone in Appendix III of this subpart, entering the area by vessel.
 - (iv) In those marine portions of any Wildlife Management Area designated as closed in Appendix III of this subpart, entering or using the area.
- (3) The Director shall coordinate with other Federal, State, or local resource management authorities, as appropriate, in the establishment and enforcement of access restrictions described in paragraph (c)(2) (i)–(iv) of this section in the marine portions of Wildlife Management Areas.
- (4) The Director may modify the number and location of access restrictions described in paragraph (c)(2) (i)–(iv) of this section within the marine portions of a Wildlife Management Area if the Director finds that such action is reasonably necessary to minimize disturbances to Sanctuary wildlife, or to ensure protection and preservation of Sanctuary wildlife consistent with the purposes of the Sanctuary designation and other applicable law governing the protection and preservation of wildlife resources in the Sanctuary. The Director will effect such modification by:
 - (i) Publishing in the Federal Register, after notice and an opportunity for public comments in accordance, an amendment to the list of such areas set forth in Appendix III to this subpart, and a notice regarding the time and place where maps depicting the precise locations of such restrictions will be made available for public inspection, and

- (ii) Posting official signs delineating such restrictions in accordance with paragraph (c) (1) of this section.
- (d) Ecological Reserves and Sanctuary Preservation Areas.
 - (1) The following activities are prohibited within the Ecological Reserves described in Appendix IV to this subpart, and within the Sanctuary Preservation Areas, described in Appendix V to this subpart:
 - (i) Discharging or depositing any material or other matter except cooling water or engine exhaust.
 - (ii) Possessing, moving, harvesting, removing, taking, damaging, disturbing, breaking, cutting, spearing, or otherwise injuring any coral, marine invertebrate, fish, bottom formation, algae, seagrass or other living or dead organism, including shells, or attempting any of these activities. However, fish, invertebrates, and marine plants may be possessed aboard a vessel in an Ecological Reserve or Sanctuary Preservation Area, provided such resources can be shown not to have been harvested within, removed from, or taken within, the Ecological Reserve or Sanctuary Preservation Area, as applicable, by being stowed in a cabin, locker, or similar storage area prior to entering and during transit through such reserves or areas, provided further that in an Ecological Reserve or Sanctuary Preservation Area located in Florida State waters, such vessel is in continuous transit through the Ecological Reserve or Sanctuary Preservation Area.
 - (iii) Except for catch and release fishing by trolling in the Conch Reef, Alligator Reef, Sombrero Reef, and Sand Key SPAs, fishing by any means. However, gear capable of harvesting fish may be aboard a vessel in an Ecological Reserve or Sanctuary Preservation Area, provided such gear is not available for immediate use when entering and during transit through such Ecological Reserve or Sanctuary Preservation Area, and no presumption of fishing activity shall be drawn therefrom.

- (iv) Touching living or dead coral, including but not limited to, standing on a living or dead coral formation.
- (v) Anchoring in the Tortugas Ecological Reserve. In all other Ecological Reserves and Sanctuary Preservation Areas, placing any anchor in a way that allows the anchor or any portion of the anchor apparatus (including the anchor, chain or rope) to touch living or dead coral, or any attached living organism. When anchoring dive boats, the first diver down must inspect the anchor to ensure that it is not touching living or dead coral, and will not shift in such a way as to touch such coral or other attached organism. No further diving shall take place until the anchor is placed in accordance with these requirements.
- (vi) Except in the Tortugas Ecological Reserve where mooring buoys must be used, anchoring instead of mooring when a mooring buoy is available or anchoring in other than a designated anchoring area when such areas have been designated and are available.
- (vii) Except for passage without interruption through the area, for law enforcement purposes, or for purposes of monitoring pursuant to paragraph (d)(2) of this section, violating a temporary access restriction imposed by the Director pursuant to paragraph (d)(2) of this section.
- (viii) Except for passage without interruption through the area, for law enforcement purposes, or for purposes of monitoring pursuant to paragraph (d)(2) of this section: entering the Tortugas South area of the Tortugas Ecological Reserve; or entering the Tortugas North area of the Tortugas Ecological Reserve without a valid access permit issued pursuant to §922.167 or entering or leaving the Tortugas North area with a valid access permit issued pursuant to §922.167 without notifying FKNMS staff at the Dry Tortugas National Park office by telephone or radio no less than 30 minutes

and no more than 6 hours, before entering and upon leaving the Tortugas Ecological Reserve.

- (ix) Tying a vessel greater than 100 feet (30.48 meters) LOA, or tying more than one vessel (other than vessels carried on board a vessel) if the combined lengths would exceed 100 feet (30.48 meters) LOA, to a mooring buoy or to a vessel tied to a mooring buoy in the Tortugas Ecological Reserve.
- (2) The Director may temporarily restrict access to any portion of any Sanctuary Preservation Area or Ecological Reserve if the Director, on the basis of the best available data, information and studies, determines that a concentration of use appears to be causing or contributing to significant degradation of the living resources of the area and that such action is reasonably necessary to allow for recovery of the living resources of such area. The Director will provide for continuous monitoring of the area during the pendency of the restriction. The Director will provide public notice of the restriction by publishing a notice in the Federal Register, and by such other means as the Director may deem appropriate. The Director may only restrict access to an area for a period of 60 days, with one additional 60-day renewal. The Director may restrict access to an area for a longer period pursuant to a notice and opportunity for public comment rulemaking under the Administrative Procedure Act. Such restriction will be kept to the minimum amount of area necessary to achieve the purposes thereof.
- (e) Special-use Areas. (1) The Director may set aside discrete areas of the Sanctuary as Special-use Areas, and, by designation pursuant to this paragraph, impose the access and use restrictions specified in paragraph (e)(3) of this section. Special-use Areas are described in Appendix VI to this subpart, in accordance with the following designations and corresponding objectives:
 - (i) “Recovery area” to provide for the recovery of Sanctuary resources from degradation or other injury attributable to human uses;

- (ii) “Restoration area” to provide for restoration of degraded or otherwise injured Sanctuary resources;
 - (iii) “Research-only area” to provide for scientific research or education relating to protection and management, through the issuance of a Sanctuary General permit for research pursuant to §922.166 of these regulations; and
 - (iv) “Facilitated-use area” to provide for the prevention of use or user conflicts or the facilitation of access and use, or to promote public use and understanding, of Sanctuary resources through the issuance of special-use permits.
- (2) A Special-use Area shall be no larger than the size the Director deems reasonably necessary to accomplish the applicable objective.
- (3) Persons conducting activities within any Special-use Area shall comply with the access and use restrictions specified in this paragraph and made applicable to such area by means of its designation as a “recovery area,” “restoration area,” “research-only area,” or “facilitated-use area.” Except for passage without interruption through the area or for law enforcement purposes, no person may enter a Special-use Area except to conduct or cause to be conducted the following activities:
- (i) In such area designated as a “recovery area” or a “restoration area”, habitat manipulation related to restoration of degraded or otherwise injured Sanctuary resources, or activities reasonably necessary to monitor recovery of degraded or otherwise injured Sanctuary resources;
 - (ii) In such area designated as a “research only area”, scientific research or educational use specifically authorized by and conducted in accordance with the scope, purpose, terms and conditions of a valid National Marine Sanctuary General or Historical Resources permit, or
 - (iii) In such area designated as a “facilitated-use area”, activities specified by the Director or specifically authorized by and

conducted in accordance with the scope, purpose, terms, and conditions of a valid Special-use permit.

- (4)(i) The Director may modify the number of, location of, or designations applicable to, Special-use Areas by publishing in the Federal Register, after notice and an opportunity for public comment in accordance with the Administrative Procedure Act, an amendment to Appendix VI to this subpart, except that, with respect to such areas designated as a “recovery area,” “restoration area,” or “research only area,” the Director may modify the number of, location of, or designation applicable to, such areas by publishing a notice of such action in the Federal Register if the Director determines that immediate action is reasonably necessary to:
 - (A) Prevent significant injury to Sanctuary resources where circumstances create an imminent risk to such resources;
 - (B) Initiate restoration activity where a delay in time would significantly impair the ability of such restoration activity to succeed;
 - (C) Initiate research activity where an unforeseen natural event produces an opportunity for scientific research that may be lost if research is not initiated immediately.
- (ii) if the Director determines that a notice of modification must be promulgated immediately in accordance with paragraph (e)(4)(i) of this section, the Director will, as part of the same notice, invite public comment and specify that comments will be received for 15 days after the effective date of the notice. As soon as practicable after the end of the comment period, the Director will either rescind, modify or allow the modification to remain unchanged through notice in the Federal Register.
- (f) Additional Wildlife Management Areas, Ecological Reserves, Sanctuary Preservation Areas, or Special-use Areas, and additional restrictions in such areas, shall not take effect in Florida State waters unless first approved by the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida.

(g) Anchoring on Tortugas Bank. Vessels 50 meters or greater in registered length, are prohibited from anchoring on the portion of Tortugas Bank within the Florida Keys National Marine Sanctuary west of the Dry Tortugas National Park that is outside of the Tortugas Ecological Reserve. The boundary of the area closed to anchoring by vessels 50 meters or greater in registered length is formed by connecting in succession the points at the following coordinates (based on the North American Datum of 1983):

- (1) 24 deg. 32.00' N 83 deg. 00.05' W
- (2) 24 deg. 37.00' N 83 deg. 06.00' W
- (3) 24 deg. 39.00' N 83 deg. 06.00' W
- (4) 24 deg. 39.00' N 83 deg. 00.05' W
- (5) 24 deg. 32.00' N 83 deg. 00.05' W

[62 FR 32161, June 12, 1997, as amended at 63 FR 43873, Aug. 17, 1998; 66 FR 4369, Jan. 17, 2001]

§ 922.165 Emergency regulations.

Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality, or minimize the imminent risk of such destruction, loss, or injury, any and all activities are subject to immediate temporary regulation, including prohibition. Emergency regulations shall not take effect in Florida territorial waters until approved by the Governor of the State of Florida. Any temporary regulation may be in effect for up to 60 days, with one 60-day extension. Additional or extended action will require notice and comment rulemaking under the Administrative Procedure Act, notice in local newspapers, notice to Mariners, and press releases.

§ 922.166 Permits other than for access to the Tortugas Ecological Reserve – application procedures and issuance criteria.

- (a) National Marine Sanctuary General Permit.
 - (1) A person may conduct an activity prohibited by §§922.163 or 922.164, other than an activity involving the survey/inventory, research/recovery, or deaccession/transfer of Sanctuary historical resources, if such activity is specifically authorized by, and provided such activity is conducted in accordance with the scope, purpose, terms and conditions of, a National Marine Sanctuary General permit issued under this paragraph (a).

- (2) The Director, at his or her discretion, may issue a General permit under this paragraph (a), subject to such terms and conditions as he or she deems appropriate, if the Director finds that the activity will:
 - (i) Further research or monitoring related to Sanctuary resources and qualities;
 - (ii) Further the educational value of the Sanctuary;
 - (iii) Further the natural or historical resource value of the Sanctuary;
 - (iv) Further salvage or recovery operations in or near the Sanctuary in connection with a recent air or marine casualty;
 - (v) Assist in managing the Sanctuary; or
 - (vi) Otherwise further Sanctuary purposes, including facilitating multiple use of the Sanctuary, to the extent compatible with the primary objective of resource protection.

- (3) The Director shall not issue a General permit under this paragraph (a), unless the Director also finds that:
 - (i) The applicant is professionally qualified to conduct and complete the proposed activity;
 - (ii) The applicant has adequate financial resources available to conduct and complete the proposed activity;
 - (iii) The duration of the proposed activity is no longer than necessary to achieve its stated purpose;
 - (iv) The methods and procedures proposed by the applicant are appropriate to achieve the proposed activity's goals in relation to the activity's impacts on Sanctuary resources and qualities;
 - (v) The proposed activity will be conducted in a manner compatible with the primary objective of protection of Sanctuary resources and qualities, considering the extent to which the conduct of the activity may diminish or enhance Sanctuary resources and qualities, any indirect, secondary or cumulative effects of the activity, and the duration of such effects;

- (vi) It is necessary to conduct the proposed activity within the Sanctuary to achieve its purposes; and
 - (vii) The reasonably expected end value of the activity to the furtherance of Sanctuary goals and purposes outweighs any potential adverse impacts on Sanctuary resources and qualities from the conduct of the activity.
- (4) For activities proposed to be conducted within any of the areas described in §922.164 (b)–(e), the Director shall not issue a permit unless he or she further finds that such activities will further and are consistent with the purposes for which such area was established, as described in §§922.162 and 922.164 and in the management plan for the Sanctuary.
- (b) National Marine Sanctuary Survey/Inventory of Historical Resources Permit.
- (1) A person may conduct an activity prohibited by §§922.163 or 922.164 involving the survey/inventory of Sanctuary historical resources if such activity is specifically authorized by, and is conducted in accordance with the scope, purpose, terms and conditions of, a Survey/Inventory of Historical Resources permit issued under this paragraph (b). Such permit is not required if such survey/inventory activity does not involve any activity prohibited by §§922.163 or 922.164. Thus, survey/inventory activities that are non-intrusive, do not include any excavation, removal, or recovery of historical resources, and do not result in destruction of, loss of, or injury to Sanctuary resources or qualities do not require a permit. However, if a survey/inventory activity will involve test excavations or removal of artifacts or materials for evaluative purposes, a Survey/Inventory of Historical Resources permit is required. Regardless of whether a Survey/Inventory permit is required, a person may request such permit. Persons who have demonstrated their professional abilities under a Survey/Inventory permit will be given preference over other persons in consideration of the issuance of a Research/Recovery permit. While a Survey/Inventory permit does not grant any rights with regards to areas subject to pre-existing rights of access which are still valid, once a

permit is issued for an area, other survey/inventory permits will not be issued for the same area during the period for which the permit is valid.

- (2) The Director, at his or her discretion, may issue a Survey/Inventory permit under this paragraph (b), subject to such terms and conditions as he or she deems appropriate, if the Director finds that such activity:
 - (i) Satisfies the requirements for a permit issued under paragraph (a) (3) of this section;
 - (ii) Either will be non-intrusive, not include any excavation, removal, or recovery of historical resources, and not result in destruction of, loss of, or injury to Sanctuary resources or qualities, or if intrusive, will involve no more than the minimum manual alteration of the seabed and/or the removal of artifacts or other material necessary for evaluative purposes and will cause no significant adverse impacts on Sanctuary resources or qualities; and
 - (iii) That such activity will be conducted in accordance with all requirements of the Programmatic Agreement for the Management of Submerged Cultural Resources (SCR) in the Florida Keys National Marine Sanctuary among NOAA, the Advisory Council on Historic Preservation, and the State of Florida (hereinafter SCR Agreement), and that such permit issuance is in accordance with such SCR Agreement. Copies of the SCR Agreement may also be examined at, and obtained from, the Sanctuaries and Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration, 1305 East-West Highway, 12th floor, Silver Spring, MD 20910; or from the Florida Keys National Marine Sanctuary Office, P.O. Box 500368, Marathon, FL 33050.
- (c) National Marine Sanctuary Research/Recovery of Sanctuary Historical Resources Permit. (1) A person may conduct any activity prohibited by §§922.163 or 922.164 involving the research/recovery of Sanctuary historical resources if such activity is specifically authorized by, and is conducted in

accordance with the scope, purpose, terms and conditions of, a Research/Recovery of Historical Resources permit issued under this paragraph (c).

(2) The Director, at his or her discretion, may issue a Research/Recovery of Historical Resources permit, under this paragraph (c), and subject to such terms and conditions as he or she deems appropriate, if the Director finds that:

- (i) Such activity satisfies the requirements for a permit issued under paragraph (a) (3) of this section;
- (ii) The recovery of the resource is in the public interest as described in the SCR Agreement;
- (iii) Recovery of the resource is part of research to preserve historic information for public use; and
- (iv) Recovery of the resource is necessary or appropriate to protect the resource, preserve historical information, and/or further the policies and purposes of the NMSA and the FKNMSPA, and that such permit issuance is in accordance with, and that the activity will be conducted in accordance with, all requirements of the SCR Agreement.

(d) National Marine Sanctuary Special-use Permit. (1) A person may conduct any commercial or concession-type activity prohibited by §§922.163 or 922.164, if such activity is specifically authorized by, and is conducted in accordance with the scope, purpose, terms and conditions of, a Special-use permit issued under this paragraph (d). A Special-use permit is required for the deaccession/transfer of Sanctuary historical resources.

(2) The Director, at his or her discretion, may issue a Special-use permit in accordance with this paragraph (d), and subject to such terms and conditions as he or she deems appropriate and the mandatory terms and conditions of section 310 of the NMSA, if the Director finds that issuance of such permit is reasonably necessary to: establish conditions of access to and use of any Sanctuary resource; or promote public use and

understanding of any Sanctuary resources. No permit may be issued unless the activity is compatible with the purposes for which the Sanctuary was designated and can be conducted in a manner that does not destroy, cause the loss of, or injure any Sanctuary resource, and if for the deaccession/transfer of Sanctuary Historical Resources, unless such permit issuance is in accordance with, and that the activity will be conducted in accordance with, all requirements of the SCR Agreement.

- (3) The Director may assess and collect fees for the conduct of any activity authorized by a Special-use permit issued pursuant to this paragraph (d). No Special-use permit shall be effective until all assessed fees are paid, unless otherwise provided by the Director by a fee schedule set forth as a permit condition. In assessing a fee, the Director shall include:
- (i) All costs incurred, or expected to be incurred, in reviewing and processing the permit application, including, but not limited to, costs for:
 - (A) Number of personnel;
 - (B) Personnel hours;
 - (C) Equipment;
 - (D) Biological assessments;
 - (E) Copying; and
 - (F) Overhead directly related to reviewing and processing the permit application;
 - (ii) All costs incurred, or expected to be incurred, as a direct result of the conduct of the activity for which the Special-use permit is being issued, including, but not limited to:
 - (A) The cost of monitoring the conduct both during the activity and after the activity is completed in order to assess the impacts to Sanctuary resources and qualities;
 - (B) The use of an official NOAA observer, including travel and expenses and personnel hours; and

- (C) Overhead costs directly related to the permitted activity;
and
 - (iii) An amount which represents the fair market value of the use of the Sanctuary resource and a reasonable return to the United States Government.
- (4) Nothing in this paragraph (d) shall be considered to require a person to obtain a permit under this paragraph for the conduct of any fishing activities within the Sanctuary.
- (e) Applications.
 - (1) Applications for permits should be addressed to the Director, Office of Ocean and Coastal Resource Management; ATTN: Sanctuary Superintendent, Florida Keys National Marine Sanctuary, P.O. Box 500368, Marathon, FL 33050. All applications must include:
 - (i) A detailed description of the proposed activity including a timetable for completion of the activity and the equipment, personnel and methodology to be employed;
 - (ii) The qualifications and experience of all personnel;
 - (iii) The financial resources available to the applicant to conduct and complete the proposed activity;
 - (iv) A statement as to why it is necessary to conduct the activity within the Sanctuary;
 - (v) The potential impacts of the activity, if any, on Sanctuary resources and qualities;
 - (vi) The benefit to be derived from the activity; and
 - (vii) Such other information as the Director may request depending on the type of activity. Copies of all other required licenses, permits, approvals, or other authorizations must be attached to the application.
 - (2) Upon receipt of an application, the Director may request such additional information from the applicant as he or she deems reasonably necessary to act on the application and may seek the views of any persons. The

Director may require a site visit as part of the permit evaluation. Unless otherwise specified, the information requested must be received by the Director within 30 days of the postmark date of the request. Failure to provide such additional information on a timely basis may be deemed by the Director to constitute abandonment or withdrawal of the permit application.

- (f) A permit may be issued for a period not exceeding five years. All permits will be reviewed annually to determine the permittee's compliance with permit scope, purpose, terms and conditions and progress toward reaching the stated goals and appropriate action taken under paragraph (g) of this section if warranted. A permittee may request permit renewal pursuant to the same procedures for applying for a new permit. Upon the permittee's request for renewal, the Director shall review all reports submitted by the permittee as required by the permit conditions. In order to renew the permit, the Director must find that the:
 - (1) Activity will continue to further the purposes for which the Sanctuary was designated in accordance with the criteria applicable to the initial issuance of the permit;
 - (2) Permittee has at no time violated the permit, or these regulations; and
 - (3) The activity has not resulted in any unforeseen adverse impacts to Sanctuary resources or qualities.
- (g) The Director may amend, suspend, or revoke a permit for good cause. The Director may deny a permit application, in whole or in part, if it is determined that the permittee or applicant has acted in violation of a previous permit, of these regulations, of the NMSA or FKNMSPA, or for other good cause. Any such action shall be communicated in writing to the permittee or applicant by certified mail and shall set forth the reason(s) for the action taken. Procedures governing permit sanctions and denials for enforcement reasons are set forth in Subpart D of 15 CFR part 904.
- (h) The applicant for or holder of a National Marine Sanctuary permit may appeal the denial, conditioning, amendment, suspension or revocation of the permit in accordance with the procedures set forth in §922.50.

- (i) A permit issued pursuant to this section other than a Special-use permit is nontransferable. Special-use permits may be transferred, sold, or assigned with the written approval of the Director. The permittee shall provide the Director with written notice of any proposed transfer, sale, or assignment no less than 30 days prior to its proposed consummation. Transfers, sales, or assignments consummated in violation of this requirement shall be considered a material breach of the Special-use permit, and the permit shall be considered void as of the consummation of any such transfer, sale, or assignment.
- (j) The permit or a copy thereof shall be maintained in legible condition on board all vessels or aircraft used in the conduct of the permitted activity and be displayed for inspection upon the request of any authorized officer.
- (k) Any permit issued pursuant to this section shall be subject to the following terms and conditions:
 - (1) All permitted activities shall be conducted in a manner that does not destroy, cause the loss of, or injure Sanctuary resources or qualities, except to the extent that such may be specifically authorized.
 - (2) The permittee agrees to hold the United States harmless against any claims arising out of the conduct of the permitted activities.
 - (3) All necessary Federal, State, and local permits from all agencies with jurisdiction over the proposed activities shall be secured before commencing field operations.
- (l) In addition to the terms and conditions listed in paragraph (k) of this section, any permit authorizing the research/recovery of historical resources shall be subject to the following terms and conditions:
 - (1) A professional archaeologist shall be in charge of planning, field recovery operations, and research analysis.
 - (2) An agreement with a conservation laboratory shall be in place before field recovery operations are begun, and an approved nautical conservator shall be in charge of planning, conducting, and supervising the conservation of any artifacts and other materials recovered.

- (3) A curation agreement with a museum or facility for curation, public access and periodic public display, and maintenance of the recovered historical resources shall be in place before commencing field operations (such agreement for the curation and display of recovered historical resources may provide for the release of public artifacts for deaccession/transfer if such deaccession/transfer is consistent with preservation, research, education, or other purposes of the designation and management of the Sanctuary. Deaccession/transfer of historical resources requires a Special-use permit issued pursuant to paragraph (d) and such deaccession/transfer shall be executed in accordance with the requirements of the SCR Agreement).
 - (4) The site's archaeological information is fully documented, including measured drawings, site maps drawn to professional standards, and photographic records.
- (m) In addition to the terms and conditions listed in paragraph (k) and (l) of this section, any permit issued pursuant to this section is subject to such other terms and conditions, including conditions governing access to, or use of, Sanctuary resources, as the Director deems reasonably necessary or appropriate and in furtherance of the purposes for which the Sanctuary is designated. Such terms and conditions may include, but are not limited to:
- (1) Any data or information obtained under the permit shall be made available to the public.
 - (2) A NOAA official shall be allowed to observe any activity conducted under the permit.
 - (3) The permittee shall submit one or more reports on the status, progress, or results of any activity authorized by the permit.
 - (4) The permittee shall submit an annual report to the Director not later than December 31 of each year on activities conducted pursuant to the permit. The report shall describe all activities conducted under the permit and all revenues derived from such activities during the year and/or term of the permit.

- (5) The permittee shall purchase and maintain general liability insurance or other acceptable security against potential claims for destruction, loss of, or injury to Sanctuary resources arising out of the permitted activities. The amount of insurance or security should be commensurate with an estimated value of the Sanctuary resources in the permitted area. A copy of the insurance policy or security instrument shall be submitted to the Director.

§ 922.167 Permits for access to the Tortugas Ecological Reserve.

- (a) A person may enter the Tortugas North area of the Tortugas Ecological Reserve other than for passage without interruption through the reserve, for law enforcement purposes, or for purposes of monitoring pursuant to paragraph (d)(2) of §922.164 , if authorized by a valid access permit issued pursuant to §922.167.
- (b)(1) Access permits must be requested at least 72 hours but no longer than one month before the date the permit is desired to be effective. Access permits do not require written applications or the payment of any fee. Permits may be requested via telephone or radio by contacting FKNMS at any of the following numbers:
Key West office: telephone: (305) 292-0311 Marathon office: telephone: (305) 743-2437
- (2) The following information must be provided, as applicable:
- (i) Vessel name.
 - (ii) Name, address, and telephone number of owner and operator.
 - (iii) Name, address, and telephone number of applicant.
 - (iv) USCG documentation, state license, or registration number.
 - (v) Home port.
 - (vi) Length of vessel and propulsion type (i.e., motor or sail).
 - (vii) Number of divers.
 - (viii) Requested effective date and duration of permit (2 weeks, maximum).
- (c) The Sanctuary Superintendent will issue a permit to the owner or to the owner's representative for the vessel when all applicable information has been provided.

The Sanctuary Superintendent will provide a permit number to the applicant and confirm the effective date and duration period of the permit. Written confirmation of permit issuance will be provided upon request.

[66 FR 4370, Jan. 17, 2001]

§ 922.168 Certification of preexisting leases, licenses, permits, approvals, other authorizations, or rights to conduct a prohibited activity.

- (a) A person may conduct an activity prohibited by §§922.163 or 922.164 if such activity is specifically authorized by a valid Federal, State, or local lease, permit, license, approval, or other authorization in existence on July 1, 1997, or by any valid right of subsistence use or access in existence on July 1, 1997, provided that:
 - (1) The holder of such authorization or right notifies the Director, in writing, within 90 days of July 1, 1997, of the existence of such authorization or right and requests certification of such authorization or right; for the area added to the Sanctuary by the boundary expansion for the Tortugas Ecological Reserve, the holder of such authorization or right notifies the Director, in writing, within 90 days of the effective date of the boundary expansion, of the existence of such authorization or right and requests certification of such authorization or right.
 - (2) The holder complies with the other provisions of this §922.168; and
 - (3) The holder complies with any terms and conditions on the exercise of such authorization or right imposed as a condition of certification, by the Director, to achieve the purposes for which the Sanctuary was designated.
- (b) The holder of an authorization or right described in paragraph (a) of this section authorizing an activity prohibited by Secs. 922.163 or 922.164 may conduct the activity without being in violation of applicable provisions of Secs. 922.163 or 922.164, pending final agency action on his or her certification request, provided the holder is in compliance with this §922.168.
- (c) Any holder of an authorization or right described in paragraph (a) of this section may request the Director to issue a finding as to whether the activity for which

the authorization has been issued, or the right given, is prohibited by Secs. 922.163 or 922.164, thus requiring certification under this section.

- (d) Requests for findings or certifications should be addressed to the Director, Office of Ocean and Coastal Resource Management; ATTN: Sanctuary Superintendent, Florida Keys National Marine Sanctuary, P.O. Box 500368, Marathon, FL 33050. A copy of the lease, permit, license, approval, or other authorization must accompany the request.
- (e) The Director may request additional information from the certification requester as he or she deems reasonably necessary to condition appropriately the exercise of the certified authorization or right to achieve the purposes for which the Sanctuary was designated. The information requested must be received by the Director within 45 days of the postmark date of the request. The Director may seek the views of any persons on the certification request.
- (f) The Director may amend any certification made under this §922.168 whenever additional information becomes available justifying such an amendment.
- (g) Upon completion of review of the authorization or right and information received with respect thereto, the Director shall communicate, in writing, any decision on a certification request or any action taken with respect to any certification made under this §922.168, in writing, to both the holder of the certified lease, permit, license, approval, other authorization, or right, and the issuing agency, and shall set forth the reason(s) for the decision or action taken.
- (h) Any time limit prescribed in or established under this §922.168 may be extended by the Director for good cause.
- (i) The holder may appeal any action conditioning, amending, suspending, or revoking any certification in accordance with the procedures set forth in §922.50.
- (j) Any amendment, renewal, or extension made after July 1, 1997, to a lease, permit, license, approval, other authorization or right is subject to the provisions of §922.49.

[66 FR 4369, Jan. 17, 2001]

Appendix I to Subpart P of Part 922—Florida Keys National Marine Sanctuary Boundary Coordinates

(APPENDIX BASED ON NORTH AMERICAN DATUM OF 1983)

- (1) The boundary of the Florida Keys National Marine Sanctuary—
 - (a) Begins at the northeasternmost point of Biscayne National Park located at approximately 25 degrees 39 minutes north latitude, 80 degrees 05 minutes west longitude, then runs eastward to the point at 25 degrees 39 minutes north latitude, 80 degrees 04 minutes west longitude; and
 - (b) Then runs southward and connects in succession the points at the following coordinates:
 - (i) 25 degrees 34 minutes north latitude, 80 degrees 04 minutes west longitude,
 - (ii) 25 degrees 28 minutes north latitude, 80 degrees 05 minutes west longitude, and
 - (iii) 25 degrees 21 minutes north latitude, 80 degrees 07 minutes west longitude;
 - (iv) 25 degrees 16 minutes north latitude, 80 degrees 08 minutes west longitude;
 - (c) Then runs southwesterly approximating the 300-foot isobath and connects in succession the points at the following coordinates:
 - (i) 25 degrees 07 minutes north latitude, 80 degrees 13 minutes west longitude,
 - (ii) 24 degrees 57 minutes north latitude, 80 degrees 21 minutes west longitude,
 - (iii) 24 degrees 39 minutes north latitude, 80 degrees 52 minutes west longitude,
 - (iv) 24 degrees 30 minutes north latitude, 81 degrees 23 minutes west longitude,
 - (v) 24 degrees 25 minutes north latitude, 81 degrees 50 minutes west longitude,
 - (vi) 24 degrees 22 minutes north latitude, 82 degrees 48 minutes west longitude,
 - (vii) 24 degrees 37 minutes north latitude, 83 degrees 06 minutes west longitude,
 - (viii) 24 degrees 46 minutes north latitude, 83 degrees 06 minutes west longitude,
 - (ix) 24 degrees 46 minutes north latitude, 82 degrees 54 minutes west longitude,
 - (x) 24 degrees 44 minutes north latitude, 81 degrees 55 minutes west longitude,
 - (xi) 24 degrees 51 minutes north latitude, 81 degrees 26 minutes west longitude, and
 - (xii) 24 degrees 55 minutes north latitude, 80 degrees 56 minutes west longitude;
 - (d) Then follows the boundary of Everglades National Park in a southerly then northeasterly direction through Florida Bay, Buttonwood Sound, Tarpon Basin, and Blackwater Sound;
 - (e) After Division Point, then departs from the boundary of Everglades National Park and follows the western shoreline of Manatee Bay, Barnes Sound, and Card Sound;
 - (f) then follows the southern boundary of Biscayne National Park to the southeasternmost point of Biscayne National Park; and
 - (g) then follows the eastern boundary of Biscayne National Park to the beginning point specified in paragraph (a).
- (2) The shoreward boundary of the Florida Keys National Marine Sanctuary is the mean high-water mark except around the Dry Tortugas where the boundary is coterminous with that of the Dry Tortugas National Park, formed by connecting in succession the points at the following coordinates:
 - (a) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude;
 - (b) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 58 minutes 0 second west longitude;
 - (c) 24 degrees 39 minutes 0 seconds north latitude, 82 degrees 58 minutes 0 seconds west longitude;
 - (d) 24 degrees 43 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude;
 - (e) 24 degrees 43 minutes 32 seconds north latitude, 82 degrees 52 minutes 0 seconds west longitude;
 - (f) 24 degrees 43 minutes 32 seconds north latitude, 82 degrees 48 minutes 0 seconds west longitude;
 - (g) 24 degrees 42 minutes 0 seconds north latitude, 82 degrees 46 minutes, 0 seconds west longitude;

- (h) 24 degrees 40 minutes 0 seconds north latitude, 82 degrees 46 minutes 0 seconds west longitude;
 - (i) 24 degrees 37 minutes 0 seconds north latitude, 82 degrees 48 minutes 0 seconds west longitude; and
 - (j) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude.
- (3) The Florida Keys National Marine Sanctuary also includes the area located within the boundary formed by connecting in succession the points at the following coordinates:
- (a) 24 degrees 33 minutes north latitude, 83 degrees 09 minutes west longitude,
 - (b) 24 degrees 33 minutes north latitude, 83 degrees 05 minutes west longitude, and
 - (c) 24 degrees 18 minutes north latitude, 83 degrees 05 minutes west longitude;
 - (d) 24 degrees 18 minutes north latitude, 83 degrees 09 minutes west longitude; and
 - (e) 24 degrees 33 minutes north latitude, 83 degrees 09 minutes west longitude.
- [66 FR 4370, Jan. 17, 2001]

Appendix II to Subpart P of Part 922—Existing Management Areas Boundary Coordinates

- (1) The boundary of each of the Existing Management Areas is formed by connecting in succession the points at the following coordinates:

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

KEY LARGO-MANAGEMENT AREA [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	25 deg.19'45" N	80 deg.12'00" W.
2	25 deg.16'02" N	80 deg.08'07" W.
3	25 deg.07'05" N	80 deg.12'05" W.
4	24 deg.58'03" N	80 deg.19'08" W.
5	25 deg.02'02" N	80 deg.25'25" W.
6	25 deg.19'45" N	80 deg.12'00" W.

LOOE KEY MANAGEMENT AREA [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.31'62" N	81 deg.26'00" W.
2	24 deg.33'57" N	81 deg.26'00" W.
3	24 deg.34'15" N	81 deg.23'00" W.
4	24 deg.32'20" N	81 deg.23'00" W.
5	24 deg.31'62" N	81 deg.26'00" W.

UNITED STATES FISH AND WILDLIFE SERVICE

GREAT WHITE HERON NATIONAL WILDLIFE REFUGE

[Based on the North American Datum of 1983]

Point	Latitude	Longitude
1	24 deg.43.8' N	81 deg.48.6' W.
2	24 deg.43.8' N	81 deg.37.2' W.
3	24 deg.49.2' N	81 deg.37.2' W.
4	24 deg.49.2' N	81 deg.19.8' W.
5	24 deg.48.0' N	81 deg.19.8' W.
6	24 deg.48.0' N	81 deg.14.4' W.
7	24 deg.49.2' N	81 deg.14.4' W.
8	24 deg.49.2' N	81 deg.08.4' W.
9	24 deg.43.8' N	81 deg.08.4' W.
10	24 deg.43.8' N	81 deg.14.4' W.
11	24 deg.43.2' N	81 deg.14.4' W.
12	24 deg.43.2' N	81 deg.16.2' W.
13	24 deg.42.6' N	81 deg.16.2' W.
14	24 deg.42.6' N	81 deg.21.0' W.
15	24 deg.41.4' N	81 deg.21.0' W.
16	24 deg.41.4' N	81 deg.22.2' W.
17	24 deg.43.2' N	81 deg.22.2' W.
18	24 deg.43.2' N	81 deg.22.8' W.
19	24 deg.43.8' N	81 deg.22.8' W.
20	24 deg.43.8' N	81 deg.24.0' W.
21	24 deg.43.2' N	81 deg.24.0' W.
22	24 deg.43.2' N	81 deg.26.4' W.
23	24 deg.43.8' N	81 deg.26.4' W.
24	24 deg.43.8' N	81 deg.27.0' W.
25	24 deg.43.2' N	81 deg.27.0' W.
26	24 deg.43.2' N	81 deg.29.4' W.
27	24 deg.42.6' N	81 deg.29.4' W.
28	24 deg.42.6' N	81 deg.30.6' W.
29	24 deg.41.4' N	81 deg.30.6' W.
30	24 deg.41.4' N	81 deg.31.2' W.
31	24 deg.40.8' N	81 deg.31.2' W.
32	24 deg.40.8' N	81 deg.32.4' W.
33	24 deg.41.4' N	81 deg.32.4' W.
34	24 deg.41.4' N	81 deg.34.2' W.
35	24 deg.40.8' N	81 deg.34.2' W.
36	24 deg.48.0' N	81 deg.35.4' W.
37	24 deg.39.6' N	81 deg.35.4' W.
38	24 deg.39.6' N	81 deg.36.0' W.
39	24 deg.39.0' N	81 deg.36.0' W.
40	24 deg.39.0' N	81 deg.37.2' W.
41	24 deg.37.8' N	81 deg.37.2' W.

42	24 deg.37.8' N	81 deg.37.8' W.
43	24 deg.37.2' N	81 deg.37.8' W.
44	24 deg.37.2' N	81 deg.40.2' W.
45	24 deg.36.0' N	81 deg.40.2' W.
46	24 deg.36.0' N	81 deg.40.8' W.
47	24 deg.35.4' N	81 deg.40.8' W.
48	24 deg.35.4' N	81 deg.42.0' W.
49	24 deg.36.0' N	81 deg.42.0' W.
50	24 deg.36.0' N	81 deg.48.6' W.
51	24 deg.43.8' N	81 deg.48.6' W.

KEY WEST NATIONAL WILDLIFE REFUGE
 [Based on the North American Datum of 1983]

Point	Latitude	Longitude
1	24 deg.40.0' N	81 deg.49.0' W.
2	24 deg.40.0' N	82 deg.10.0' W.
3	24 deg.27.0' N	82 deg.10.0' W.
4	24 deg.27.0' N	81 deg.49.0' W.
5	24 deg.40.0' N	81 deg.49.0' W.

(2) When differential Global Positioning Systems data becomes available, these coordinates may be publication in the FEDERAL REGISTER to reflect the increased accuracy of such data.

[66 FR 4371, Jan. 17, 2001]

Appendix III to Subpart P of Part 922—Wildlife Management Areas Access Restrictions

Area	Access restrictions
Bay Keys	No-motor zone (300 feet) around one key; idle speed only/ no-wake zones in tidal creeks.
Boca Grande Key	South one-half of beach closed (beach above mean high water closed by Department of the Interior).
Woman Key	One-half of beach and sand spit on southeast side closed (beach and sand spit above mean high water closed by Department of the Interior).
Cayo Agua Keys	Idle speed only/ no-wake zones in all navigable tidal creeks.
Cotton Key	No-motor zone on tidal flat.
Snake Creek	No-motor zone on tidal flat.
Cottrell Key	No-motor zone (300 feet) around entire key.
Little Mullet Key	No-access buffer zone (300 feet) around entire key.
Big Mullet Key	No-motor zone (300 feet) around entire key.
Crocodile Lake	No-access buffer zone (100 feet) along shoreline between March 1 and October 1.
East Harbor Key	No-access buffer zone (300 feet) around northernmost island.
Lower Harbor Keys	Idle speed only/ no-wake zones in selected tidal creeks.

Eastern Lake Surprise	Idle speed only/no-wake zone east of highway U.S. 1.
Horseshoe Key	No-access buffer zone (300 feet) around main island (main island closed by Department of the Interior).
Marquesas Keys	(i) No-motor zones (300 feet) around three smallest keys on western side of chain; (ii) no-access buffer zone (300 feet) around one island at western side of chain; (iii) idle speed only/no-wake zone in southwest tidal creek.
Tidal flat south of Marvin Key	No-access buffer zone on tidal flat.
Mud Keys	(i) Idle speed only/no-wake zones in the two main tidal creeks; (ii) two smaller creeks on west side closed.
Pelican Shoal	No-access buffer zone out to 50 meters from shore between April 1 and August 31 (shoal closed by the Florida Game and Freshwater Fish Commission).
Rodriguez Key	No-motor zone on tidal flats.
Dove Key	No-motor zone on tidal flats; area around the two small islands closed.
Tavernier Key	No-motor zone on tidal flats.
Sawyer Keys	Tidal creeks on south side closed.
Snipe Keys	(i) Idle speed only/no-wake zone in main tidal creek; (ii) no-motor zone in all other tidal creeks.
Upper Harbor Key	No-access buffer zone (300 feet) around entire key.
East Content Keys	Idle speed only/no-wake zones in tidal creeks between southwesternmost keys.
West Content Keys	Idle speed only/no-wake zones in selected tidal creeks; no-access buffer zone in one cove.
Little Crane Key	No-access buffer zone (300 feet) around entire key.

Appendix IV to Subpart P of Part 922—Ecological Reserves Boundary Coordinates

(1) The boundary of the Western Sambo Ecological Reserve is formed by connecting in succession the points at the following coordinates:

WESTERN SAMBO

[Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.33.70' N.....	81 deg.40.80' W.
2	24 deg.28.85' N.....	81 deg.41.90' W.
3	24 deg.28.50' N.....	81 deg.43.70' W.
4	24 deg.33.50' N.....	81 deg.43.10' W.
5	24 deg.33.70' N.....	81 deg.40.80' W.

(2) The Tortugas Ecological Reserve consists of two discrete areas, Tortugas North and Tortugas South.

(3) The boundary of Tortugas North is formed by connecting in succession the points at the following coordinates:

TORTUGAS NORTH

Point	Latitude	Longitude
1	24 deg.46.00' N.....	83 deg.06.00' W.

2	24 deg.46.00' N.....	82 deg.54.00' W.
3	24 deg.45.80' N.....	82 deg.48.00' W.
4	24 deg.43.53' N.....	82 deg.48.00' W.
5	24 deg.43.53' N.....	82 deg.52.00' W.
6	24 deg.43.00' N.....	82 deg.54.00' W.
7	24 deg.39.00' N.....	82 deg.58.00' W.
8	24 deg.39.00' N.....	83 deg.06.00' W.
9	24 deg.46.00' N.....	83 deg.06.00' W.

(4) The boundary of Tortugas South is formed by connecting in succession the points at the following coordinates:

TORTUGAS SOUTH

Point	Latitude	Longitude
1	24 deg.33.00' N.....	83 deg.09.00' W.
2	24 deg.33.00' N.....	83 deg.05.00' W.
3	24 deg.18.00' N.....	83 deg.05.00' W.
4	24 deg.18.00' N.....	83 deg.09.00' W.
5	24 deg.33.00' N.....	83 deg.09.00' W.

[66 FR 4372, Jan. 17, 2001]

Appendix V to Subpart P of Part 922—Sanctuary Preservation Areas Boundary Coordinates

The boundary of each of the Sanctuary Preservation Areas (SPAs) is formed by connecting in succession the points at the following coordinates:

ALLIGATOR REEF [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.50.98' N	80 deg.36.84' W.
2	24 deg.50.51' N	80 deg.37.35' W.
3	24 deg.50.81' N	80 deg.37.63' W.
4	24 deg.51.23' N	80 deg.37.17' W.
5	24 deg.50.98' N	80 deg.36.84' W.

Catch and release fishing by trolling only is allowed in this SPA.

CARYSFORT/SOUTH CARYSFORT REEF [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	25 deg.13.78' N	80 deg.12.00' W.
2	25 deg.12.03' N	80 deg.12.98' W.
3	25 deg.12.24' N	80 deg.13.77' W.
4	25 deg.14.13' N	80 deg.12.78' W.
5	25 deg.13.78' N	80 deg.12.00' W.

CHEECA ROCKS [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.54.42' N	80 deg.36.91' W.
2	24 deg.54.25' N	80 deg.36.77' W.

3	24 deg.54.10' N	80 deg.37.00' W.
4	24 deg.54.22' N	80 deg.37.15' W.
5	24 deg.54.42' N	80 deg.36.91' W.

COFFINS PATCH [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.41.47' N	80 deg.57.68' W.
2	24 deg.41.12' N	80 deg.57.53' W.
3	24 deg.40.75' N	80 deg.58.33' W.
4	24 deg.41.06' N	80 deg.58.48' W.
5	24 deg.41.47' N	80 deg.57.68' W.

CONCH REEF [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.57.48' N	80 deg.27.47' W.
2	24 deg.57.34' N	80 deg.27.26' W.
3	24 deg.56.78' N	80 deg.27.52' W.
4	24 deg.56.96' N	80 deg.27.73' W.
5	24 deg.57.48' N	80 deg.27.47' W.

Catch and release fishing by trolling only is allowed in this SPA.

DAVIS REEF [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.55.61' N	80 deg.30.27' W.
2	24 deg.55.41' N	80 deg.30.05' W.
3	24 deg.55.11' N	80 deg.30.35' W.
4	24 deg.55.34' N	80 deg.30.52' W.
5	24 deg.55.61' N	80 deg.30.27' W.

DRY ROCKS [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	25 deg.07.59' N	80 deg.17.91' W.
2	25 deg.07.41' N	80 deg.17.70' W.
3	25 deg.07.25' N	80 deg.17.82' W.
4	25 deg.07.41' N	80 deg.18.09' W.
5	25 deg.07.59' N	80 deg.17.91' W.

GRECIAN, ROCKS [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	25 deg.06.91' N	80 deg.18.20' W.
2	25 deg.06.67' N	80 deg.18.06' W.
3	25 deg.06.39' N	80 deg.18.32' W.
4	25 deg.06.42' N	80 deg.18.48' W.
5	25 deg.06.81' N	80 deg.18.44' W.
6	25 deg.06.91' N	80 deg.18.20' W.

EASTERN, DRY ROCKS [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.27.92' N	81 deg.50.55' W.
2	24 deg.27.73' N	81 deg.50.33' W.
3	24 deg.27.47' N	81 deg.50.80' W.
4	24 deg.27.72' N	81 deg.50.86' W.
5	24 deg.27.92' N	81 deg.50.55' W.

THE ELBOW [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	25 deg.08.97' N	80 deg.15.63' W.
2	25 deg.08.95' N	80 deg.15.22' W.
3	25 deg.08.18' N	80 deg.15.64' W.
4	25 deg.08.50' N	80 deg.16.07' W.
5	25 deg.08.97' N	80 deg.15.63' W.

FRENCH REEF [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	25 deg.02.20' N	80 deg.20.63' W.
2	25 deg.01.81' N	80 deg.21.02' W.
3	25 deg.02.36' N	80 deg.21.27' W.
4	25 deg.02.20' N	80 deg.20.63' W.

HEN AND CHICKENS [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.56.38' N	80 deg.32.86' W.
2	24 deg.56.21' N	80 deg.32.63' W.
3	24 deg.55.86' N	80 deg.32.95' W.
4	24 deg.56.04' N	80 deg.33.19' W.
5	24 deg.56.38' N	80 deg.32.86' W.

LOOE KEY [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.33.24' N	81 deg.24.03' W.
2	24 deg.32.70' N	81 deg.23.85' W.
3	24 deg.32.52' N	81 deg.24.70' W.
4	24 deg.33.12' N	81 deg.24.81' W.
5	24 deg.33.24' N	81 deg.24.03' W.

MOLASSES REEF [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	25 deg.01.00' N	80 deg.22.53' W.
2	25 deg.01.06' N	80 deg.21.84' W.
3	25 deg.00.29' N	80 deg.22.70' W.
4	25 deg.00.72' N	80 deg.22.83' W.
5	25 deg.01.00' N	80 deg.22.53' W.

NEWFOUND HARBOR KEY [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.37.10' N	81 deg.23.34' W.
2	24 deg.36.85' N	81 deg.23.28' W.
3	24 deg.36.74' N	81 deg.23.80' W.
4	24 deg.37.00' N	81 deg.23.86' W.
5	24 deg.37.10' N	81 deg.23.34' W.

ROCK KEY [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.27.48' N	81 deg.51.35' W.
2	24 deg.27.30' N	81 deg.51.15' W.
3	24 deg.27.21' N	81 deg.51.60' W.
4	24 deg.27.45' N	81 deg.51.65' W.
5	24 deg.27.48' N	81 deg.51.35' W.

SAND KEY [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.27.58' N	81 deg.52.29' W.
2	24 deg.27.01' N	81 deg.52.32' W.
3	24 deg.27.02' N	81 deg.52.95' W.
4	24 deg.27.61' N	81 deg.52.94' W.
5	24 deg.27.58' N	81 deg.52.29' W.

Catch and release fishing by trolling only is allowed in this SPA.

SOMBRERO KEY [Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.37.91' N	81 deg.06.78' W.
2	24 deg.37.50' N	81 deg.06.19' W.
3	24 deg.37.25' N	81 deg.06.89' W.
4	24 deg.37.91' N	81 deg.06.78' W.

Catch and release fishing by trolling only is allowed in this SPA.

[66 FR 4373, Jan. 17, 2001]

Appendix VI to Subpart P of Part 922—Special-Use Areas Boundary Coordinates and Use Designations

The boundary of each of the Special-Use is formed by connecting in succession the points at the following coordinates:

CONCH REEF (Research Only)—[Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.56.83' N	80 deg.27.26' W.
2	24 deg.57.10' N	80 deg.26.93' W.
3	24 deg.56.99' N	80 deg.27.42' W.
4	24 deg.57.34' N	80 deg.27.26' W.
5	24 deg.56.83' N	80 deg.27.26' W.

EASTERN, SAMBO (Research Only)—[Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.29.84' N	81 deg.39.59' W.
2	24 deg.29.55' N	81 deg.39.35' W.
3	24 deg.29.37' N	81 deg.39.96' W.
4	24 deg.29.77' N	81 deg.40.03' W.
5	24 deg.29.84' N	81 deg.39.59' W.

LOOE KEY (Research Only)—[Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.34.17' N	81 deg.23.01' W.
2	24 deg.33.98' N	81 deg.22.96' W.
3	24 deg.33.84' N	81 deg.23.60' W.
4	24 deg.34.23' N	81 deg.23.68' W.
5	24 deg.34.17' N	81 deg.23.01' W.

TENNESSEE REEF (Research Only)—[Based on differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg.44.77' N	80 deg.47.12' W.
2	24 deg.44.57' N	80 deg.46.98' W.
3	24 deg.44.68' N	80 deg.46.59' W.
4	24 deg.44.95' N	80 deg.46.74' W.
5	24 deg.44.77' N	80 deg.47.12' W.

[66 FR 4376, Jan. 17, 2001]

Appendix VII to Subpart P of Part 922—Areas To Be Avoided Boundary Coordinates

THE VICINITY OF THE FLORIDA KEYS [Reference Charts: United States 11466, 27th Edition—September 1, 1990 and United States 11450, 4th Edition—August 11, 1990]

Point	Latitude	Longitude
1	25deg.45.00'N	80deg.06.10' W
2	25deg.38.70'N	80deg.02.70' W
3	25deg.22.00'N	80deg.03.00' W
4	25deg.06.38'N	80deg.10.48' W
5	24deg.56.37'N	80deg.19.26' W
6	24deg.37.90'N	80deg.47.30' W
7	24deg.29.20'N	81deg.17.30' W
8	24deg.22.30'N	81deg.43.17' W
9	24deg.28.00'N	81deg.43.17' W
10	24deg.28.70'N	81deg.43.50' W
11	24deg.29.80'N	81deg.43.17' W
12	24deg.33.10'N	81deg.35.15' W
13	24deg.33.60'N	81deg.26.00' W
14	24deg.38.20'N	81deg.07.00' W

15	24deg.43.20'N	80deg.53.20' W
16	24deg.46.10'N	80deg.46.15' W
17	24deg.51.10'N	80deg.37.10' W
18	24deg.57.50'N	80deg.27.50' W
19	25deg.09.90'N	80deg.16.20' W
20	25deg.24.00'N	80deg.09.10' W
21	25deg.31.50'N	80deg.07.00' W
22	25deg.39.70'N	80deg.06.85' W
23	25deg.45.00'N	80deg.06.10' W

IN THE VICINITY OF KEY WEST HARBOR [Reference Chart: United States 11434, 21st Edition—August 11, 1990]

Point	Latitude	Longitude
24	24 deg.27.95' N	81 deg.48.65' W.
25	24 deg.23.00' N	81 deg.53.50' W.
26	24 deg.26.60' N	81 deg.58.50' W.
27	24 deg.27.75' N	81 deg.55.70' W.
28	24 deg.29.35' N	81 deg.53.40' W.
29	24 deg.29.35' N	81 deg.50.00' W.
30	24 deg.27.95' N	81 deg.48.65' W.

AREA SURROUNDING THE MARQUESAS KEYS [Reference Chart: United States 11434, 21st Edition—August 11, 1990]

Point	Latitude	Longitude
31	24 deg.26.60' N	81 deg.59.55' W.
32	24 deg.23.00' N	82 deg.03.50' W.
33	24 deg.23.60' N	82 deg.27.80' W.
34	24 deg.34.50' N	82 deg.37.50' W.
35	24 deg.43.00' N	82 deg.26.50' W.
36	24 deg.38.31' N	81 deg.54.06' W.
37	24 deg.37.91' N	81 deg.53.40' W.
38	24 deg.36.15' N	81 deg.51.78' W.
39	24 deg.34.40' N	81 deg.50.60' W.
40	24 deg.33.44' N	81 deg.49.73' W.
41	24 deg.31.20' N	81 deg.52.10' W.
42	24 deg.28.70' N	81 deg.56.80' W.
43	24 deg.26.60' N	81 deg.59.55' W.

AREA SURROUNDING THE DRY TORTUGAS ISLANDS [Reference Chart: United States 11434, 21st Edition—August 11, 1990]

Point	Latitude	Longitude
44	24 deg.32.00' N	82 deg.53.50' W.
45	24 deg.32.00' N	83 deg.00.05' W.
46	24 deg.39.70' N	83 deg.00.05' W.
47	24 deg.45.60' N	82 deg.54.40' W.
48	24 deg.45.60' N	82 deg.47.02' W.
49	24 deg.42.80' N	82 deg.43.90' W.
50	24 deg.39.50' N	82 deg.43.90' W.

51	24 deg.35.60' N	82 deg.46.40' W.
52	24 deg.32.00' N	82 deg.53.50' W

[66 FR 4377, Jan. 17, 2001, as amended at 66 FR 34534, June 29, 2001]

Appendix VIII to Subpart P of Part 922—Marine Life Rule [As Excerpted From Chapter 46–42 of the Florida Administrative Code]

46–42.001 Purpose and Intent; Designation of Restricted Species; Definition of “Marine Life Species.”

46–42.002 Definitions.

46–42.003 Prohibition of Harvest: Longspine Urchin, Bahama Starfish. 46–

42.0035 Live Landing and Live Well Requirements.

46–42.0036 Harvest in Biscayne National Park.*

46–42.004 Size Limits.

46–42.005 Bag Limits.

46–42.006 Commercial Season, Harvest Limits.

46–42.007 Gear Specifications and Prohibited Gear.

46–42.008 Live Rock.*

46–42.009 Prohibition on the Taking, Destruction, or Sale of Marine Corals and Sea Fans.

*—Part 42.0036 was not reproduced because it does not apply to the Sanctuary.

*—Part 42.008 was not reproduced because it is regulated pursuant to this Part 922.163(2)(ii).

46–42.001 Purpose and Intent; Designation of Restricted Species; Definition of “Marine Life Species”.—

- (1)(a) The purpose and intent of this chapter are to protect and conserve Florida’s tropical marine life resources and assure the continuing health and abundance of these species. The further intent of this chapter is to assure that harvesters in this fishery use nonlethal methods of harvest and that the fish, invertebrates, and plants so harvested be maintained alive for the maximum possible conservation and economic benefits.
- (b) It is the express intent of the Marine Fisheries Commission that landing of live rock propagated through aquaculture will be allowed pursuant to the provisions of this chapter.
- (2) The following fish species, as they occur in waters of the state and in federal Exclusive Economic Zone (EEZ) waters adjacent to state waters, are hereby designated as restricted species pursuant to Section 370.01(20), Florida Statutes:
 - (a) Moray eels—Any species of the Family Muraenidae.
 - (b) Snake eels—Any species of the Genera Myrichthys and Myrophis of the Family Ophichthidae.
 - (c) Toadfish—Any species of the Family Batrachoididae.
 - (d) Frogfish—Any species of the Family Antennariidae.
 - (e) Batfish—Any species of the Family Ogocephalidae.
 - (f) Clingfish—Any species of the Family Gobiesocidae.
 - (g) Trumpetfish—Any species of the Family Aulostomidae.
 - (h) Cornetfish—Any species of the Family Fistulariidae.
 - (i) Pipefish/seahorses—Any species of the Family Syngnathidae.
 - (j) Hamlet/seabass—Any species of the Family Serranidae, except groupers of the genera Epinephalus and Mycteroperca, and seabass of the genus Centropristis.
 - (k) Basslets—Any species of the Family Grammistidae.
 - (l) Cardinalfish—Any species of the Family Apogonidae.
 - (m) High-hat, Jackknife-fish, Spotted drum, Cubbyu—Any species of the genus Equetus of the Family Sciaenidae.
 - (n) Reef Croakers—Any of the species Odontocion dentex.
 - (o) Sweepers—Any species of the Family Pempheridae.

- (p) Butterflyfish—Any species of the Family Chaetodontidae.
- (q) Angelfish—Any species of the Family Pomacanthidae.
- (r) Damselfish—Any species of the Family Pomacentridae.
- (s) Hawkfish—Any species of the Family Cirrhitidae.
- (t) Wrasse/hogfish/razorfish—Any species of the Family Labridae, except hogfish, *Lachnolaimus maximus*.
- (u) Parrotfish—Any species of the Family Scaridae.
- (v) Jawfish—Any species of the Family Opistognathidae.
- (w) Blennies—Any species of the Families Clinidae or Blenniidae.
- (x) Sleepers—Any species of the Family Eleotrididae.
- (y) Gobies—Any species of the Family Gobiidae.
- (z) Tangs and surgeonfish—Any species of the Family Acanthuridae.
- (aa) Filefish/triggerfish—Any species of the Family Balistes, except gray triggerfish, *Balistidae capriscus*.
- (bb) Trunkfish/cowfish—Any species of the Family Ostraciidae.
- (cc) Pufferfish/burrfish/balloonfish—Any of the following species:
 - 1. Balloonfish—*Diodon holocanthus*.
 - 2. Sharpnose puffer—*Canthigaster rostrata*.
 - 3. Striped burrfish—*Chilomycterus schoepfi*.
- (3) The following invertebrate species, as they occur in waters of the state and in federal Exclusive Economic Zone (EEZ) waters adjacent to state waters, are hereby designated as restricted species pursuant to Section 370.01(20), Florida Statutes:
 - (a) Sponges—Any species of the Class Demospongia, except sheepswool, yellow, grass, glove, finger, wire, reef, and velvet sponges, Order Dictyoceratida.
 - (b) Upside-down jellyfish—Any species of the Genus Cassiopeia.
 - (c) Siphonophores/hydroids—Any species of the Class Hydrozoa, except fire corals, Order Milleporina.
 - (d) Soft corals—Any species of the Subclass Octocorallia, except sea fans *Gorgonia flabellum* and *Gorgonia ventalina*.
 - (e) Sea anemones—Any species of the Orders Actinaria, Zoanthidea, Corallimorpharia, and Ceriantharia.
 - (f) Featherduster worms/calcareous tubeworms—Any species of the Families Sabellidae and Serpulidae.
 - (g) Star-shells—Any of the species *Astraea americana* or *Astraea phoebia*.
 - (h) Nudibranchs/sea slugs—Any species of the Subclass Opisthobranchia.
 - (i) Fileclams—Any species of the Genus *Lima*.
 - (j) Octopods—Any species of the Order Octopoda, except the common octopus, *Octopus vulgaris*.
 - (k) Shrimp—Any of the following species:
 - 1. Cleaner shrimp and peppermint shrimp— Any species of the Genera *Periclimenes* or *Lysmata*.
 - 2. Coral shrimp—Any species of the Genus *Stenopus*.
 - 3. Snapping shrimp—Any species of the Genus *Alpheus*.
 - (l) Crabs—Any of the following species:
 - 1. Yellowline arrow crab—*Stenorhynchus seticornis*.
 - 2. Furcate spider or decorator crab— *Stenocionops furcata*.
 - 3. Thinstripe hermit crab—*Clibanarius vittatus*.
 - 4. Polkadotted hermit crab—*Phimochirus operculatus*.
 - 5. Spotted porcelain crab—*Porcellana sayana*.
 - 6. Nimble spray or urchin crab—*Percnon gibbesi*.
 - 7. False arrow crab—*Metoporphaphis calcarata*.

- (m) Starfish—Any species of the Class Asteroidea, except the Bahama starfish, *Oreaster reticulatus*.
- (n) Brittlestars—Any species of the Class Ophiuroidea.
- (o) Sea urchins—Any species of the Class Echinoidea, except longspine urchin, *Diadema antillarum*, and sand dollars and sea biscuits, Order Clypeasteroidea.
- (p) Sea cucumbers—Any species of the Class Holothuroidea.
- (q) Sea lillies—Any species of the Class Crinoidea.
- (4) The following species of plants, as they occur in waters of the state and in federal Exclusive Economic Zone (EEZ) waters adjacent to state waters, are hereby designated as restricted species pursuant to Section 370.01(20), Florida Statutes:
 - (a) *Caulerpa*—Any species of the Family Caulerpaceae.
 - (b) *Halimeda*/mermaid’s fan/mermaid’s shaving brush—Any species of the Family Halimedaceae.
 - (c) Coralline red algae—Any species of the Family Corallinaceae.
- (5) For the purposes of Section 370.06(2) (d), Florida Statutes, the term “marine life species” is defined to mean those species designated as restricted species in subsections (2), (3), and (4) of this rule.

Specific Authority 370.01(20), 370.027(2), 370.06(2) (d), F.S. Law Implemented 370.01(20), 370.025, 370.027, 370.06(2) (d), F.S. History—New 1–1–91, Amended 7–1–92, 1–1–95.

46–42.002 Definitions. — As used in this rule chapter:

- (1) “Barrier net,” also known as a “fence net,” means a seine used beneath the surface of the water by a diver to enclose and concentrate tropical fish and which may be made of either nylon or monofilament.
- (2) “Drop net” means a small, usually circular, net with weights attached along the outer edge and a single float in the center, used by a diver to enclose and concentrate tropical fish.
- (3) “Hand held net” means a landing or dip net as defined in Rule 46–4.002(4), except that a portion of the bag may be constructed of clear plastic material, rather than mesh.
- (4) “Harvest” means the catching or taking of a marine organism by any means whatsoever, followed by a reduction of such organism to possession. Marine organisms that are caught but immediately returned to the water free, alive, and unharmed are not harvested. In addition, temporary possession of a marine animal for the purpose of measuring it to determine compliance with the minimum or maximum size requirements of this chapter shall not constitute harvesting such animal, provided that it is measured immediately after taking, and immediately returned to the water free, alive, and unharmed if undersize or oversize.
- (5) “Harvest for commercial purposes” means the taking or harvesting of any tropical ornamental marine life species or tropical ornamental marine plant for purposes of sale or with intent to sell. The harvest of tropical ornamental marine life species or tropical ornamental marine plants in excess of the bag limit shall constitute prima facie evidence of intent to sell.
- (6) “Land,” when used in connection with the harvest of marine organisms, means the physical act of bringing the harvested organism ashore.
- (7) “Live rock” means rock with living marine organisms attached to it.
- (8) “Octocoral” means any erect, nonencrusting species of the Subclass Octocorallia, except the species *Gorgonia flabellum* and *Gorgonia ventalina*.
- (9) “Slurp gun” means a self-contained, handheld device that captures tropical fish by rapidly drawing seawater containing such fish into a closed chamber.
- (10) “Total length” means the length of a fish as measured from the tip of the snout to the tip of the tail.

- (11) “Trawl” means a net in the form of an elongated bag with the mouth kept open by various means and fished by being towed or dragged on the bottom. “Roller frame trawl” means a trawl with all of the following features and specifications:
- (a) A rectangular rigid frame to keep the mouth of the trawl open while being towed.
 - (b) The lower horizontal beam of the frame has rollers to allow the trawl to roll over the bottom and any obstructions while being towed.
 - (c) The trawl opening is shielded by a grid of vertical bars spaced no more than 3 inches apart.
 - (d) The trawl is towed by attaching a line or towing cable to a tongue located above and at the center of the upper horizontal beam of the frame.
 - (e) The trawl has no doors attached to keep the mouth of the trawl open.
- (12) “Tropical fish” means any species included in subsection (2) of Rule 46–42.001, or any part thereof.
- (13) “Tropical ornamental marine life species” means any species included in subsections (2) or (3) of Rule 46–42.001, or any part thereof.
- (14) “Tropical ornamental marine plant” means any species included in subsection (4) of Rule 46–42.001. Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History—New 1–1–91, Amended 7–1–92, 1–1–95.
- 46–42.003 Prohibition of Harvest: Longspine Urchin, Bahama Starfish. — No person shall harvest, possess while in or on the waters of the state, or land any of the following species:
- (1) Longspine urchin, *Diadema antillarum*.
 - (2) Bahama starfish, *Oreaster reticulatus*. Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History—New 1–1–91, Amended 7–1–92.
- 46–42.0035 Live Landing and Live Well Requirements.—
- (1) Each person harvesting any tropical ornamental marine life species or any tropical ornamental marine plant shall land such marine organism alive.
 - (2) Each person harvesting any tropical ornamental marine life species or any tropical ornamental marine plant shall have aboard the vessel being used for such harvest a continuously circulating live well or aeration or oxygenation system of adequate size and capacity to maintain such harvested marine organisms in a healthy condition.
- Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History—New 7–1–92.
- 46–42.004 Size Limits.—
- (1) Angelfishes.—
 - (a) No person harvesting for commercial purposes shall harvest, possess while in or on the waters of the state, or land any of the following species of angelfish, of total length less than that set forth below:
 1. One-and-one-half (1 1/2) inches for:
 - a. Gray angelfish (*Pomacanthus arcuatus*).
 - b. French angelfish (*Pomacanthus paru*).
 2. One-and-three-quarters (1 3/4) inches for:
 - a. Blue angelfish (*Holacanthus bermudensis*).
 - b. Queen angelfish (*Holacanthus ciliaris*).
 3. Two (2) inches for rock beauty (*Holacanthus tricolor*).
 - (b) No person shall harvest, possess while in or on the waters of the state, or land any angelfish (Family Pomacanthidae), of total length greater than that specified below:
 1. Eight (8) inches for angelfish, except rock beauty (*Holacanthus tricolor*).
 2. Five (5) inches for rock beauty.
 - (c) Except as provided herein, no person shall purchase, sell, or exchange any angelfish smaller than the limits specified in paragraph (a) or larger than the limits specified in paragraph (b). This prohibition shall not apply to angelfish legally

harvested outside of state waters or federal Exclusive Economic Zone (EEZ) waters adjacent to state waters, which angelfish are entering Florida in interstate or international commerce. The burden shall be upon any person possessing such angelfish for sale or exchange to establish the chain of possession from the initial transaction after harvest, by appropriate receipt(s), bill(s) of sale, or bill(s) of lading, and any customs receipts, and to show that such angelfish originated from a point outside the waters of the State of Florida or federal Exclusive Economic Zone (EEZ) waters adjacent to Florida waters and entered the state in interstate or international commerce. Failure to maintain such documentation or to promptly produce same at the request of any duly authorized law enforcement officer shall constitute prima facie evidence that such angelfish were harvested from Florida waters or adjacent EEZ waters for purposes of this paragraph.

(2) Butterflyfishes.—

(a) No person harvesting for commercial purposes shall harvest, possess while in or on the waters of the state, or land any butterflyfish (Family Chaetodontidae) of total length less than one (1) inch.

(b) No person shall harvest, possess while in or on the waters of the state, or land any butterflyfish of total length greater than 4 inches.

(3) Gobies—No person shall harvest, possess while in or on the waters of the state, or land any gobie (Family Gobiidae) of total length greater than 2 inches.

(4) Jawfishes—No person shall harvest, possess while in or on the waters of the state, or land any jawfish (Family Opistognathidae) of total length greater than 4 inches.

(5) Spotfin and Spanish hogfish—

(a) No person shall harvest, possess while in or on the waters of this state, or land any Spanish hogfish (*Bodianus rufus*) of total length less than 2 inches.

(b) No person shall harvest, possess while in or on the waters of this state, or land any Spanish hogfish (*Bodianus rufus*) or spotfin hogfish (*Bodianus pulchellus*) of total length greater than 8 inches.

Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History—New 1–1–91, Amended 7–1–92, 1–1–95.

46–42.005 Bag limit.—

(1) Except as provided in Rule 46–42.006 or subsections (3) or (4) of this rule, no person shall harvest, possess while in or on the waters of the state, or land more than 20 individuals per day of tropical ornamental marine life species, in any combination.

(2) Except as provided in Rule 46–42.006, no person shall harvest, possess while in or on the waters of the state, or land more than one (1) gallon per day of tropical ornamental marine plants, in any combination of species.

(3) Except as provided in Rule 46–42.006, no person shall harvest, possess while in or on the waters of the state, or land more than 5 angelfishes (Family Pomacanthidae) per day. Each angelfish shall be counted for purposes of the 20 individual bag limit specified in subsection (1) of this rule.

(4)(a) Unless the season is closed pursuant to paragraph

(b), no person shall harvest, possess while in or on the waters of the state, or land more than 6 colonies per day of octocorals. Each colony of octocoral or part thereof shall be considered an individual of the species for purposes of subsection (1) of this rule and shall be counted for purposes of the 20 individual bag limit specified therein. Each person harvesting any octocoral as authorized by this rule may also harvest substrate within 1 inch of the perimeter of the holdfast at the base of the octocoral, provided that such substrate remains attached to the octocoral. (b) If the harvest of octocorals in federal Exclusive Economic Zone (EEZ) waters adjacent to state waters is closed to all harvesters prior to September 30 of any year, the season for harvest of octocorals in state waters shall also close until the following October 1, upon notice given by the Secretary of the Department of Environmental Protection, in the manner provided in s.120.52(16)(d), Florida

Statutes.

Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History—New 1–1–91, Amended 1–1–95.

46–42.006 Commercial Season, Harvest Limits.—

- (1) Except as provided in Rule 46–42.008(7), no person shall harvest, possess while in or on the waters of the state, or land quantities of tropical ornamental marine life species or tropical ornamental marine plants in excess of the bag limits established in Rule 46–42.005 unless such person possesses a valid saltwater products license with both a marine life fishery endorsement and a restricted species endorsement issued by the Department of Environmental Protection.
- (2) Persons harvesting tropical ornamental marine life species or tropical ornamental marine plants for commercial purposes shall have a season that begins on October 1 of each year and continues through September 30 of the following year. These persons shall not harvest, possess while in or on the waters of the state, or land tropical ornamental marine life species in excess of the following limits:
 - (a) A limit of 75 angelfish (Family Pomacanthidae) per person per day or 150 angelfish per vessel per day, whichever is less.
 - (b) A limit of 75 butterflyfishes (Family Chaetodontidae) per vessel per day.
 - (c) There shall be no limits on the harvest for commercial purposes of octocorals unless and until the season for all harvest of octocorals in federal Exclusive Economic Zone (EEZ) waters adjacent to state waters is closed. At such time, the season for harvest of octocorals in state waters shall also close until the following October 1, upon notice given by the Secretary of the Department of Environmental Protection, in the manner provided in Section 120.52(16)(d), Florida Statutes. Each person harvesting any octocoral as authorized by this rule may also harvest substrate within 1 inch of the perimeter of the holdfast at the base of the octocoral, provided that such substrate remains attached to the octocoral.
 - (d) A limit of 400 giant Caribbean or “pink-tipped” anemones (Genus *Condylactis*) per vessel per day.

Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History—New 1–1–91, Amended 7–1–92, 1–1–95.

46–42.007 Gear Specifications and Prohibited Gear.—

- (1) The following types of gear shall be the only types allowed for the harvest of any tropical fish, whether from state waters or from federal Exclusive Economic Zone (EEZ) waters adjacent to state waters:
 - (a) Hand held net.
 - (b) Barrier net, with a mesh size not exceeding 3/4 inch stretched mesh.
 - (c) Drop net, with a mesh size not exceeding 3/4 inch stretched mesh.
 - (d) Slurp gun.
 - (e) Quinaldine may be used for the harvest of tropical fish if the person using the chemical or possessing the chemical in or on the waters of the state meets each of the following conditions:
 1. The person also possesses and maintains aboard any vessel used in the harvest of tropical fish with quinaldine a special activity license authorizing the use of quinaldine, issued by the Division of Marine Resources of the Department of Environmental Protection pursuant to Section 370.08(8), Florida Statutes.
 2. The quinaldine possessed or applied while in or on the waters of the state is in a diluted form of no more than 2% concentration in solution with seawater. Prior to dilution in seawater, quinaldine shall only be mixed with isopropyl alcohol or ethanol.

- (f) A roller frame trawl operated by a person possessing a valid live bait shrimping license issued by the Department of Environmental Protection pursuant to Section 370.15, Florida Statutes, if such tropical fish are taken as an incidental bycatch of shrimp lawfully harvested with such trawl.
- (g) A trawl meeting the following specifications used to collect live specimens of the dwarf seahorse, *Hippocampus zosterae*, if towed by a vessel no greater than 15 feet in length at no greater than idle speed:
 - 1. The trawl opening shall be no larger than 12 inches by 48 inches.
 - 2. The trawl shall weigh no more than 5 pounds wet when weighed out of the water.
- (2) This rule shall not be construed to prohibit the use of any bag or container used solely for storing collected specimens or the use of a single blunt rod in conjunction with any allowable gear, which rod meets each of the following specifications:
 - (a) The rod shall be made of nonferrous metal, fiberglass, or wood.
 - (b) The rod shall be no longer than 36 inches and have a diameter no greater than 3/4 inch at any point.
- (3) No person shall harvest in or from state waters any tropical fish by or with the use of any gear other than those types specified in subsection (1); provided, however, that tropical fish harvested as an incidental bycatch of other species lawfully harvested for commercial purposes with other types of gear shall not be deemed to be harvested in violation of this rule, if the quantity of tropical fish so harvested does not exceed the bag limits established in Rule 46–42.005.

Specific Authority 370.027(2), F.S. Law Implemented 370.025, 370.027, F.S. History—New 1–1–91, Amended 7–1–92, 1–1–95.

46–42.009 Prohibition on the Taking, Destruction, or Sale of Marine Corals and Sea Fans; Exception; Repeal of Section 370.114, Florida Statutes.—

- (1) Except as provided in subsection (2), no person shall take, attempt to take, or otherwise destroy, or sell, or attempt to sell, any sea fan of the species *Gorgonia flabellum* or of the species *Gorgonia ventalina*, or any hard or stony coral (Order Scleractinia) or any fire coral (Genus *Millepora*). No person shall possess any such fresh, uncleaned, or uncured sea fan, hard or stony coral, or fire coral.
- (2) Subsection (1) shall not apply to:
 - (a) Any sea fan, hard or stony coral, or fire coral legally harvested outside of state waters or federal Exclusive Economic Zone (EEZ) waters adjacent to state waters and entering Florida in interstate or international commerce. The burden shall be upon any person possessing such species to establish the chain of possession from the initial transaction after harvest, by appropriate receipt(s), bill(s) of sale, or bill(s) of lading, and any customs receipts, and to show that such species originated from a point outside the waters of the State of Florida or federal Exclusive Economic Zone (EEZ) adjacent to state waters and entered the state in interstate or international commerce. Failure to maintain such documentation or to promptly produce same at the request of any duly authorized law enforcement officer shall constitute prima facie evidence that such species were harvested from Florida waters in violation of this rule.
 - (b) Any sea fan, hard or stony coral, or fire coral harvested and possessed pursuant to permit issued by the Department of Environmental Protection for scientific or educational purposes as authorized in Section 370.10(2), Florida Statutes.
 - (c) Any sea fan, hard or stony coral, or fire coral harvested and possessed pursuant to the aquacultured live rock provisions of Rule 46–42.008(3)(a) or pursuant to a Live Rock Aquaculture Permit issued by the National Marine Fisheries Service under 50 CFR Part 638 and meeting the following requirements:
 - (1) Persons possessing these species in or on the waters of the state shall also possess a state submerged lands lease for live rock aquaculture and a Department of Environmental Protection permit for live rock culture deposition and removal or a federal Live Rock Aquaculture Permit. If the person possessing these species is not the person named in the

documents required herein, then the person in such possession shall also possess written permission from the person so named to transport aquacultured live rock pursuant to this exception.

- (2) The nearest office of the Florida Marine Patrol shall be notified at least 24 hours in advance of any transport in or on state waters of aquacultured live rock pursuant to this exception.
- (3) Persons possessing these species off the water shall maintain and produce upon the request of any duly authorized law enforcement officer sufficient documentation to establish the chain of possession from harvest on a state submerged land lease for live rock aquaculture or in adjacent Exclusive Economic Zone (EEZ) waters pursuant to a federal Live Rock Aquaculture Permit.
- (4) Any sea fan, hard or stony coral, or fire coral harvested pursuant to Rule 46– 42.008(3)(a) shall remain attached to the cultured rock.

Specific Authority 370.027(2), F.S.; Section 6, Chapter 83–134, Laws of Florida, as amended by Chapter 84–121, Laws of Florida. Law Implemented 370.025, 370.027, F.S.; Section 6, Chapter 83–134, Laws of Florida, as amended by Chapter 84–121, Laws of Florida. History— New 1–1–95.22

Appendix D - FKNMS Designation Document

Article I. Designation and Effect

On November 16, 1990, the Florida Keys National Marine Sanctuary and Protection Act, Pub. L. 101-605 (16 U.S.C. 1433 note), became law. That Act designated an area of waters and submerged lands, including the living and nonliving resources within those waters, as described therein, as the Florida Keys National Marine Sanctuary (Sanctuary). By this revised Designation Document, the boundary of the Sanctuary is expanded to include important coral reef resources and resources in two areas known as Sherwood Forest and Riley's Hump, just beyond the westernmost portion of the statutory Sanctuary boundary.

Section 304 of the National Marine Sanctuaries Act (NMSA), 16 U.S.C. 1431 *et seq.*, authorizes the Secretary of Commerce to issue such regulations as are necessary and reasonable to implement the designation, including managing and protecting the conservation, recreational, ecological, historical, scientific, educational, cultural, archaeological or aesthetic resources and qualities of a national marine sanctuary. Section 1 of Article IV of this Designation Document lists activities of the type that are presently being regulated or may have to be regulated in the future, in order to protect Sanctuary resources and qualities. Listing in section 1 does not mean that a type of activity will be regulated in the future, however, if a type of activity is not listed, it may not be regulated, except on an emergency basis, unless section 1 is amended, following the procedures for designation of a sanctuary set forth in paragraphs (a) and (b) of section 304 of the NMSA, to include the type of activity.

Nothing in this Designation Document is intended to restrict activities that do not cause an adverse effect on the resources or qualities of the Sanctuary or on Sanctuary property or that do not pose a threat of harm to users of the Sanctuary.

Article II. Description of the Area

The Florida Keys National Marine Sanctuary boundary encompasses approximately 2900 nm² (9,800 square kilometers) of coastal and ocean waters, and the submerged lands thereunder, surrounding the Florida Keys in Florida. The easternmost point of the Sanctuary is the northeasternmost point of Biscayne National Park and the westernmost point is approximately 15 kilometers to the west of the western boundary of Dry Tortugas National Park, a linear distance of approximately 335 kilometers. The contiguous area boundary on the Atlantic Ocean side of the Florida Keys runs south from Biscayne National Park generally following the 300-foot isobath, curving in a southwesterly direction along the Florida Keys archipelago until south of the Dry Tortugas. The contiguous area boundary on the Gulf of Mexico side of the Florida Keys runs from this southern point in a straight line to the northwest and then when directly west of the Dry Tortugas in a straight line to the north. The boundary then turns to the east and slightly south and follows a straight line to just west of Key West and then turns to the northeast and follows a straight line parallel to the Florida Keys approximately five miles to the south, and then follows the Everglades National Park boundary until Division Point where the boundary then follows the western shore of Manatee Bay, Barnes Sound, and Card Sound. The boundary then follows the southern boundary of Biscayne National Park and up its eastern boundary until its northeasternmost point. Starting just to the east of the most western boundary line of the contiguous portion of the Sanctuary there is a vertical rectangular shape area of 60 nm² just to the south.

The shoreward boundary of the Sanctuary is the mean high-water mark except around the Dry Tortugas where it is the boundary of the Dry Tortugas National Park. The Sanctuary boundary encompasses the entire Florida coral reef tract, all of the mangrove islands of the Florida Keys, and some of the sea grass meadows of the Florida Keys. The precise boundary of the Sanctuary is set forth at the end of this Designation Document.

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

The Florida Keys extend approximately 223 miles southwest from the southern tip of the Florida peninsula. Adjacent to the Florida Keys land mass are located spectacular unique, nationally significant marine environments, including sea grass meadows, mangrove islands, and extensive living coral reefs. These marine environments support rich biological communities possessing extensive conservation, recreational, commercial, ecological, historical, research, educational, and aesthetic values which give this area special national significance. These environments are the marine equivalent of tropical rain forests in that they support high levels of biodiversity, are fragile and easily susceptible to damage from human activities, and possess high value to humans if properly conserved. These marine environments are subject to damage and loss of their ecological integrity from a variety of sources of disturbance.

The Florida Keys are a limestone island archipelago. The Keys are located at the southern edge of the Florida Plateau, a large carbonate platform made of a depth of up to 7000 meters of marine sediments, which have been accumulating for 150 million years and which have been structurally modified by subsidence and sea level fluctuation. The Keys region is generally divided into five distinct areas: the Florida reef tract, one of the world's largest coral reef tracts and the only barrier reef in the United States; Florida Bay, described as an active lime-mud factory because of the high carbonate content of its silts and muds; the Southwest Continental Shelf; the Straits of Florida; and the Keys themselves.

The 2.5 million-acre Sanctuary contains one of North America's most diverse assemblages of terrestrial, estuarine, and marine fauna and flora, including, in addition to the Florida reef tract, thousands of patch reefs, one of the world's largest sea grass communities covering 1.4 million acres, mangrove fringed shorelines, mangrove islands, and various hardbottom habitats. These diverse habitats provide shelter and food for thousands of species of marine plants and animals, including more than 50 species of animals identified under Federal or State law, as endangered or threatened. The Keys were at one time a major seafaring center for European and American trade routes to the Caribbean, and the submerged cultural and historic resources (*i.e.*, shipwrecks) abound in the surrounding waters. In addition, the Sanctuary may contain substantial archaeological resources of pre-European cultures.

The uniqueness of the marine environment draws multitudes of visitors to the Keys. The major industry in the Florida Keys is tourism, including activities related to the Keys' marine resources, such as dive shops, charter fishing and dive boats and marinas, as well as hotels and restaurants. The abundance of the resources also supports a large commercial fishing employment sector.

The number of visitors to the Keys grows each year, with a concomitant increase in the number of residents, homes, jobs, and businesses. As population grows and the Keys accommodate ever-increasing resource use pressures, the quality and quantity of Sanctuary resources are increasingly threatened. These pressures require coordinated and comprehensive monitoring and researching of the Florida Keys' region.

Article IV. Scope of Regulations

Section 1. Activities Subject to Regulation

The following activities are subject to regulation under the NMSA, either throughout the entire Sanctuary or within identified portions of it or, as indicated, in areas beyond the boundary of the Sanctuary, to the extent necessary and reasonable. Such regulation may include prohibitions to ensure the protection and management of the conservation, recreational, ecological, historical, scientific, educational, cultural, archaeological or aesthetic resources and qualities of the area. Because an activity is listed here does not mean that such activity is being or will be regulated. All listing means is that the activity can be regulated, after compliance with all applicable regulatory laws, without going through the designation procedures required by paragraphs (a) and (b) of section 304 of the NMSA, 16 U.S.C. 1434(a) and (b). Further, no regulation issued under the authority of the NMSA except an emergency regulation issued with the approval of the Governor of the State of Florida may take effect in the area of the Sanctuary lying within the seaward boundary of the State of Florida if the Governor of the State of Florida certifies to the Secretary of Commerce that such regulation is unacceptable within the forty-five-day review period specified in NMSA. Detailed definitions and explanations of the following “activities subject to regulation” appear in the Sanctuary Management Plan:

1. Exploring for, developing, or producing oil, gas, and/or minerals (*e.g.*, clay, stone, sand, gravel, metalliferous ores, nonmetalliferous ores) in the Sanctuary;
2. Touching, climbing on, taking, removing, moving, collecting, harvesting, injuring, destroying or causing the loss of, or attempting to take, remove, move, collect, harvest, injure, destroy or cause the loss of, coral in the Sanctuary;
3. Drilling into, dredging or otherwise altering the seabed of the Sanctuary, except incidental to allowed fishing and boating practices or construction activities permitted by county, state or federal regulatory agencies; or constructing, placing or abandoning any structure, material or other matter on the seabed of the Sanctuary, except as authorized by appropriate permits or incidental to allowed fishing practices;
4. Discharging or depositing, within or beyond the boundary of the Sanctuary, any material that subsequently enters the Sanctuary and injures a Sanctuary resource or quality;
5. Operating water craft in the Sanctuary
 - (a) in a manner that could injure coral, hardbottoms, seagrass, mangroves, or any other immobile organism attached to the seabed,
 - (b) in a manner that could injure or endanger the life of divers, fishermen, boaters or other users of the Sanctuary,
 - (c) in a manner that could disturb marine mammals, marine reptiles, or bird rookeries;
6. Diving or boating activities in the Sanctuary including anchoring that could harm Sanctuary resources, Sanctuary property, or other users of the Sanctuary;
7. Stocking within the Sanctuary or releasing within the Sanctuary or from beyond the boundary of the Sanctuary, native or exotic species of plant, invertebrate, fish, amphibian or mammals;
8. Defacing, marking, or damaging in any way or displacing, removing, or tampering with any markers, signs, notices, placards, navigational aids, monuments, stakes, posts, mooring buoys, boundary buoys, trap buoys, or scientific equipment in the Sanctuary;

9. Removing, injuring, preserving, curating, and managing historic resources within the Sanctuary without all required state and/or federal permits;
10. Taking, removing, moving, catching, collecting, harvesting, feeding, injuring, destroying, or causing the loss of, or attempting to take, remove, move, catch, collect, harvest, feed, injure, destroy or cause the loss of any marine mammal, marine reptile, or bird within the Sanctuary, without all required state and/or federal permits;
11. Possessing, moving, harvesting, removing, taking, damaging, disturbing, breaking, cutting, spearing, or otherwise injuring any marine invertebrate, fish, bottom formation, algae, seagrass or other living or dead organism, including shells, or attempting any of these activities in any area of the Sanctuary designated as an Existing Management Area, Wildlife Management Area, Ecological Reserve, Sanctuary Preservation Area, or Special-Use Area;
12. Carrying or possessing specified fishing gear in any area of the Sanctuary designated as an Existing Management Area, Wildlife Management Area, Ecological Reserve, Sanctuary Preservation Area, or Special-Use Area except for passage through without interruption;
13. Entering and leaving any Wildlife Management Area, Ecological Reserve, Sanctuary Preservation Area, or Special-Use Area except for passage through without interruption or for law enforcement purposes;
14. Harvesting marine life as defined and regulated by the State of Florida under its marine life rule;
15. Mariculture;
16. Possessing or using explosives or releasing electrical charges or substances poisonous or toxic to fish and other living marine resources within the Sanctuary or beyond the boundary of the Sanctuary (possession of ammunition shall not be considered possession of explosives);
17. Removing and disposing of lost, out-of-season, or illegal gear discovered within the Sanctuary; removing of vessels grounded, lodged, stuck or otherwise perched on coral reefs, hardbottom, or seagrasses within the Sanctuary; and removing and disposing of derelict or abandoned vessels or other vessels within the Sanctuary for which ownership cannot be determined or for which the owner takes no action for removal or disposal; and salvaging and towing of vessels abandoned or disabled within the Sanctuary vessels or of vessels within the Sanctuary otherwise needing salvaging or towing; and
18. Interfering with, obstructing, delaying or preventing an investigation, search, seizure or deposition of seized property in connection with enforcement of the NMSA or any regulation or permit issued under the NMSA.

Section 2. Emergency Regulation

Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality; or to minimize the imminent risk of such destruction, loss or injury, any activity, including any not listed in Section 1 of this article, is subject to immediate temporary regulation, including prohibition. However, no such regulation may take effect in any area of the Sanctuary lying within the seaward boundary of the State of Florida without the approval of the Governor of the State of Florida.

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

Pursuant to paragraph (c)(1) of section 304 of the NMSA, 16 U.S.C. 1434(c)(1), no valid lease, permit, license, approval or other authorization issued by any federal, State, or local authority of competent jurisdiction, or any right of subsistence use or access, may be terminated by the Secretary of Commerce, or his or her designee, as a result of a designation, or as a result of any sanctuary regulation, if such authorization or right was in effect on the effective date of the designation (November 16, 1990 with respect to the statutory Sanctuary boundary; January 17, 2001 with respect to the revision to the Sanctuary boundary expansion made by this Revised Designation Document).

In no event may the Secretary of Commerce or his or her designee issue a permit authorizing, or otherwise approving: (1) the exploration for, development of, or production of oil, gas, or minerals within the Sanctuary; or (2) the disposal of dredged materials within the Sanctuary (except by certification in accordance with applicable National Marine Sanctuary Program regulations of valid authorizations in existence on the effective date of Sanctuary designation). Any purported authorizations issued by other authorities after the effective date of Sanctuary designation for any of these activities within the Sanctuary shall be invalid.

Article VI. Alteration of this Designation

The terms of designation, as defined in paragraph (a) of section 304 of the NMSA, 16 U.S.C. 1434(a), may be modified only by the procedures outlined in paragraphs (a) and (b) of section 304 of the NMSA, 16 U.S.C. 1434(a) and (b), including public hearings, consultation with interested federal, state, and local government agencies, review by the appropriate Congressional committees, review by the Governor of the State of Florida, and approval by the Secretary of Commerce, or his or her designee. No designation, term of designation, or implementing regulation may take effect in the area of the Sanctuary lying within the seaward boundary of the State of Florida if the Governor of the State of Florida certifies to the Secretary of Commerce that such designation or term of designation regulation is unacceptable within the forty-five-day review period specified in NMSA.

Florida Keys National Marine Sanctuary Boundary Coordinates (based on North American datum of 1983)

The boundary of the Florida Keys National Marine Sanctuary –

- (a) begins at the northeasternmost point of Biscayne National Park located at a point approximately 25 degrees 39 minutes north latitude, 80 degrees 05 minutes west longitude, then runs eastward to the point located at 25 degrees 39 minutes north latitude, 80 degrees 04 minutes west longitude; and
- (b) then runs southward and connects in succession the points at the following coordinates:
 - (i) 25 degrees 34 minutes north latitude, 80 degrees 04 minutes west longitude,
 - (ii) 25 degrees 28 minutes north latitude, 80 degrees 05 minutes west longitude,
 - (iii) 25 degrees 21 minutes north latitude, 80 degrees 07 minutes west longitude, and
 - (iv) 25 degrees 16 minutes north latitude, 80 degrees 08 minutes west longitude;
- (c) then runs southwesterly and connects in succession the points at the following coordinates:
 - (i) 25 degrees 07 minutes north latitude, 80 degrees 13 minutes west longitude,
 - (ii) 24 degrees 57 minutes north latitude, 80 degrees 21 minutes west longitude,
 - (iii) 24 degrees 39 minutes north latitude, 80 degrees 52 minutes west longitude,

- (iv) 24 degrees 30 minutes north latitude, 81 degrees 23 minutes west longitude,
 - (v) 24 degrees 25 minutes north latitude, 81 degrees 50 minutes west longitude,
 - (vi) 24 degrees 22 minutes north latitude, 82 degrees 48 minutes west longitude,
 - (vii) 24 degrees 37 minutes north latitude, 83 degrees 06 minutes west longitude,
 - (viii) 24 degrees 46 minutes north latitude, 83 degrees 06 minutes west longitude,
 - (ix) 24 degrees 46 minutes north latitude, 82 degrees 54 minutes west longitude,
 - (x) 24 degrees 44 minutes north latitude, 81 degrees 55 minutes west longitude,
 - (xi) 24 degrees 51 minutes north latitude, 81 degrees 26 minutes west longitude, and
 - (xii) 24 degrees 55 minutes north latitude, 80 degrees 56 minutes west longitude;
- (d) then follows the boundary of Everglades National Park in a southerly then northeasterly direction through Florida Bay, Buttonwood Sound, Tarpon Basin, and Blackwater Sound;
- (e) after Division Point, then departs from the boundary of Everglades National Park and follows the western shoreline of Manatee Bay, Barnes Sound, and Card Sound;
- (f) then follows the southern boundary of Biscayne National Park to the southeasternmost point of Biscayne National Park; and
- (g) then follows the eastern boundary of Biscayne National Park to the beginning point specified in paragraph (a).

The shoreward boundary of the Florida Keys National Marine Sanctuary is the mean high-water mark except around the Dry Tortugas where the boundary is conterminous with that of the Dry Tortugas National Park, formed by connecting in succession the points at the following coordinates:

- (i) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude;
- (ii) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 58 minutes 0 seconds west longitude;
- (iii) 24 degrees 39 minutes 0 seconds north latitude, 82 degrees 58 minutes 0 seconds west longitude;
- (iv) 24 degrees 43 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude;
- (v) 24 degrees 43 minutes 32 seconds north latitude, 82 degrees 52 minutes 0 seconds west longitude;
- (vi) 24 degrees 43 minutes 32 seconds north latitude, 82 degrees 48 minutes 0 seconds west longitude;
- (vii) 24 degrees 42 minutes 0 seconds north latitude, 82 degrees 46 minutes 0 seconds west longitude;
- (viii) 24 degrees 40 minutes 0 seconds north latitude, 82 degrees 46 minutes 0 seconds west longitude;
- (ix) 24 degrees 37 minutes 0 seconds north latitude, 82 degrees 48 minutes 0 seconds west longitude; and
- (x) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude.

The Florida Keys National Marine Sanctuary also includes the area located within the boundary formed by connecting in succession the points at the following coordinates;

- (i) 24 degrees 33 minutes north latitude, 83 degrees 09 minutes west longitude,
- (ii) 24 degrees 33 minutes north latitude, 83 degrees 05 minutes west longitude,

- (iii) 24 degrees 18 minutes north latitude, 83 degrees 05 minutes west longitude,
- (iv) 24 degrees 18 minutes north latitude, 83 degrees 09 minutes west longitude, and
- (v) 24 degrees 33 minutes north latitude, 83 degrees 09 minute west longitude.

Appendix E - FKNMS Advisory Council (November 2001)

Members	Alternates
Member: Todd Firm Seat: Diving - Upper Keys	Alternate: Rob Bleser
Member: Wayne Blevins Seat: Tourism - Upper Keys	Alternate: Robert "Doc" Schweinler
Member: Vacant Seat: Charter Fishing - Sport Fishing	Alternate: Vacant
Member: Thomas N. Davidson Seat: Recreational Fisherperson	Alternate: Jim Hurley
Member: Fran Decker Seat: Citizen-at-Large (Middle Keys)	Alternate: Susan Mickey
Member: Richard Grathwohl Seat: Charter Fishing (Flat's Guide)	Alternate: Vacant
Member: Debra Harrison Seat: Conservation & Environment	Alternate: William Crispin
Member: David Hawtof Seat: Citizen-at-Large (Lower Keys)	Alternate: Sheila K. Mullins
Member: Tony Iarocci Seat: Commercial Fishing - Shell/Scale	Alternate: Greg DiDomenico
Member: Warren Johnson Seat: Boating Industry	Alternate: Jack Elon Hildreth
Member: Don Kincaid Seat: Diving (Lower Keys)	Alternate: Bob Holston
Member: Nancy Klingener Seat: Conservation & Environment	Alternate: Jody Thomas
Member: Deborah Shaw Seat: Research & Monitoring	Alternate: Jerome J. Lorenz
Member: Karen Lee Seat: Citizen-at-Large (Upper Keys)	Alternate: Dallas Wain Garrison
Member: Martin Moe	Alternate: Bryant Diersing

Seat: Education/Outreach	
Member: Ken Nedimyer Seat: Commercial Fishing - (Marine/Tropical)	Alternate: Peter Gladding
Member: George R. Neugent Seat: Elected Official	Alternate: Vacant
Member: Anita Schwessinger Seat: Tourism (Lower Keys)	Alternate: Sheri Lohr
Member: R. Duncan Mathewson III Seat: Submerged Cultural Resources	Alternate: Diane Elizabeth Silvia

Sanctuary Advisory Council Working Groups 2001

Channel/Reef Marking

Chair:	Co-Chairs:
Warren Johnson	Fritz Wettstein and Rich Jones
Bob McGuire	George Neugent
Pat Wells	Don Kincaid
Richard Grathwohl	Jim Bellizzi

Damage Assessment and Restoration

Staff: Bill Goodwin and Lauri MacLaughlin
Bob Currul
Erich Mueller
Pat Wells

Education and Outreach

Chair: Martin Moe	Co-Chair: Mary Tagliareni
Andy Griffiths	Laddie Akins
Virginia Cronk	Dave Makepeace
Lynda Berrigan	

Enforcement

Chair: Jim Hurley	Co-Chair: Bob Currul
Don DeMaria	Karen Lee
John Brownlee	Nancy Klingener
Jerry Lorenz	Chester Marr
Jim Bellizini	Todd Firm

Mooring Buoys

Chair:	Co-Chair: Steve Baumgartner
Rob Bleser	Tom Davidson
Sheri Lohr	Pat Wells
Fran Decker	Todd Firm

Regulatory

Chair: Jim Hurley	Co-Chair: Billy Causey and June Cradick
Don DeMaria	Karen Lee
John Brownlee	George Neugent
Jerry Lorenz	Chester Marr
Peggy Mathews	Jim Bellizzi
Nancy Klingener	George Garret
Sheri Sullenger	Greg DiDomenico
Bob Currul	Ken Haddad

Research and Monitoring

Chair: Deborah Shaw
Fran Decker
Jim Hurley
Pat Wells
Don Kincaid
Nancy Klingener
Virginia Cronk
John Hunt

Co-Chair: Jerry Lorenz and Brian Keller
Diana Silvia
Ken Nedimyer
Bill Crispin
Debbie Harrison
Martin Moe
Erich Mueller
Robert Brock

Submerged Cultural Resources

Chair: Duncan Mathewson
Diane Silvia
David Paul Horan
Lynda Berrigan

Co-Chair: Dave Score
Pat Wells
Don Kincaid

Volunteer

Chair: Fran Decker
Tom Davidson
Ivy Kelley

Co-Chair: Mary Enstrom
Steve Davidson

Water Quality

Chair: Debra Harrison
Warren Johnson
Don DeMaria
George Neugent
Erich Mueller
Don Kincaid
Fran Decker
Deborah Shaw
Jerry Lorenz
Nancy Klingener
Lynda Berrigan

Co-Chair: Bill Kruczynski
David Hawtof
Tom Davidson
Richard Grathwohl
Greg DiDomenico
Martin Moe
Ken Nedimyer
Anita Schwessinger
Wayne Blevins
George Garrett

Water Quality Protection Program Steering Committee

Water Quality Protection Program Technical Advisory Committee

There two groups are closed to new membership, but all meetings are open to the public.

Zoning

Chair: Karen Lee
Fran Decker
Richard Grathwohl
Debbie Harrison
Greg DiDomenico

Co-Chairs: Joanne Delaney and John Halas
Ken Nedimyer
Tony Iarocci
Nancy Klingener

Artificial Reefs

Chair:

Co-Chair: John Halas

Sheri Lohr
Rob Blesser
Tom Davidson
Grady Sullivan
Don Kincaid
Tony Iarocci

Greg DiDomenico
Ken Nedimyer
Erich Mueller
Jim Hurley
Debra Harrison
Richard Grathwohl

Key West Harbor Water Quality

Chair:
George Halloran
Grady Sullivan
Erich Mueller
Greg DiDomenico

Co-Chair: Fritz Wettstein
DeeVon Quirolo
Warren Johnson
David Paul Horan
Don Kincaid

Personal Watercraft

Chair: Karen Lee
Richard Grathwohl
Jim Hurley
Bruce Popham
Pat Wells
Wayne Blevins
Deborah Shaw
Debra Harrison
John Brownlee

Co-Chair: Dave Score
Tom Davidson
Warren Johnson
Erica Weis
Andy Griffiths
Jerry Lorenz
Nora Williams
Peggy Mathews
Jim Bellizzi

Visitor Centers

Chair:
Anita Schwessinger
Laddie Akins

Co-Chairs: Cheva Heck
Nancy Klingener

Appendix F – Agreements for the Integrated Management of the Florida Keys National Marine Sanctuary

This Appendix contains a list of final and draft agreements between NOAA and the State of Florida current at the time of publication. This list provides status updates for each of the then-draft agreements listed in Appendix J of the 1996 Florida Keys National Marine Sanctuary Final Management Plan.

Interim Memorandum of Agreement between the State of Florida and NOAA

The purpose of this agreement was to promote and ensure the cooperation of the Co-Trustees in the implementation of the Florida Keys National Marine Sanctuary and Protection Act (FKNMSPA) and the Florida Trustees Resolution. By entering into the Agreement, the Co-Trustees established a mechanism necessary for joint consultation and cooperation for the protection of the marine environment and Sanctuary resources during the period of time between the effective date of the agreement and adoption of the final Management Plan and regulations by NOAA and the State of Florida.

Status: Originally signed on September 15, 1992. Replaced by with the Co-Trustees Agreement for Cooperative Management

A full copy of this document can be found on the FKNMS Web site at floridakeys.noaa.gov/regs/welcome.html

Co-Trustees Agreement for Cooperative Management

The purpose of this agreement is to clarify the relative jurisdiction, authority, and conditions of Co-Trustee management of the Florida Keys National Marine Sanctuary. It clarifies the State of Florida's continuing authority and jurisdiction over submerged lands and other state resources within the Sanctuary. It also sets forth provisions on how NOAA and the state will cooperate on specific matters such as regulatory amendments, permits and other matters.

Status: This agreement became effective on May 19, 1997, the date of the last signature on the document. The agreement states that it will continue in force unless or until terminated in conjunction with the five year review of the management plan by NOAA and the state or for as long as there is a Florida Keys National Marine Sanctuary. The Sanctuary could be dis-established outside the 5 year review timetable.

A full copy of this document can be found on the FKNMS Web site at floridakeys.noaa.gov/regs/welcome.html

Interagency Compact Agreement

The purpose of this agreement was to establish a mechanism for joint consultation, integrated management and cooperation for the protection of the marine environment and Sanctuary resources. Signatories to the agreement were to have included NOAA, EPA, USDOJ, USACE, USCG, Governor of the State of Florida, Monroe County Mayor, City of Key West Mayor, City of Key Colony Beach Mayor, City of Layton Mayor, and the South Florida Water Management District Board Chair.

Status: When the FKNMS final Management Plan (1996) was implemented in July 1997, significant progress had been made in obtaining signatures of all the agencies listed in the Interagency Compact Agreement for the Integrated Management of the Sanctuary. However, the City of Layton, based on the opposition that existed toward the Sanctuary in the mid-1990's, raised some concerns about the compact agreement. The City Council was concerned that by signing the agreement, it would commit the City to funding portions of the final Management Plan. While all of the other signatures had been obtained, Sanctuary managers chose to approach the City of Layton at a later date and once again request their approval to sign the compact agreement. In the meantime, two more cities were incorporated in Monroe County (The Villages of Islamorada and the City of Marathon) and several of the agency heads that had previously signed the compact agreement had transferred from the positions or left their jobs. Within a year it became evident that the compact agreement was constantly becoming outdated before signatures from all parties could be obtained.

As implementation of the final Management Plan has progressed, the public has become more comfortable and accepting of the FKNMS. In addition, Sanctuary managers have realized that the Water Quality Protection Program's Steering Committee is made up of most of the signatories originally identified for the compact agreement and that much of the original intent of the compact agreement is handled through that integrated management body.

Programmatic Agreement for Historical Resource Management in the Florida Keys National Marine Sanctuary

The purpose of this Programmatic Agreement (formerly known as the Submerged Cultural Resources Agreement) is to define the relative relationship of the State of Florida, as owner of all submerged cultural resources (Chapter 267, Florida Statutes) located in state waters, with NOAA, and to jointly develop a policy, as represented by this Agreement, for protection and management of historic resources in the Florida Keys National Marine Sanctuary by the Co-Trustees, the State of Florida and NOAA. The Advisory Council on Historic Preservation (Council) agrees that this is a Programmatic Agreement under sections 106 and 110 of the National Historic Preservation Act and implementing regulations. This agreement is also consistent with the provisions of the Florida Keys National Marine Sanctuary and Protection Act, the National Marine Sanctuaries Act and the Abandoned Shipwreck Act.

Status: Originally signed in 1998, this agreement was re-signed in 2004 and remains in effect for an additional five year period.

A full copy of this document can be found on the FKNMS Web site at floridakeys.noaa.gov/regs/welcome.html

Cooperative Enforcement Agreement

The purpose of this agreement is to set forth the cooperation and coordination between the agencies multiple federal and state agencies listed in the agreement in support of enforcement operations within the Florida Keys National Marine Sanctuary.

Status: This agreement became effective on July 12, 1999, the date of the last signature on the document. It will remain in effect until terminated by any party.

A full copy of this document can be found on the FKNMS Web site at floridakeys.noaa.gov/regs/welcome.html

Agreement for the Coordination of Civil Claims

The purpose of this agreement is to provide for the cooperation and coordination among the Co-Trustees with respect to civil claims for response costs or damages based on injury to Florida Keys National Marine Sanctuary Resources.

Status: This agreement became effective on May 19, 1997, the date of the last signature on the document. It will remain in effect, and may be modified from time to time, until terminated.

A full copy of this document can be found on the FKNMS Web site at floridakeys.noaa.gov/regs/welcome.html

Protocol for Cooperative Fisheries Management

The purpose of this document is to establish a protocol which describes the roles of the federal and state governments in the ongoing management of the fishery resources of the Florida Keys National Marine Sanctuary. The collective objectives of the Florida Marine Fisheries Commission, the South Atlantic Fisheries Management Council, the Gulf of Mexico Fishery Council, NOAA's Marine Fisheries Service, and NOAA's Ocean Service are to: develop consistent (or one set of) regulations within the FKNMS; provide for a flexible management system that minimizes regulatory delays while retaining substantial state, federal and public management decisions, and rapidly adapts to changes in resource abundance, new scientific information and changes in fishing patterns among user groups; and promote public comprehension of, voluntary compliance with, and effective enforcement of the fisheries regulations within the FKNMS

Status: This agreement became effective in January 1998 on the date of the last signature on the document.

A full copy of this document can be found on the FKNMS Web site at floridakeys.noaa.gov/regs/welcome.html

Protocol for Emergency Response Notifications

The purpose of this document was to provide a protocol for notification and response to promote effective and efficient response by NOAA, USCG and the DEP to events that involve injury to Sanctuary resources, including vessel groundings and similar incidents. The protocol was to establish a general framework and objectives for coordinating on notification and response to such incidents.

Status: As the Damage Assessment and Restoration Program for the Florida Keys National Marine Sanctuary Program has evolved since the final Management Plan was adopted in 1997, the protocol for emergency response has also evolved. The protocol that is followed for large vessel groundings with oil or hazardous materials spills, or that pose the threat of such spill is led by the USCG and is contained in the Area Contingency Plan found at http://homeport.uscg.mil/mycg/portal/ep/contentView.do?channelId=-17389&contentId=78475&programId=12623&programPage=%2Fep%2Fprogram%2Feditorial.jsp&pageTypeId=16440&contentType=EDITORIAL&BV_SessionID=@@@@0172244917.1199280288@@@@&BV_EngineID=ccceaddmjgkdedcfjgcfghdghj.0.

A formal protocol for smaller groundings and other events was not finalized or published. However, an interagency procedures document is in draft format and it is expected to be finalized and adopted within the year.

Certification/Authorization of Permits Agreement

The purpose of the agreement (implemented as a Memorandum of Understanding) between the Florida Fish and Wildlife Conservation Commission and NOAA is to streamline the process for issuing FWC and NOAA permits related to collection of all coral species, sea fans (*Gorgonia* spp.), live rock and live sand in the FKNMS.

Status: This agreement became effective on July 2, 2002, the date of the last signature on the document. It will remain in effect until terminated by either party.

A full copy of this document can be found on the FKNMS Web site at floridakeys.noaa.gov/regs/welcome.html

Water Quality Protection Program Steering Committee Bylaws

The purpose of the Steering Committee for the Water Quality Protection Program is to set guidance and policy for the development and implementation of the Program. The Committee will work together to insure that the components (corrective actions, monitoring, research and public education/outreach) of the Program are implemented. The By-Laws provide a framework for the Committee to operate by and within.

Status: The By-Laws were originally adopted on March 11, 1993. They were amended and re-adopted on September 24, 1996. They remain in effect until further amended.

A full copy of this document can be found on the FKNMS Web site at floridakeys.noaa.gov/regs/welcome.html

Appendix G - Vessel Operations/PWC Management Regulatory Alternatives

1. Status Quo - No action beyond activities implemented in other action plans related to PWC use (e.g. additional WMAs, concentrated nearshore enforcement, boater-education initiatives).
2. In addition to the existing idle speed from 100 yards of residential shorelines regulation, establish a 400-yard, point-to-point travel corridor from shorelines where repeated high-speed maneuvers for all vessels would be restricted except in specifically identified rental-riding areas, to be determined in conjunction with rental operators. Beyond 400 yards, vessels should operate in a reasonable and prudent manner. Establish PWC rental-riding areas. Guided tours for renters will be permitted outside of rental-riding zones.
3. In sensitive shallow seagrass areas determined to be detrimentally impacted by vessel operation, establish WMA – No-motor Zones. Increase the number and spatial extent of WMAs to effectively manage natural-resource impacts occurring from all vessels operating in shallow water throughout the Sanctuary. Designation and placement of the areas would coincide with recommended no-motor zones identified in the working group’s scoping process. Placement will also be guided by public input and scientific findings throughout the Keys, beginning with the scoping meetings held by the PWC Working Group in 2000 and 2001.

Numerous shallow-water areas on the Florida Bay side of the Keys have been identified as significant areas to Sanctuary wildlife. Additional flats and nearshore areas on the ocean side have been also identified as important habitats in the Middle to Upper Keys (Marathon to Key Largo). These areas serve as examples of candidate sites for WMAs. An associated activity is to work with rental operators to establish marked areas for operation of rental PWCs throughout the Keys. This activity will include consultation with rental operators and law enforcement.
4. In addition to the 100-yard Idle-Speed-Only Zone from residential shorelines regulation, establish a 400-yard, point-to-point travel corridor from all shorelines where repeated high-speed maneuvers for all vessels would be restricted except in specifically identified rental-riding areas, determined in conjunction with rental operators. In areas identified by homeowners as having a need for regulatory markers, establish a process to install 100-yard Idle-Speed-Only markers to address all vessel use, including personal watercraft.
5. Prohibit PWCs throughout the Sanctuary. The Sanctuary Advisory Council has recommended that PWC operation be prohibited within the Sanctuary. This recommendation has raised some questions as the State legislature has passed legislation prohibiting local ordinances from singling out PWCs. Since the state is a co-trustee and partner in the management of the Sanctuary, this recommendation by the Sanctuary Advisory Council raises a difficult issue.

In October 2001, the Sanctuary Advisory Council voted to ban the operation of all vessels in less than two feet of water in the Sanctuary. Although NOAA questions the

feasibility of such a regulatory action, considering the diurnal changes in tides and wind driven currents and the enforceability of such a regulation, this option will be added to the list of regulatory alternatives for consideration during the NEPA process, when the public may review and comment on suggested regulatory changes.

Appendix H – Public Comments and Responses

General

Comment (Florida DEP) - The plan needs to include more measurable performance goals. For many of the strategies, for example, the status is “implemented and ongoing” but no indication is given about what the Sanctuary hopes to achieve over the life of the new management plan and how we are planning to measure whether the management activity is achieving the outcomes managers hope to attain.

Response - Thank you for the comment. Many of the activities are on-going and continuous. The draft has been reviewed and where necessary and possible, more detailed status statements were included. The performance measures for each of the Action Plans has been reviewed and revised to provide more quantifiable goals. In addition, Table 3.17 has been separated into separate tables, one for each Action Plan. The Performance Measures can now be found in Tables 3.17-3.30.

Comment (Florida DEP, others) (3) - The Sanctuary staff and leadership have done a phenomenal job with the resources available to them in acting as stewards for the world’s third largest coral barrier reef. There is much to laud in the draft review, both in accomplishments to date and plans for renewed and refocused efforts.

Response - Thank you very much for the comment.

Comment (Florida DEP) - EV. 1 Measuring Sanctuary Performance Over Time. - Commenter suggests that this section be moved to the very beginning of the strategies sections because all of the Action Plans should work to meet the Performance Measures found in the current EV.1.

Response - Thank you for the comment. This suggestion was evaluated in relation to overall organization of this plan and other NMS management plans. While there is merit in the suggestion the decision was made to leave this section of the Revised Management Plan as it is for this five year review document.

Comment - The Sanctuary’s strategic goals should be explicitly stated in the Introduction before or in conjunction with section 1.4 Accomplishments

Response - Thank you. The strategic goals are contained in the original FKNMS Management Plan (1996).

Comment - Recommend including a section in each action plan that briefly describes or identifies coordination and collaborative efforts and opportunities with other agency and organization programs; particularly resource management agencies that manage waters adjacent to the Sanctuary.

Response - This is a revised management plan and the type of interagency coordination referenced here is described in the original 3 volume FKNMS Management Plan (1996).

Comment - Recommend outlining some of the recent key partnerships with the Department of Interior, specifically, coordination concerning overarching management issues to include fisheries management, seagrass and coral restoration, coral disease and mapping, etc.

Response - Thank you for the comment. These interagency relationships are important and originally described in the final FKNMS Management Plan (1996). Some of these relationships are emphasized in various parts of the Revised Management Plan.

Comment - Recommend more explicit emphasis on coordination and collaboration with the USDOJ bureaus in the Science, Research, Education and Outreach, Enforcement and Resources Protection, and sections of the Resource Threat Reduction division of the plan. There is considerable coordination and collaboration among the Sanctuary and these entities at the staff and project levels. It should be better reflected at the strategic level in the plan.

Response - Thank you for the comment. Language has been changed in various Action Plan Strategies to be more inclusive.

Comment - Suggest better defining which units are applicable (dollars, hundreds of dollars, or thousands of dollars) in the various cost tables.

Response - Thank you for the comment. All tables have been reviewed to ensure units are included and are consistent.

Comment - Recommend the plan describe the process the agency follows in relegating shared management responsibilities to other state and federal Agencies (primarily DEP and EPA) and in some cases to NGOs. This would be primarily for the benefit of other land managers who use this type of plan for reference purposes.

Response - Thank you for the comment. Such a description was added to the introduction of this revised FKNMS Management Plan.

Comment - Recommend the plan include a section on how Sanctuary activities translate to the rest of the management community.

Response - Thank you for the comment. The Sanctuary overlaps 4 USFWS Wildlife Refuges, 6 state parks, 3 Aquatic Reserves, 2 existing National Marine Sanctuaries, and adjoins 3 National Parks. The FKNMS does not usurp the jurisdictions of those areas, but serves to compliment these authorities.

Comment - Recommend the plan address the extent to which the Sanctuary is bound to and follows the National Environmental Policy Act (NEPA) concerning various FKNMS management actions that likely invoke such statutory authority, including artificial reef placement, seagrass and coral restoration and other similar actions.

Response - The FKNMS complies with NEPA in all instances and does not feel that process needs to be described in a specific site management plan.

Comment - Recommend the plan expand upon and specify the legal authorities, enabling legislation and other regulatory policies, laws, ordinances and rules applicable to the Sanctuary. Currently the appendices include key laws and regulations governing the Sanctuary. We suggest FKNMS consider enumerating and elaborating upon the applicability of these key policy documents within the text of the plan.

Response - This information is contained in the Sanctuary's designation document, which is included in the final FKNMS Management Plan (1996). Such information is also available at our Web site (floridakeys.noaa.gov).

Comment - Recommend creating a master table listing all 1997 plan strategies in alphanumeric order and stating if they are included in the 2005 plan and their location. Ideally this table would be in the introductory section or section 3.0 before Table 3.1.

Response - Thank you for the comment. This suggestion has been incorporated into this plan.

Comment - Suggest a simple statement accompanying the cost implementation table in each action plan stating the general cost categories (e.g. staff, facilities, contracts, etc). We are not suggesting that strategy costs be broken down to this level.

Response - Thank you for the comment. The suggested statement has been incorporated into the Final Revised Management Plan.

Comment (Florida DEP, other) (2) - Performance Measures in Table 3.17 should be better defined and quantifiable.

- For the "efficiency" performance measure, the table is not clear on how managers are planning to measure the efficient use of staff time and budget.
- For the "effectiveness" performance measure - these should be quantifiable. For example, for the Volunteer Action Plan, one of the measures is an increased number of volunteers; the Comment suggests managers should set a goal of either a percentage increase or total number increase of volunteers. A second example, for Damage Assessment and Restoration measure managers could set a targeted time line from the time a seagrass injury occurs from a vessel grounding to the time it is restored.

Response - Thank you for the comment. The Performance Measures have been reviewed and revised as appropriate (see previous response to similar comments).

Comment (Florida DEP) - Suggests that it is important to include copies of all the implementation and management agreements between the State of Florida and NOAA into the Final Revised Management Plan.

Response - Thank you for the comment. This is a revised Management Plan and is intended to provide updates and revisions to information provided in the original FKNMS Final Management Plan (1996). An update of the status of each of these agreements is included in the

Appendices of this final Revised Management Plan. A copy of each of the full agreements is posted on the FKNMS Web site (floridakeys.noaa.gov).

Comment (Florida DEP) - Would like to re-open discussion on finalizing a permitting agreement that outlines the process of coordinating NOAA/FKNMS and FL DEP permit issuance within state waters of the FKNMS.

Response - Thank you for the comment. This is an important agreement, whose timeline for completion is outside the completion of this revised Management Plan. It is agreed that this agreement needs to be given priority completion once this document is finalized and formally adopted.

Comment - Asserts that the waters beyond Long Key are International Waters governed by International regulations or Rules of the Road and that the State of Florida has no claim to assert management of or over these waters.

Response - Thank you for the comment. This is not the interpretation of the territorial sea limits that we have been directed to implement under the authority of the Secretary of Commerce.

Comment - States that it is "imperative that we protect all coral reef systems where we can. They are important to many fisheries as well as the entire ocean ecosystem as a whole" and that the "FKNMS should be strengthened where ever possible toward direct preservation and recovery."

Response - Thank you for the comment. The FKNMS agrees with this comment and focuses management activities to achieve this goal.

Comment - Strongly urges Sanctuary managers to maintain a strong conservation plan in the Sanctuary

Response - The FKNMS agrees with the goal and intent of this comment.

Comment (3) - Go on the record against beach "re-nourishment" projects that harm greater Florida reef systems

Response - Thank you for your comment. NOAA and its various line offices respond to permit requests for beach re-nourishment on a case by case basis and do offer negative comments at times as appropriate.

Comment (3) - Oppose Navy testing that puts marine life at risk

Response - Thank you for the comment. The FKNMS and NOAA collaborate with the Navy at various levels on activities that affect Sanctuary resources.

Comment (3) - Begin a compilation of information lacking to establish a visitor carrying capacity of the Florida Keys reef track and the marine environment in the development of the Florida Keys Carrying Capacity Study

Response – Thank you for the comment. NOAA is conducting several socio-economic surveys and monitoring changes in the use of Sanctuary resources.

Comment – The State of Florida changed its dive flag regulations and the Sanctuary should change its regulations to be consistent with the requirements for state waters.

Response – Thank you for the comment. This regulatory change suggestion will be considered as part of the FKNMS regulatory review that begins when this revised Management Plan is finalized and adopted.

Comment (2) – The Sanctuary should more clearly elucidate a proposal for productively contributing to Biscayne National Park’s management plan reviews and implementation to promote actions that will benefit shared natural resources.

Response – Thank you for the comment. This proposal will be retained and considered for the next Management Plan review.

Comment (2) – overall the management plan’s re-organization looks promising but efforts need to be made to think in terms of conservation outcomes as the key organizing principle, to ensure aspects of each relevant action plan are prioritized and coordinated to achieve real-world goals.

Response – Thank you for the comment. This proposal will be retained and considered for the next Management Plan review.

Comment – NOAA is urged to pursue efforts to re-organize as an agency that has as its chief mission a strong conservation mission.

Response – Thank you for the comment. This suggestion is beyond the scope of this management plan.

Comment – There is inconsistency in the number of vessel groundings between several sections of the management plan including Sections Enforcement & Resource Protection, Damage Assessment and Restoration Action Plan, Waterway Management.

Response – Thank you for the comment. The plan was reviewed for consistency and updated appropriately.

Science Management and Administration Action Plan

Comment – Supports intensified scientific research in the Sanctuary and believes sound science should guide management decisions.

Response – Thank you for the comment. FKNMS agrees.

Comment – Strongly supports strategy W-34 Regional Science Partnerships and Reviews

Response – Thank you for the comment. FKNMS agrees.

Comment - (Table 3.1) Strategies W.29 Dissemination of findings and W.35 Data Management should be ranked high for all scenarios, at least as high as or higher than Strategies B.11 and W.32. Developing periodic reports on the Sanctuary health should be a particularly high priority.

Response - Thank you for the comment. FKNMS agrees; summary reports on findings of the FKNMS science program have been posted at the Web site and will continue to be produced.

Comment - Maintaining the TAC (W.32) should have a medium rank, unless the Sanctuary intends to increase the role of the TAC.

Response - The role of the TAC as advisors to the WQPP managers is critical. Full consideration will be given to increasing their role.

Comment - Strategy W.29 Activity (4) Sponsor conferences - recommend mentioning existing and potential collaborative efforts with other marine management and science agencies, particularly USDOJ bureaus.

Response - Thank you for the comment. This collaboration takes place at the level of the WQ steering committee, described in law in the Florida Keys National Marine Sanctuary and Protection Act (1990). The FKNMS also collaborates in planning Florida Bay Science Conferences and other meetings, many of which include USDOJ bureaus.

Comment - Strategy W.34 p 31 second paragraph, Activities (1) - add "Everglades National Park General Management Plan" to the list of projects identified.

Response - Thank you for the comment. This was included.

Comment - Supports research activities regarding environmental impacts of pesticides, wastewater and other pollutants and encourages coordinating them with pollution discharge monitoring and rehabilitation strategies.

Response - Thank you for the comment. The FKNMS agrees on the importance of this research and has given emphasis, along with EPA, on funding some of this activity.

Research and Monitoring Action Plan

Comment - Supports further coordination with USDOJ of research needs and activities relevant to the Sanctuary

Response - Thank you for the comment. FKNMS works closely with USDOJ on numerous research activities.

Comment - Supports NOAA's plan to encourage additional research into the causes and impacts of outside influences affecting the ecological health of the Sanctuary.

Response – Thank you for the comment.

Comment – There is an on-going government sponsored research relevant to the action plans being conducted under the auspices of other agencies like USDOJ that is not mentioned in the plan. The plan could be enhanced by making reference to this research.

Response – Thank you for the comment. Many of these activities are described in the final FKNMS Management Plan (1996).

Comment – Supports the marine zone monitoring activities and particularly supports the goal of determining the effectiveness of varyingly protected marine zones.

Response – Thank you for the comment. FKNMS appreciates the support.

Comment – There is an inconsistency between the ranking for Strategies W.33 and Z.6 in Table 3.1 and their priority (highest) in the Priorities section on Page 36. Strategies W.33 and Z.6 should be ranked high for all scenarios in Table 3.1 They should be ranked at least as high as strategies that address just a single species, such as F.3. Furthermore, marine “no-take” zones are still a “hot” issue in marine ecosystem management. Assessing the effectiveness of marine zones is a high priority activity.

Response – Thank you for the comment. The Strategies were reviewed and the priority rankings remain substantially unchanged.

Comment – Strategy W.33 – Developing “ecosystem indicators” “to assess the health of the ecosystem” is an important and high priority activity. It should be listed as a separate activity to emphasize its importance. And it should be tied to the Developing Periodic Reports on Sanctuary health in Strategy W.29.

Response – Thank you for the comment. FKNMS agrees this is an important activity. Results will be included in periodic reports on Sanctuary health. However, no change was made to the final plan.

Comment – Strategy W.33, Page 39 – The qualifications of REEF’s volunteer fish monitoring crew should be included to ameliorate concerns regarding volunteer collection of monitoring data.

Response – Thank you for the comment. FKNMS felt the level of detail suggested by this comment was not appropriate as it would have to be provided for each of the volunteer programs throughout the document distracting from the overall message. Specific information on the training and qualifications for various volunteer programs can be obtained by contacting the program sponsor or the FKNMS Volunteer Coordinator. Further, the FKNMS Science Program evaluates projects individually to determine scientific validity and associated confidence limits of given results.

Comment – Strategy W.33, Page 39 – Monitoring of the biological community associated with mangroves should be considered.

Response – Thank you for the comment. This proposal will be retained and considered for the next Management Plan review.

Comment – Strategy Z.6 – Developing coordinated and collaborative efforts for monitoring in the TER and the adjacent DTNP RNA, also a “no-take zone,” should not only be mentioned but also emphasized and discussed. Perhaps this should be an activity. NPS would be equally responsible for implementation of this activity.

Response – Thank you for the comment. FKNMS agrees and has added updated language to reflect the on-going cooperative efforts in developing the RNA Science Plan to be consistent with the TER evaluation.

Comment – Strategy F.6 – Suggest mentioning coordination and collaborative opportunities with the Everglades NPS Florida Bay Fisheries dependent monitoring program which has been operating nearly continuously since 1958.

Response – This activity is between Everglades National Park and the National Marine Fisheries Service. It does not fall into the purview of the FKNMS.

Comment – Strategy F.6, page 48, Strategy Summary – the text states that “Regulations will be developed and implemented in accordance with FWC and the protocols for consistent regulations (see also Strategy R.2, Activity 6 in the Regulatory Action Plan.)” The meaning of this statement is unclear (regulations for what purpose?) Also, how do smaller sampling areas result in improved spatial resolution?

Response – Thank you for the comment. Any regulations developed would be the result of an extensive and inclusive public scoping and development process. The use of smaller sampling areas would serve to increase the number of total samples collected across discreet spatial areas.

Comment – Strategy F.6, page 48, Strategy Summary – Coordinate creel efforts (are these MRFSS creel surveys?) with Biscayne Bay and Everglades NPS

Response – The FKNMS revised language to address this concern.

Comment – Strategy F.6, page 48, Strategy Summary – clarify definition of pre-recruit. We assume this means juvenile fish and invertebrate surveys. We recommend sampling multiple habitat types, utilizing multiple gear types and seasonal sampling.

Response – Thank you for the comment. We have passed on the suggestion to FWC who is responsible for design and implementation of the surveys.

Comment – Strategy F.6, page 48, Strategy Summary – for investigation of life-histories of fisheries species, we recommend coordinating with Biscayne Bay and Everglades NPS to maximize benefits of research and to limit redundant research. We have passed on the suggestion to FWC who is responsible for design and implementation of the surveys.

Response – Thank you for the comment.

Comment – Strategy W.24, Activity (1) – A Florida Bay water quality model has not been developed. It is proposed but not yet developed.

Response – Thank you for the comment. This model is under development as part of the Comprehensive Everglades Restoration Plan.

Comment – Strategy F.11, page 50 – recommend coordinating with Biscayne Bay NPS on efforts to (1) evaluate impacts of fishing gear and methods of habitats and (2) conduct research on low-impact fishing gear and methods. Biscayne Bay NPS is equally interested in the output of these efforts.

Response – Thank you for the comment. These activities and other “Strategy F” activities commented on above were developed in the final FKNMS Management Plan (1996) through an interagency process including the National Park Service and various state agencies. NOAA is the primary lead in these activities. They are not mentioned in this revised plan because they are continuous and were identified in the original plan.

Comment – Strongly support the continuation of the ongoing Ecological Research and Monitoring program as it provides managers and scientists with long-term data sets on water quality, coral reefs, and seagrass communities.

Response – Thank you for the comment. FKNMS agrees.

Comment – Encourages the development of a new strategy – the *Diadema* population Enhancement Methods strategy which would be similar to the Queen Conch Population Enhancement Methods strategy.

Response – Thank you for the comment. The FKNMS will consider this proposed new strategy for the next management plan review and is currently supporting specific research projects in this area.

Comment (2) – Stronger steps need to be taken to ensure that research and monitoring meets basic standards for peer-review and quality – particularly stakeholder monitoring and research, baseline zone data collection, and monitoring of zones.

Response – FKNMS and EPA follow stringent peer-reviewed guidelines for special studies and other grant-supported research projects in the FKNMS.

Comment (2) – In general, monitoring and research needs to be conveyed to stakeholders, the public and decision makers in a more timely and effective manner.

Response – Thank you for the comment. FKNMS agrees and is working to improve reporting times and methods.

Comment (2) – Wildlife Management Areas must be monitored and adaptively managed.

Response – Thank you for the comment. The FKNMS agrees.

Comment (2) – Research focused on identifying and building coral reef resiliency to global climate change needs to be made a clear and explicit priority.

Response – Thank for the comment. The FKNMS is involved in developing a plan to implement coral reef resiliency strategies.

Education Action Plan

Comment – Supports FKNMS community involvement and education as a means to facilitate voluntary public regulatory compliance and respect for Sanctuary resources.

Response – Thank you for the comment. FKNMS appreciates the support.

Comment – Educational efforts sponsored by the Sanctuary should include a conservation element teaching the importance of conservation of the marine resources

Response – Thank you for the comment. We believe this was addressed in Goal 3 of the Education and Outreach Action Plan.

Comment – The Blue Star program should include, at a minimum, that each business enlisted has demonstrated and document compliance with the NDZ, the ban on fish feeding, appropriate promotion and implementation of dolphin experiences, policies on board that prohibit the taking of marine life and proactive efforts to educate guests prior to entering the water.

Response – Thank you for the comment. The Blue Star Program guidelines and participation criteria are being developed as part of a separate, multi-party process.

Comment – Other established non-profit organizations beyond Sanctuary Friends need and deserve Sanctuary support as well

Response – Thank you for the comment. The FKNMS works with many non-governmental organizations who share common conservation goals and means of achieving them.

Comment – Suggest the FKNMS broaden their definition of key audiences to include the ethnic and cultural population mix endemic to South Florida

Response – Thank you for the comment. Language to this effect has been incorporated into the plan.

Comment – 3.2.1 Education and Outreach Action Plan – Suggest addressing with the introductory section the lack of an officially designated visitor center to serve as a primary point of contact for the public to inquire about Sanctuary activities, programs, policies, regulations, etc may be a contributing factor to FKNMS challenges.

Response – Thank you for the comment. The FKNMS has opened the Florida Keys Eco-Discovery Center in coordination with the NPS, USFWS and the SFWMD. This is the first visitor center in the FKNMS. The FKNMS Web site (floridakeys.noaa.gov) also contains this information.

Comment – Recommend broadening the goals and objectives to include promoting public understanding of “marine resources in general” as well as the national marine sanctuaries.

Response – Thank you for the comment. This is a focus of the FKNMS has been made explicit in the revised Management Plan.

Comment – Strategy E.11, page 69 – Suggest FKNMS consider coordinating special event participation with their partners including other neighboring land management agencies such as NPS. FKNMS may also want to address the process they follow in determining how special events are approved and sanctioned in conformity with the Sanctuary’s mission and purpose.

Response – The types of “special events” are not clear. The FKNMS is partnering with the NPS, USFWS, and the SFWMD in the development and implementation of an interagency visitor center in Key West. Language has been addressed to make this clearer.

Comment – The Coral Reef Task Force Local Action Strategy is not mentioned at all. The FKNMS may want to summarize their involvement in advocating implementation of the strategy within the plan

Response – The FKNMS has revised the Management Plan to reflect this comment.

Damage Assessment and Restoration Action Plan

Comment (3 comments) - It would appear that pages 91, 112, 241, 243 are somewhat in variance concerning the number of vessel groundings that occur every year. Suggest that some explanation be made as to the variance in the data and/or suggest that the number of groundings be checked and that the same number appear in each case.

Response – Thank you for the comment. The pages have been reviewed and corrected as appropriate.

Comment – Supports the proposed surveying of damage from propeller scarring and vessel groundings to design and improve waterway marking schemes and to assess the effectiveness of the channel marking master plan.

Response – Thank you for the comment. FKNMS appreciates the support for this activity.

Comment – Sanctuary policy and programs should make a clear distinction between reef restoration and artificial reef placements. It is recommended that the FKNMS facilitate approval of permits for other entities to install reef habitats to restore degraded coral reef communities.

Response – Thank you for the comment. The FKNMS has reviewed the language in the revised Management Plan. All permits for artificial reef placement within the FKNMS are given a full interagency review. NEPA is implemented when necessary.

Comment – This action plan is very comprehensive

Response – Thank you for this comment.

Comment – Recommend mentioning technical coordination and collaborative opportunities with adjacent NPS units, including technical information sharing, recognizing there might be legal limitations.

Response – The FKNMS collaborates and coordinates with the NPS at various levels and agrees this is an important step in the Damage Assessment and Restoration Plan.

Marine Zoning Action Plan

Comment (2) – We were surprised and disappointed by the lack of serious, high priority commitment to the use of zones more effectively within the Sanctuary. We feel strongly that not having previously completed the identification of additional areas/regions suitable for placement of these marine protected areas is a fundamental error. And, that only doing them “when resources permit” is a further error. This activity should be the Sanctuary’s top priority.

Response – Thank you for the comment. The FKNMS agrees and will be considering additional marine zones in the regulatory process that will follow the finalization and formal adoption of this revised Management Plan.

Comment – It is critical that Western Sambo be assessed as a potential Ecological Reserve as a priority rather than “as resources permit.”

Response – Thank you for the comment. The FKNMS agrees that assessing existing zone boundaries and zone effectiveness is a priority.

Comment – We believe that there is available existing information that would support expansion seaward of Western Sambo and other cross sanctuary belts that incorporate the full range of contiguous interconnected habitats.

Response – Thank you for the comment. The FKNMS agrees on the need to review potential boundary changes based on current available research (such as that by the FWC) per Activity 3 of Strategy Z.2 Ecological Reserves (Marine Zoning Action Plan.) This recommendation will be incorporated into the regulatory review process that will follow the finalization and formal adoption of this revised Management Plan.

Comment (2) – In respect to Ecological Reserves, we feel that it is important for the review to explicitly address how innovative and successful the facilitated, consensus-driven, collaborative stakeholder process utilized by the Tortugas 2000 Working Group was. This process should be explicitly invoked for identifying and evaluating new areas.

Response – Thank you for the comment. The FKNMS agrees and has summarized the Tortugas 2000 process in the Strategy Summary for Strategy Z.2, Ecological Reserves (Marine Zoning Action Plan.) As discussed in Activity 5, the FKNMS plans to fully utilize lessons from the Tortugas 2000 process in any future zoning processes.

Comment (2) – We feel that identifying high impact activities, prioritizing new recovery and restoration targets and creating new conservation-oriented Special Use Areas should clearly be a top focus for the Sanctuary in the coming years.

Response – Thank you for the comment. The FKNMS agrees, and will follow a process described in Activities 5 and 6 of Strategy Z.3, Special-use Areas (Marine Zoning Action Plan), to undertake this assessment. This process will occur and additional areas will be considered in the regulatory review that will follow the finalization and formal adoption of this revised Management Plan.

Comment – Supports a balanced scientific and socio-economic approach to the analysis and development of additional management zones and described in the Marine Zoning Action Plan.

Response – Thank you for the comment. The FKNMS agrees.

Comment – Implores Sanctuary managers to consider economic impact of disallowing various public uses in given zones and compare the quantitative environmental benefits with the potential harm inflicted by various recreational activities.

Response – Thank you for the comment. NOAA and the FKNMS are supporting various socio-economic impact studies to address some of these issues. The Regulatory Action Plan specifically addresses physical impacts by all groups to the coral reef resources in the restricted use areas of the reef.

Comment – Requests the Sanctuary managers comment on whether Marine Zone Monitoring and Socioeconomic Research carry the genuine possibility of increasing boating access in restrictive zones.

Response – Thank you for the comment. NOAA and the FKNMS are conducting socio-economic studies that will provide some of the answers posed in this comment.

Comment - Feels there is no justification to impose total no-take zones when and if less draconian measures will accomplish the same objectives. Comment states that family-level fishing under strict limits played no role in the perceived Tortugas depletions, thus it is absurd to lock out the general public when more than 90 percent of the take was by large-scale commercial uses.

Response – Thank you for the comment. The FKNMS disagrees in that depletions in fish populations in the Tortugas region are not merely perceived but have been demonstrated through scientific studies. In addition, a thorough socio-economic analysis of Tortugas area users during the Tortugas Ecological Reserve development process indicated very limited

private recreational use of the area and subsequent minor loss in non-market user value. Please refer to the Final Supplemental Environmental Impact Statement/Supplemental Management Plan for the Tortugas Ecological Reserve, available at floridakeys.noaa.gov.

Comment - Would like to see White Bank Reef become a SPA with a couple of additional mooring balls on the outside of the north patch.

Response - Thank you for the comment. The FKNMS plans to consider the inclusion of White Bank Dry Rocks, and other potential sites, as new SPAs per Activity 5 of Strategy Z.1 Sanctuary Preservation Areas (Marine Zoning Action Plan.) This will occur in the regulatory review process that will follow the finalization and formal adoption of this revised Management Plan. Should this review result in White Banks Dry Rocks being identified for designation as a SPA, a couple of additional moorings for the outside of North White Bank will be given priority on the "new buoys to be added" list.

Comment - Catch-and-Release Trolling in Preservation Areas (page 102) -allowing catch-and-release trolling in areas defined by FKNMS as fish and habitat "preservation areas" seems inconsistent with the basic tenets of preservation and conservation. If catch-and-release continues to be part of the FKNMS management plan, some guidelines should be made available to the fishing community providing basic information on the most beneficial methods for most small to medium fish to minimize unintentional fish mortality.

Response - Thank you for the comment. Catch-and-release trolling is currently allowed in 4 of 18 SPAs. A review of all allowable SPA activities is addressed in Activity 4 of Strategy Z.1, Sanctuary Preservation Areas (Marine Zoning Action Plan) and Activity 14 of Strategy R.2 (Regulatory Action Plan.) Any regulatory changes associated with allowable activities in the SPAs would be undertaken in the regulatory review process that will follow the finalization and formal adoption of this revised Management Plan.

Comment - Strategy Z.1, page 151 - Support the reassessment of whether catch-and-release trolling and commercial bait-fishing are appropriate activities for the SPAs in which they are currently allowed.

Response - Thank you for the comment. A review of all allowable SPA activities is addressed in Activity 4 of Strategy Z.1, Sanctuary Preservation Areas (Marine Zoning Action Plan) and Activity 14 of Strategy R.2 (Regulatory Action Plan.) Any regulatory changes associated with allowable activities in the SPAs would be undertaken in the regulatory review process that will follow the finalization and formal adoption of this revised Management Plan.

Comment - Asks NOAA to follow the lead of the National Park Service at Lake Mead National Recreation Area and prohibit the use of conventional two-stroke motors on all Sanctuary waters.

Response - Thank you for the comment. The FKNMS plans to address issues such as pollution discharges and impacts from PWCs and other vessels through activities in Strategy R.2 of the Regulatory Action Plan.

Comment - Sanctuary managers should avoid severe boating impediments such as zones that significantly limit or prohibit recreational boating, idle-speed zones, and bait fishing prohibitions unless scientific data unequivocally indicates the necessity of such measures.

Response - Thank you for the comment. Throughout the Plan FKNMS indicates management decision making will be based on sound science as well as stakeholder input.

Comment - Requests that Sanctuary managers properly consider the impact shifted boundaries will have on boating operations and safety prior to any modifications.

Response - Thank you for the comment. The FKNMS agrees and will evaluate safety as well as environmental concerns prior to shifting any zone boundaries.

Comment - Requests that Sanctuary managers further elucidate the rationale for the inquiry into potential boundary changes (page 152) and how “use conflicts” or “enforcement” impact zone boundaries.

Response - Thank you for the comment. The FKNMS will consider boundary changes to existing zones (Activity 3 in Strategy Z.1, Z.2, and Z.3, and Activity 2 in Strategy Z.4) as needed to reduce new or existing user conflicts (e.g. conflict among non-consumptive users and consumptive users along the boundary of a zone), or to improve enforcement (e.g. if zone boundaries are confusing and therefore complicate user compliance with regulations.) Any zone boundary changes would be undertaken in the regulatory review process that will follow the finalization and formal adoption of this revised Management Plan.

Comment - Encourages such scientific evaluations as identified on Pages 152, 153 and requests that these studies include comparative data to ensure that protective zones do not include recreationally prohibitive measures without adequate justification. And, that these studies should further distinguish consumptive recreational activities, such as fishing, from non-consumptive travel through zones.

Response - Thank you for the comment. Through the activities outlines in the Research and Monitoring Action Plan, the FKNMS will continue to obtain valuable data on consumptive and non-consumptive activities and their effects on the zones.

Comment - Table 3.1 - Strategies Z.2 and Z.3 should be ranked high for all scenarios.

Response - Thank you for the comment. The FKNMS has decided to maintain the rankings as originally published.

Water Quality Action Plan

Comment - Strategy W.19, page 187, paragraph 2 - consider replacing the existing sentence with the following sentence “*The Strategic Science Plan for Florida Bay, prepared by the Florida Bay and Adjacent Marine Ecosystems Program Management Committee focuses on science information needs for Florida Bay ecosystem restoration, including restoring more natural freshwater inflow patterns.*”

Response – Thank you for the comment. The suggested change is an improvement and has been included in the plan.

Comment - Pollution Discharges (page 98) – supports the Sanctuary’s Water Quality Steering Committee’s request that NOAA establish a no-discharge zone for federal waters of the Sanctuary

Response – Thank you for the comment. The FKNMS is including consideration of the establishment of a “no-discharge zone” for the entire FKNMS in the regulatory process that will follow the finalization and formal adoption of the revised Management Plan.

Comment (3) – Continue to take a strong lead on promoting implementation of Advanced Wastewater treatment Keys-wide, especially in recommending allocation of federal and state funds

Response – Thank you for the comment. The FKNMS agrees and will continue to work with Monroe County, municipalities, state, federal, and NGO partners on the Florida Keys Water Quality Improvements Program Delivery Team to encourage funding sources and allocate available resources to priority projects.

Comment – supports NOAA’s recognition that impacts outside the Sanctuary boundaries such as stormwater run off, waste water treatment and freshwater flow can negatively impact resources inside the Sanctuary and asks NOAA to continue its strong commitment to address these impacts.

Response – Thank you for the comment. The FKNMS will continue to focus on the potential impacts of water flow from outside the FKNMS boundary.

Comment - Waste Water (page 192) – states that it appears that the entire section on wastewater will have to undergo substantial re-drafting and updating. The Commenter provided documents to assist with the updating on information relating to Key Largo wastewater treatment.

Response – Thank you for the comment. The FKNMS agrees that “Strategy W.3 Addressing Wastewater Management Systems, Activity 4- Implement a Master Plan” is out of date and that strategy was updated to include more recent status and implementation information.

Comment – Sanctuary is urged to take a “bottom-up” approach and adopt the recommendations of the Pew Ocean Report and the US Commission on Ocean Policy that called for ecosystem-wide watershed planning.

Response – Thank you for the comment. The FKNMS by its own Congressional designation is designed to apply an ecosystem approach to management. The FKNMS remain committed to an ecosystem approach to management.

Comment - Sanctuary leadership is needed to support the challenge of providing upgraded nutrient stripped tertiary treatment throughout the Florida Keys especially recommending allocation of federal and state funds for these upgrades.

Response - The FKNMS works closely with its partners in the EPA, the State of Florida DEP and the County to address nutrient issues in the Sanctuary. This will continue to be a priority.

Comment (2) - The goal statement to “understand and address water quality problems” does not imply vigorous action and is far too weak. The statement should be revised to “better understand water quality problems and actively implement solutions to reverse trends and restore healthy water quality.”

Response - Thank you for the comment. The suggested language is an improvement and will be included in the revised document.

Comment (2) - The objective of ensuring “that restoration plans and surface-water improvements and management plans for South Florida and the Everglades are compatible with efforts to maintain water quality within the sanctuary” also needs to be strengthened with the Sanctuary advocating strenuously for actions directly intended to improve and restore Sanctuary water quality.

Response - Thank you for the comment. The FKNMS as a charter member of the South Florida Ecosystem Restoration Task Force and Working Group continues to see restoring the correct water quality, quantity, timing and distribution back into the system is a priority.

Comment (2) - Where Sanctuary representatives are directed to “participate in review and revision of restoration plans and water management plans to enhance and complement,” they should actually be directed to provide strong leadership to achieve significant water quality improvements.

Response - Thank you for the comment. The FKNMS and its partners on the WQ Steering Committee continue to demonstrate leadership in achieving significant water quality improvements.

Comment (2) - Why is funding estimated for W.19 so low? How can the Sanctuary provide strong leadership in the region on \$5K annually?

Response - Thank you for the comment. The EPA, in cooperation with the State of Florida, is authorized by Congress in the FKNMSPA (1990, as amended in 1992) to implement the WQPP for the FKNMS. The EPA spends in excess of \$1.0M annually for long-term monitoring projects, special studies, and data management.

Comment (2) - Should the Sanctuary consider adding NGOs to the Water Quality Protection Program’s Steering Committee?

Response - Thank you for the comment. NGOs have been added to the Water Quality Steering Committee.

Comment (2) – Can more information be provided (i.e. hard numbers) regarding accomplishments on inspection and compliance for cesspits, OSTDS and package plants?

Response – Thank you for the comment. This issue will be raised before the Water Quality Steering Committee with any information to be reported through the Committee proceedings.

Comment (2) – What are the implications of the fact that “the focus of the cesspit identification and elimination programs shifted to only the areas identified for onsite wastewater systems in light of the delays in implementing larger-scale AWT systems elsewhere?

Response – Chapter 99-395, Laws of Florida, requires that all wastewater facilities in the Florida Keys be upgraded by 2010. The chosen action reduces the possibility that owners of non-conforming systems would have to upgrade twice.

Comment (2) – Won’t “resource based, nutrient-reduction targets” ultimately be critical for evaluating long-term success? If so, shouldn’t plans be initiated to begin developing these, since the process is likely to be long and controversial?

Response – Yes. It was recognized that in the long term, nutrient reduction targets were critical in restoring and improving water quality. However, it was recognized that they would take a long time to develop, and in the interim implementing improvements based upon best available technology was recommended. Recently (2005), the State of Florida prepared a “Water Quality Status Report- Florida Keys”. That report is the first phase of a Total Maximum Daily Load Study for the Florida Keys. This is a watershed management approach for restoring and protecting water resources.

Comment (2) – Can more information be provided about the municipalities that have failed to implement a master wastewater plan, or have but are failing to meet deadlines? What are the implications for Sanctuary water quality? Will there be penalties for continued failures?

Response – All municipalities in the Florida Keys have initiated wastewater improvement projects. All wastewater treatment systems (onsite and centralized) must be upgraded to current standards by 2010. Penalties for failing to meet the requirements of Chapter 99-395, Laws of Florida, will be determined at a future date.

Comment – What are the implications for Sanctuary water quality of Key Largo’s elected Wastewater Board determining “appropriate sewage treatment requirements?”

Response – Actions of the Key Largo Wastewater Board are reviewed by the Florida Keys Water Quality Improvements Program Delivery Team and must be approved before funds are allocated. Also, the Water Quality Protection Program Steering Committee plays a major role in assuring that all plans are consistent with the Sanctuary’s Water Quality Management Plan, the Monroe County Wastewater Master Plan, and other applicable planning documents.

Comment (3) - How is it that despite beach closings, and human viruses found in canals and nearshore waters, Florida has no plans to incorporate biocriteria in water quality standards for marine waters? How does the Sanctuary plan to respond to this?

Response - The development of biocriteria is a priority of the State of Florida and is included in the "Comprehensive Science Plan" for the Florida Keys National Marine Sanctuary. Biocriteria are currently being developed for other waters of the state, and are planned for waters surrounding the Florida Keys.

Comment (2) - Likewise, although Florida is developing new water quality standards for nutrients, there are no plans to specifically address the Keys, where (like the Everglades) nutrients are known to pose a particular threat. How does the Sanctuary plan to respond to this?

Response - The State of Florida and its local and federal partners have initiated a Total Maximum Daily Load Study for the Florida Keys. The first phase of that study, "Water Quality Status Report- Florida Keys," has been completed. The current schedule projects completion of the TMDL Study in 2008.

Comment (2) - Can more information be provided about retrofitting hot spots and portions of US 1 for stormwater - i.e. what is being done in the other municipalities and along the highway?

Response - Stormwater improvements are discussed in detail in the Monroe County Stormwater Master Plan, the Islamorada Stormwater Master Plan, and the City of Key West's Stormwater Master Plan. Innovative solutions and pilot projects are required to test treatment of stormwater runoff within limited spaces available in island settings. If additional funding becomes available, innovative pilot projects will be funded as part of the Special Studies Program.

Comment (2) - Has the Sanctuary considered serving as the coordinator and promoter for the various campaigns and materials to support Best Management Practices for storm water runoff? And do any of these target homeowners?

Response - Monroe County, the municipalities, and the South Florida Water Management District are more appropriately suited to take the lead in assuring that Best Management Practices for storm water are incorporated in project designs and are enforced. Monroe County, the City of Key West, and the Village of Islamorada have completed and are implementing storm water management plants. Education of homeowners is a key factor in improving storm water treatment. Homeowners are required to meet current standards during upgrades or redevelopment. Construction of injection wells in flood prone areas in Key West and the landscaping on Indian Key Fill are two examples of recent storm water improvement projects by municipalities.

Comment (2) - Efforts to reduce nearshore water quality from the impacts of pesticides (both locally applied and distributed via aerial application) should be a priority for the Sanctuary.

Response - Application of pesticides and their potential impact on non-target organisms is a priority of the Sanctuary and is included as a priority research item in the Sanctuary's "Comprehensive Science Plan." One completed special study has addressed this issue and an additional special study on the topic is currently being performed.

Comment (2) - Reduction of phosphorus loading from lawn and garden fertilizers also poses a serious threat to the health of the nearshore marine environment and the Sanctuary should actively pursue a significant reduction of that impact.

Response - Thank you for the comment. The FKNMSPA (1990) and its partners on the Water Quality Program Steering Committee are continually striving to reduce these impacts.

Comment - The Sanctuary should take a leadership role in reducing the pollution that is discharged from the Everglades into Florida Bay

Response - NOAA and the FKNMS are charter members of the SFERTF and the Working Group. The entire group provides leadership in addressing these issues and to address the quantity, quality, timing and distribution of freshwater back into the system.

Waterway Management Action Plan

Comment - Strongly encourages the establishment of mooring fields at Blackwater Sound, Community Harbor, Pine Channel and other areas determined to be feasible as they will enhance public enjoyment of the Sanctuary.

Response - Thank you for the comment. The FKNMS will work closely with local, state and other federal partners to consider implementing this recommendation.

Law Enforcement and Resource Protection Action Plan

Comment - State Law officers do not have the authority to issue tickets or to arrest people for fishing in International Waters but they do within the Territorial Sea.

Response - NOAA and FWC disagree. The FWC officers have full federal authority through a Cooperative Enforcement Agreement.

Comment - Believes that effective enforcement of existing regulations should precede more onerous regulations.

Response - Thank you for the comment.

Comment - Strategy R.2 Page 98 - FKNMS, in addition to working with the SAC, is also obligated to coordinate installation and permitting of the markers through the USCG and/or the FL DEP. Suggest that FKNMS elaborate upon the permitting process it follows regarding the installation of their channel markers and other Aides to Navigation within Sanctuary waters.

Response – The FKNMS coordinates with the appropriate local, state and federal agencies in the permitting process.

Comment – Supports the evaluation of boundary demarcations and buoy positions and believes that clearly demarcating channel boundaries is a strategy that will facilitate voluntary regulatory compliance.

Response – Thank you for the comment.

Comment – Enforcement Action Plan, page 106-108 – Public involvement through site-specific interpretive patrols is an intriguing concept that other land management agencies could potentially benefit from. Please elaborate on the make-up of this program.

Response – Thank you for the comment. FKNMS feels the level of detail in the revised Management Plan is sufficient. More information can be obtained at the FKNMS Web site (floridakeys.noaa.gov)

Comment – Enforcement Action Plan, page 106-108 - Enforcement personnel costs are identified at least that \$3K/year. Is this figure correct? Does FKNMS have a fiscal arrangement with another entity that results in enforcement costs being so low?

Response – Thank you for the comment. FKNMS commits over \$1.5M to enforcement every year. Funds are transferred to the FWC and NOAA OLE for enforcement purposes. The costs identified in the Enforcement Action Plan Implementation Cost Table are those to provide additional staff and are not the total cost of enforcement personnel.

Comment – Strategy B.6, Page 109 – With respect to cross-deputization through the FWC, Biscayne Bay NPS suggests FKNMS consider indicating the training required for the commissioned law enforcement officers to receive these state law enforcement credentials, 80 hours of training in addition to attending the FWC 12 week basic law enforcement training course.

Response – NOAA cross deputizes state FWC officers to enforce federal regulations. This strategy is not advocating the cross-deputizations of Federal Officers to enforce state laws.

Threat Reduction Action Plan

Comment – Spearfishing tournaments are inconsistent with the concept of a Sanctuary. The Sanctuary is encouraged to decline to permit such activities. However spearfishing for residents should continue.

Response – Thank you for the comment. FKNMS will continue to track this activity and implement management actions in conjunction with its management partners (FWC, SAFMC and GMFMC).

Comment – Begin assessing the establishment of a concessionaires permitting system for dive and charter boat operations within the Sanctuary

Response – Thank you for the comment. This recommendation will be incorporated into the regulatory review process that will follow the finalization and formal adoption of this revised Management Plan.

Comment (3) – Work to reduce the impacts of the specially-designated recreational lobster days

Response - Thank you for the comment. FKNMS will continue to track this activity and implement management actions in conjunction with its management partners (FWC, SAFMC and GMFMC).

Maritime Heritage Resources Action Plan

Comment – Pages 130-143 – The text which addresses strong partnerships between FKNMS, FDHR and the Advisory Council on Historic Preservation (ACHP) neglects to mention the tremendous collaboration that is underway between Biscayne Bay NPS and FKNMS. Especially in regards to the work through out 2004 and 2005 in developing a Maritime Heritage Resources Interagency Agreement.

Response – Thank you for the comment. Language has been added to highlight this productive partnership.

Comment – Strategy MHR.5, page 143 – Recommends the following language be inserted under Activities (2): FKNMS and Biscayne Bay NPS will continue to develop cooperative cultural resources programs to enhance social science research, resource protection and public information and education surrounding submerged archaeological sites, objects and associated records.

Response – Thank you for the comment. FKNMS feels the language currently in the revised Management Plan is sufficient to the purpose intended.

Comment – Strategy MHR.5, page 143 – In respect to the flow chart concerning interagency coordination, suggest not just limiting the list to just DRTO but also include Everglades and Biscayne Bay NPS.

Response – Thank you for the comment. FKNMS has revised the language to be more inclusive.

Comment (Florida Bureau of Archeological Research (BAR)) – Prefers that since the State of Florida owns abandoned shipwrecks in 65 percent of the Sanctuary that management strategies detailed in the MHR Action Plan be more balanced, both in implementation and funding to reflect NOAA’s policy on resource protection through research, education and recreation.

Response – Thank you for your comment. The FKNMS MHP and the State of Florida BAR plan to hold periodic meetings to discuss effectiveness of strategies, progress toward intended goals, and availability of funding support from each agency.

Comment (Florida BAR) – strongly recommends that the Sanctuary implements the recommendation on page 132 to hire an underwater archaeologist as soon as possible and to supplement the position with two assistants to implement the Action Plan as intended.

Response – Thank you for the comment. The FKNMS has assessed this need and has added this position to a list of priority needs.

Comment (Florida BAR) – agrees that the most important Activity proposed in the 2005 plan is “create an MHR Field Unit.” They are concerned that it is in the MHR Permitting strategy. Commenter asserts that placing the unit in the Permitting strategy makes it appear as though the unit will be used primarily for permitting rather than the core functions of MHR management such as inventory, recording, evaluation, monitoring, interpretation and protection.

Response – Thank you for your suggestion. This Strategy is incorporated into two of this Action Plan Strategies. FKNMS feels it is clear that the role of the unit would include both core functions and permitting.

Comment (Florida BAR) – On page 134 bullet 1 – It would be better if the sentence read “...establishing principles of joint management and guidelines for permits.”

Response – Thank you for the comment. The suggested revision was incorporated.

Comment (Florida BAR) – On Page 131 paragraph 5 – This sentence should read: “permission may also be required from FDEP/FDSL (Division of State Lands, Board of Trustees of the Internal Improvement Trust Fund),” since Consent of Use to use state lands is necessary where excavation is involved, and this permission is under the authority of the Department of Environmental Protection, not the Division of Historical Resources.

Response – Thank you for the comment. The suggested revision was incorporated.

Comment (Florida BAR) – On Page 131, recommend removing the phrase “may ultimately deteriorate due to natural processes” to come back into agreement with the 1997 negotiated language as reflected in the Programmatic Agreement.

Response – Thank you for the comment. The suggested revision was incorporated

Comment (Florida BAR) – On Page 136, recommend removing the phrase “would be adversely impacted.” to come back into agreement with the 1997 negotiated language.

Response – Thank you for the comment. The suggested revision was incorporated.

Comment (Florida BAR) – on page 136, a number of terms have been needlessly hyphenated. These terms are established in the Programmatic Agreement without hyphens and they are grammatically correct in that form.

Response – Thank you for the comment. The FKNMS has made the appropriate editing changes.

Comment (Florida DEP) - requests NOAA and Florida Dept of State's Division of Historical Resources discuss specific changes within the action plan while referring to the Programmatic Agreement for SCR management and develop a consensus on approaches and level of resource allocation to the protection and management of these historic resources in the FKNMS.

Response - Thank you for the comment. The FKNMS and Florida Dept of State's Division of Historical Resources met and discussed these topics. The results of the discussions have been incorporated into this document.

Comment - Strategy MHR.2. Establishing an MHR Inventory (page 139, par 2) - Comment wishes to point out surveying and collecting anecdotal information from "salvors" may not produce very much information.

Response - Thank you for the comment. Information from "salvors" has advanced FKNMS knowledge of our maritime heritage resources.

Comment - Maritime Heritage Resources Inventory - Can the Sanctuary be a bit more specific about the bibliographic database that has been created? Describe what information elements are included in the database.

Response - Thank you for your comment. Currently the bibliography database consists of annual reports from FKNMS permit holders and is not complete yet.

Comment - Maritime Heritage Resources Inventory - Can the Sanctuary provide the reference title (address) that is used for searching the internet?

Response - Thank you for your comment. FKNMS will consider appropriate public access to this information.

Comment - The Issue of Commercial Salvage (page 133) - Mentioned in the paragraph "In consultation with the state, which owns abandoned shipwrecks in 65 percent of the Sanctuary, and consistent with the Abandoned Shipwreck Act, commercial salvage of abandoned shipwrecks 'has been determined not to be a compatible use in areas where there is coral, seagrass or other significant resources.'" Who made this determination?

Response - The primary goal and objective of the NMSP is resource protection. Proposed methods of effectively transplanting seagrass and coral for the recovery of significant maritime heritage resources will be evaluated on a case by case basis. FKNMS and the State of Florida prefer in-situ preservation.

Comment - Maritime Heritage Resources Accomplishment (page 134) - Of the 550 sites mentioned it should be noted that not all of these sites were "Maritime Heritage Sites"... that is shipwrecks. A large number are "natural values"... interesting corals and coral fragments. Most of the sites in the five volume set covers only the Upper Keys.

Response - Thank you for your comment. Appropriate revisions have been made.

Comment - Maritime Heritage Resources Implementation (page 131, par 2) - It is mentioned that FDHR has developed a range of management tools that can be usefully applied within the Sanctuary. Perhaps the Sanctuary should describe some of the management tools.

Response - Thank you for your comment. The MHR Action Plan includes the management tools and strategies (inventory, document, monitor, and interpret).

Comment - Maritime Heritage Resources Permitting (Page 136) Last Sentence - "No permits will be issued for excavation in areas where coral, seagrass, or other significant natural habitats would be adversely impacted." According to the Advisory Counsel on Historic Preservation updated Policy Statement on 'Balancing Cultural and Natural values on Federal Lands dated December 20, 2002, Managers are supposed to ensure that cultural values are afforded equal consideration. Accordingly, it would seem that each case should be investigated separately rather than categorically issuing a "No Disturb rule."

Response - Thank you for your comment. Each permit application is considered and evaluated on a case by case basis. The intent of the Advisory Counsel's Policy Statement on Balancing Cultural and Natural Values on Federal Lands is to promote the protection of both natural and cultural resources. Federal agencies should not let the protection of either resource cause the disturbance or degradation of the other. Both types of resources should be equally protected. FKNMS and the State of Florida prefer in-situ preservation.

Comment - Maritime Heritage Resources (page 241) - The writing is somewhat cumbersome.

Response - Thank you for the comment. Some editing of the text on this page occurred.

Mooring Buoy Action Plan

Comment - The Sanctuary should establish vessel limits on the use of reef mooring buoys.

Response - Thank you for the comment. The FKNMS has implemented such limitations in the Tortugas Ecological Reserve. Additionally, special mooring "U-bolts" heavier line and larger buoys are being installed for larger vessels. In the Upper Keys a maximum vessel length of 60 ft is the design criteria and the strong recommendation for "single pin" or manta ray buoy anchors depending on weather conditions. Heavier "U-anchor" systems will be considered in the future for large vessels in the Upper Keys.

Volunteer Action Plan

Comment - 3.2.2 Volunteer Action Plans (page 80) - Does the Sanctuary's Volunteer Program have insurance coverage as did the Nature Conservancy's?

Response - The FKNMS Volunteer Program is covered under the Federal Worker's Compensation Program.

Comment - Supports the continuance of volunteer monitoring programs specifically identifying Reef Medics and Adopt-a-Reef Programs.

Response – Thank you for the comment. FKNMS appreciates the support.

Comment – Activity 1 of the Volunteer Action Plan, the volunteer based Florida Keys Watch water quality monitoring program, has been completed and is no longer operational from The Nature Conservancy’s perspective.

Response – Thank you for the comment. The language was reviewed and revised as appropriate.

Regulatory Action Plan

Comment – Supports the status quo option with respect to Sanctuary bait-fishing and ardently opposed the recommended blanket bait-fishing prohibition.

Response – Thank you for the comment. A review of all allowable SPA activities will include multiple opportunities for public comment and input before any changes are made. This regulatory review process will begin only after this revised Management Plan is finalized and formally adopted.

Comment – Encourages NOAA to follow the Sanctuary Advisory Committee’s recommendation that the Sanctuary ban personal watercraft.

Response – Thank you for the comment. Members of the public will be afforded multiple opportunities to review and provide input to a series of regulatory alternatives associated with PWC and other vessel operation in the Sanctuary that will be considered after this revised Management Plan is finalized and formally adopted. The FKNMS is committed to working with its local, state and federal partners to reduce the impacts of all boats on the resources of the FKNMS.

Comment – Takes issue with the assertion on Page 100 that “during the five years since implementation of the original Sanctuary Management Plan, the controversy over PWC operation has increased. Comment believes the opposite is true.

Response – Thank you for the comment. The FKNMS agrees and revised the Management Plan to reflect accordingly.

Comment – Appreciates that FKNMS has acknowledged on Page 100 the positive changes within the PWC industry since the 1997 management plan was adopted.

Response – Thank you for the comment.

Comment (2)– Supports Alternative #1, “Status Quo – No action beyond activities implemented in other action plans related to PWC adopted use (e.g. additional WMAs, concentrated nearshore enforcement, boater-education initiatives) and recommends that no further regulations be promulgated.

Response – Thank you for the comment. Members of the public will be afforded multiple opportunities to review and provide input to a series of regulatory alternatives associated with PWC and other vessel operation in the Sanctuary that will be considered after this revised Management Plan is finalized and formally adopted.

Comment – Strongly urges FKNMS to disregard any anti-PWC rhetoric espoused by special interest groups whose agenda consists of championing PWC bans without scientific support.

Response – Thank you for the comment. Members of the public will be afforded multiple opportunities to review and provide input to a series of regulatory alternatives associated with PWC and other vessel operation in the Sanctuary that will be considered after this revised Management Plan is finalized and formally adopted.

Comment (3) – Continue active support for the current ban on PWC in the National Wildlife refuges’ backcountry waters.

Response – Thank you for the comment. Members of the public will be afforded multiple opportunities to review and provide input to a series of regulatory alternatives associated with PWC and other vessel operation in the Sanctuary that will be considered after this revised Management Plan is finalized and formally adopted.

Comment – States the entire area should be kept entirely free of all ships.

Response – Thank you for the comment. The FKNMS Area-To-Be-Avoided (ATBA) and the Particularly Sensitive Sea Area (PSSA) have both been effective tools for addressing major ship groundings on the coral reefs of the FKNMS.

Comment (2) – Fish feeding should be banned from the Sanctuary along with pollution discharge.

Response – Thank you for the comment. Fish feeding and pollution (through the establishment of a no-discharge zone) will be addressed as described in Activities 12 and 3 respectively, of Strategy R.2 (Regulatory Action Plan). This regulatory review process which will begin only after this revised Management Plan is finalized and formally adopted.

Comment (4) – Encourages NOAA to ban cruise ship discharges of treated or untreated sewage as well as treated or untreated graywater in all the waters of the Sanctuary, not just those parts of the Sanctuary containing state waters. And the Comment urges NOAA to prohibit all discharges from all ocean-going ships that transit the Sanctuary while approaching a US port of call.

Response - Thank you for the comment. Pollution discharges through the establishment of a no-discharge zone are specifically addressed in Activity 3 of Strategy R.2 (regulatory Action Plan.) Cruise ships, as well as other vessels, would be subject to any new regulations promulgated. The regulatory review process will begin only after this revised Management Plan is finalized and formally adopted.

Comment - Encourages NOAA to establish a monitoring and education program to ensure compliance with the Commenter's previously proposed discharge ban on all ships transiting the Sanctuary.

Response - Thank you for the comment. A regulatory review process will begin after this revised Management Plan is finalized and formally adopted. Should such a ban be adopted as part of that process, plans will be made at that time to determine whether monitoring and/or education programs should be developed in association with the ban.

Comment - On Page 361 NOAA states that questions have been raised regarding its ability to ban PWC due to a state law passed in 2000. It is the Commenter's opinion that the state law does not bar either NOAA or the state from enacting a PWC ban since the law merely prohibits the enactment of any "ordinance or local law" that discriminates against PWC.

Response - Thank you for the comment. Legal interpretation of exiting laws will be given full review and consideration before changes to any FKNMS regulations are enacted. Members of the public will be afforded multiple opportunities to review and provide input to a series of regulatory alternatives associated with PWC and other vessel operation in the Sanctuary that will be considered after this revised Management Plan is finalized and formally adopted.

Comment - Requests thorough scientific review of the effectiveness and necessity of the current regulation prohibiting vessel speeds greater than idle in areas designated as idle speed only/no-wake, and within 100 yards of navigational aids indicating emergent or shall reefs (page 98). And, that the Sanctuary consider such modifications as allowing moderate boat speeds in combination with more clearly demarcated channel and reef markings.

Response - Thank you for the comment. Full consideration of this request will be made during the regulatory process that will begin following the finalization and formal adoption of this revised Management Plan.

Comment (Florida DEP) - Commenter understands there will be a separate regulatory review process and that there will be recommendations on zoning, permitting, no-discharge regulations and others. They look forward to working with NOAA as a cooperating agency and co-trustee during this process with the ultimate objective of enhanced protection of the natural resources of the Florida Keys.

Response - Thank you for the comment. FKNMS is also looking forward to conducting a positive and inclusive regulatory review process.

Sanctuary Advisory Council Action Plan

Comment - The role of the SAC has been largely ceremonial and it has provided an opportunity for information sharing and the airing of opinions. To be effective, the Sanctuary should follow-up with actions to reduce identified impacts discussed at length by the Council.

Response - The FKNMS strongly does not agree with this comment regarding the nature of the role of the Sanctuary Advisory Council.

Comment - For the benefit of other agencies cooperating with the FKNMS it would be helpful if the plan addressed the specific congressional authority that enables the agency to establish a standing advisory council. It would be helpful if the FKNMS outlined their authority to establish the advisory council, how members are appointed, and the process the Sanctuary follows with respect to forming working groups under the auspices of the council.

Response - Thank you for the comment. This authority is laid out in the FKNMSPA (1990) and the National Marine Sanctuary Act. It is now addressed for all National Marine Sanctuaries in policy documents. These are available in our appendices and on our Web site (floridakeys.noaa.gov).

Appendices

Comment - Appendix C - FKNMS Regulations (page 310 par L (1)) - Suggests that sentence (1) be re-written to state that permit applicants shall designate a Project Director who has the requisite training and experience to be in charge of planning, field recovery operations and research analysis. This person could be a degree holding archaeologist or an individual with equivalent training and experience.

Response - Thank you for the comment. This suggestion will be reviewed during the regulatory review process to be initiated once the FKNMS revised Management Plan has been finalized and formally adopted.

Comment - Appendix C - FKNMS Regulations (page 310 par L (2)) - States that an approved nautical conservator shall be in charge of conserving any artifacts and materials recovered. To the Comment's knowledge that are no listings of "approved" nautical conservators or for that matter "approved" conservation laboratories.

Response - Thank you for the comment. This comment will be reviewed during the regulatory review process to be initiated once the FKNMS revised Management Plan has been finalized and formally adopted.

Comment - Programmatic Agreement (Page 356, para H. Deaccession/Transfer Permits) - Is there any reason in "law" that establishes 50 years for the basis for the Sanctuary to consider items of that age as being "archaeological interest."

Response - Thank you for the comment. Any concerns associated with this Agreement are outside the bounds of this revised Management Plan document. The question will be held for review during the next review of the Programmatic Agreement.

Comment - States the Programmatic Agreement needs to be modified to reflect Presidential Executive Order 13287 on Preserve America. Comment asserts the Programmatic Agreement fails to take into account the Preserve America initiative program and NOAA's participation in the program. Specifically the Programmatic Agreement does not mention the Advisory Council on Historic Preservation (ACHP) updated policy statement on "balancing cultural and natural values on federal lands, dated 12/30/2002. As a result the State of Florida and the Sanctuary's

position regarding the issue of commercial salvage of abandoned shipwrecks where there is coral, seagrass or other significant resources is without sensible foundation and should be modified and a procedure worked out to review possible recovery of items by permit applicants.

Response - Thank you for the comment. Modifications to this Agreement are outside the bounds of this revised Management Plan document and will be considered separately during the renewal of the Agreement.