

Florida Keys National Marine Sanctuary Revised Management Plan



December 2007

U.S. Department of Commerce

National Oceanic and
Atmospheric Administration

National Ocean Service

National Marine Sanctuary Program

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.

Comments or questions on this management plan should be directed to:

CDR David A. Score
Superintendent
Florida Keys National Marine Sanctuary
33 East Quay Road
Key West, Florida 33040
(305) 809-4700
David.A.Score@noaa.gov

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.

Table of Contents

ABOUT THIS DOCUMENT	i
TABLE OF CONTENTS	iii
ACRONYMS	vii
1.0 INTRODUCTION.....	1
1.1 THE NATIONAL MARINE SANCTUARY PROGRAM (NMSP).....	1
1.2 THE FLORIDA KEYS NATIONAL MARINE SANCTUARY (FKNMS)	2
1.3 THE MANAGEMENT PLAN REVIEW PROCESS.....	6
1.4 ACCOMPLISHMENTS	9
2.0 THE SANCTUARY ENVIRONMENT: A SUBTROPICAL ECOSYSTEM.....	13
2.1 INTRODUCTION.....	13
2.2 LIVING MARINE RESOURCES.....	13
2.3 NON-LIVING MARINE RESOURCES.....	16
2.4 THREATS TO THE ECOSYSTEM.....	17
3.0 ACTION PLANS.....	19
WHAT ARE THE ACTION PLANS IN THIS DOCUMENT?.....	19
IMPLEMENTING ACTION PLANS.....	27
ACTION PLAN IMPLEMENTATION COSTS.....	30
3.1 SANCTUARY SCIENCE.....	31
3.1.1 SCIENCE MANAGEMENT & ADMINISTRATION ACTION PLAN	32
<i>Strategy B.11 Issuance of Sanctuary Research Permits.....</i>	35
<i>Strategy W.29 Dissemination of Findings.....</i>	35
<i>Strategy W.32 Maintaining a Technical Advisory Committee</i>	37
<i>Strategy W.34 Regional Science Partnerships and Reviews</i>	37
<i>Strategy W.35 Data Management</i>	39
3.1.2 RESEARCH AND MONITORING ACTION PLAN	41
<i>Strategy W.33 Ecological Research and Monitoring.....</i>	47
<i>Strategy Z.6 Marine Zone Monitoring</i>	49
<i>Strategy W.36 Conducting Socioeconomic Research.....</i>	51
<i>Strategy F.3 Researching Queen Conch Population Enhancement Methods.....</i>	54
<i>Strategy F.7 Researching Impacts From Artificial Reefs.....</i>	55
<i>Strategy F.6 Fisheries Sampling</i>	56
<i>Strategy F.11 Evaluating Fishing Gear/Method Impacts</i>	57
<i>Strategy F.15 Assessing Sponge Fishery Impacts</i>	58
<i>Strategy W.18 Conducting Pesticide Research.....</i>	58
<i>Strategy W.22 Assessing Wastewater Pollutants Impacts.....</i>	59
<i>Strategy W.23 Researching Other Pollutants and Water Quality Issues</i>	60
<i>Strategy W.24 Researching Florida Bay Influences.....</i>	61
<i>Strategy W.21 Developing Predictive Models.....</i>	63
<i>Previous Strategies.....</i>	64
3.2 EDUCATION, OUTREACH, & STEWARDSHIP	65
3.2.1 EDUCATION AND OUTREACH ACTION PLAN.....	66
<i>Strategy E.4 Developing Training, Workshops and School Programs.....</i>	69
<i>Strategy E.6 Continuing the Education Working Group.....</i>	71
<i>Strategy E.10 Establishing Public Forums</i>	71
<i>Strategy E.11 Participating In Special Events</i>	72
<i>Strategy E.1 Printed Product Development and Distribution.....</i>	73
<i>Strategy E.2 Continued Distribution of Audio-Visual Materials.....</i>	76

Strategy E.3	Continued Development of Signs, Displays, Exhibits, and Visitor Centers	77
Strategy E.5	Applying Various Technologies.....	80
Strategy E.12	Professional Development of Education and Outreach Staff.....	80
3.2.2	VOLUNTEER ACTION PLAN	82
Strategy V.1	Maintaining Volunteer Programs.....	84
Strategy V.2	Working With Other Organization/Agency Volunteer Programs	86
Strategy V.3	Supporting Volunteer Activities.....	89
	Previous Strategies.....	91
3.3	ENFORCEMENT & RESOURCE PROTECTION	92
3.3.1	REGULATORY ACTION PLAN	93
Strategy R.1	Maintain the Existing Permit Program	96
Strategy R.1	Maintain the Existing Permit Program	96
Strategy R.2	Regulatory Review and Development.....	98
3.3.2	ENFORCEMENT ACTION PLAN	104
Strategy B.6	Acquiring Additional Enforcement Personnel.....	110
3.3.3	DAMAGE ASSESSMENT AND RESTORATION ACTION PLAN.....	113
Strategy B.18	Injury Prevention.....	116
Strategy B.19	Implementing DARP Notification And Response Protocols	118
Strategy B.20	Damage Assessment And Documentation.....	119
Strategy B.21	Case Management	122
Strategy B.22	Habitat Restoration	123
Strategy B.23	Data Management	127
3.3.4	MARITIME HERITAGE RESOURCES ACTION PLAN	129
Strategy MHR.1	MHR Permitting	135
Strategy MHR.2	Establishing An MHR Inventory.....	136
Strategy MHR.3	MHR Research and Education	138
Strategy MHR.4	Ensuring Permit Compliance through Enforcement.....	139
Strategy MHR.5	Ensuring Interagency Coordination.....	140
3.4	RESOURCE THREAT REDUCTION.....	142
3.4.1	MARINE ZONING ACTION PLAN	143
Strategy Z.1	Sanctuary Preservation Areas	148
Strategy Z.2	Ecological Reserves.....	151
Strategy Z.3	Special-use Areas	155
Strategy Z.4	Wildlife Management Areas	158
Strategy Z.5	Existing Management Areas.....	160
3.4.2	MOORING BUOY ACTION PLAN.....	162
Strategy B.15	Mooring Buoy Management.....	165
3.4.3	WATERWAY MANAGEMENT ACTION PLAN	168
Strategy B.1	Boat Access.....	172
Strategy B.4	Waterway Management/Marking	173
3.4.4	WATER QUALITY ACTION PLAN.....	178
FLORIDA BAY/EXTERNAL INFLUENCE STRATEGIES		183
Strategy W.19	Florida Bay Freshwater Flow	183
DOMESTIC WASTEWATER STRATEGIES		185
Strategy W.3	Addressing Wastewater Management Systems	185
Strategy W.5	Developing and Implementing Water Quality Standards	188
Strategy W.7	Resource Monitoring of Surface Discharges.....	189
STORMWATER STRATEGIES.....		190
Strategy W.11	Stormwater Retrofitting	190
Strategy W.14	Instituting Best Management Practices	190
MARINA AND LIVE-ABOARD STRATEGIES		192
Strategy B.7	Reducing Pollution Discharges	192
Strategy L.1	Elimination of Wastewater Discharge From Vessels	193
Strategy L.3	Reducing Pollution From Marina Operations.....	195

LANDFILL STRATEGY	197
<i>Strategy L.7 Assessing Solid Waste Disposal Problem Sites</i>	197
HAZARDOUS MATERIALS STRATEGIES.....	199
<i>Strategy W.15 HAZMAT Response</i>	199
<i>Strategy W.16 Spill Reporting</i>	200
<i>Strategy L.10 HAZMAT Handling</i>	201
MOSQUITO SPRAYING STRATEGY	202
<i>Strategy W.17 Refining the Mosquito Spraying Program</i>	202
CANAL STRATEGY	203
<i>Strategy W.10 Addressing Canal Water Quality</i>	203
<i>Previous Strategies</i>	205
3.5 ADMINISTRATION, COMMUNITY RELATIONS AND POLICY COORDINATION.....	206
FUNCTION 1: SANCTUARY ADMINISTRATION.....	207
FUNCTION 2: COMMUNITY RELATIONS	213
FUNCTION 3: POLICY DEVELOPMENT AND COORDINATION	214
<i>Strategy OP.1 Addressing Administrative Policy Issues</i>	219
<i>Strategy OP.2 Addressing Resource Policy Issues</i>	220
<i>Strategy OP.3 Addressing Legal Issues</i>	220
FUNCTION 4: THE SANCTUARY ADVISORY COUNCIL.....	221
3.5.2 EVALUATION ACTION PLAN	223
<i>Strategy EV.1 Measuring Sanctuary Performance Over Time</i>	225
APPENDICES	236
APPENDIX A - THE NATIONAL MARINE SANCTUARIES ACT.....	237
APPENDIX B - THE FLORIDA KEYS NATIONAL MARINE SANCTUARY AND PROTECTION ACT.....	251
APPENDIX C - FKNMS REGULATIONS	270
APPENDIX D - FKNMS DESIGNATION DOCUMENT	323
APPENDIX E - FKNMS ADVISORY COUNCIL (NOVEMBER 2001).....	330
APPENDIX F - AGREEMENTS FOR THE INTEGRATED MANAGEMENT OF THE FLORIDA KEYS NATIONAL MARINE SANCTUARY	335
APPENDIX G - VESSEL OPERATIONS/PWC MANAGEMENT REGULATORY ALTERNATIVES	339
APPENDIX H – PUBLIC COMMENTS AND RESPONSES	341

List of Figures

Figure 1.1	The National Marine Sanctuary System	1
Figure 1.2	The Florida Keys National Marine Sanctuary Boundaries.....	5
Figure 1.3	Reef groundings of ships greater than 50m in length before and after the creation of the ATBA.	9
Figure 1.4	FKNMS boundary, ATBA and PSSA	10
Figure 3.1	NMSP Performance Evaluation Logic Model	225

List of Tables

Table 3.0	Crosswalk of 1996 Management Plan and 2006 Revised Management Plan Action Plans and Strategies.....	20
Table 3.1	Action Strategy Implementation Over Five Years Under Three Funding Scenarios.....	27
Table 3.2	Estimated costs of the Science Management and Administration Action Plan	34
Table 3.3	Estimated costs of the Research and Monitoring Action Plan	45
Table 3.4	Estimated costs of the Education and Outreach Action Plan	68
Table 3.5	Estimated costs of the Volunteer Action Plan	83
Table 3.6	Estimated costs of the Regulatory Action Plan.....	95
Table 3.7	Estimated costs of the Enforcement Action Plan	109
Table 3.8	Estimated costs of the Damage Assessment and Restoration Action Plan.....	115
Table 3.9	Estimated costs of the Maritime Heritage Resources Action Plan	134
Table 3.10	Estimated costs of the Marine Zoning Action Plan.....	147
Table 3.11	Criteria for the Creation and Establishment of the Tortugas Ecological Reserve.....	152
Table 3.12	Estimated costs of the Mooring Buoy Action Plan.....	164
Table 3.13	Estimated costs of the Waterway Management Action Plan.....	171
Table 3.14	Estimated costs of the Water Quality Action Plan.....	181
Table 3.15	Estimated costs of the Operations Action Plan/Policy Development and Coordination Function.....	217
Table 3.16	Estimated costs of the Evaluation Action Plan.....	224
Table 3.17	Science Management and Administration Action Plan Performance Measures	227
Table 3.18	Science Research and Monitoring Action Plan Performance Measures.....	221
Table 3.19	Education and Outreach Action Plan Performance Measures	221
Table 3.20	Volunteer Action Plan Performance Measures	222
Table 3.21	Regulatory Action Plan Performance Measures.....	222
Table 3.22	Enforcement Action Plan Performance Measures	223
Table 3.23	Damage Assessment & Restoration Program Action Plan Performance Measures.....	223
Table 3.24	Maritime Heritage Resources Action Plan Performance Measures	224
Table 3.25	Marine Zoning Action Plan Performance Measures.....	224
Table 3.26	Mooring Buoy Action Plan Performance Measures	226
Table 3.27	Waterway Management Action Plan Performance Measures.....	226
Table 3.28	Water Quality Action Plan Performance measures.....	227
Table 3.29	Operations Action Plan Administration Function Performance Measures.....	227
Table 3.30	Operations Action Plan Sanctuary Advisory Council Performance Measures	228

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

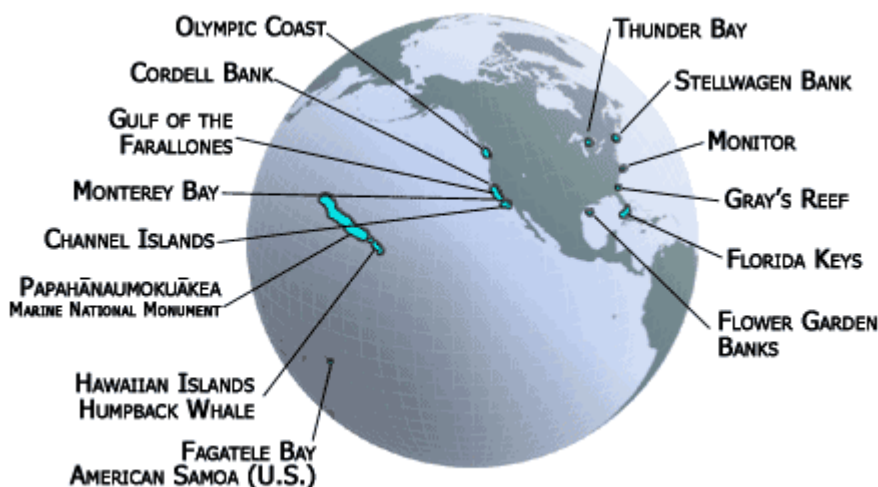
1.1 The National Marine Sanctuary Program (NMSP)

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.

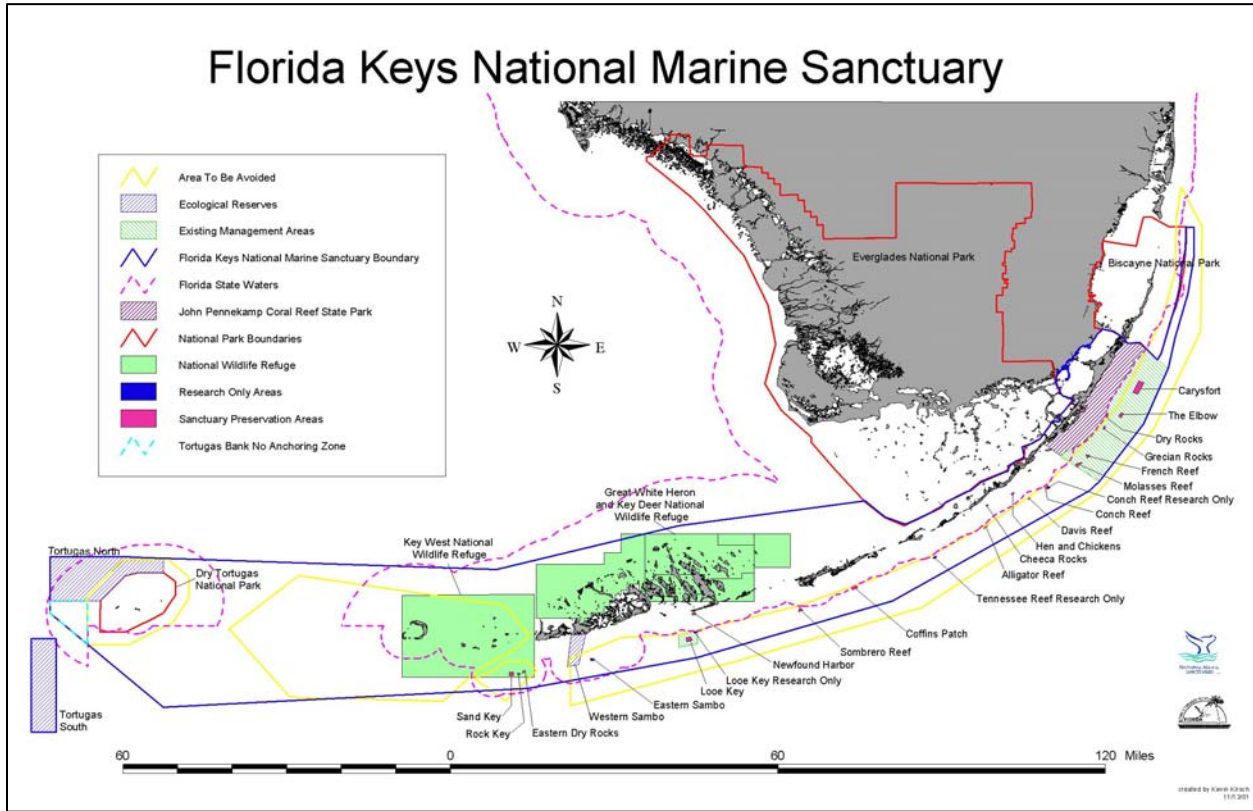
A separate, non-contiguous, 60 square nautical mile area off the westernmost portion of the Sanctuary is called the Tortugas Ecological Reserve South. The area's shallowest feature is Riley's Hump which rises to a depth of only 90 feet of water.

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.

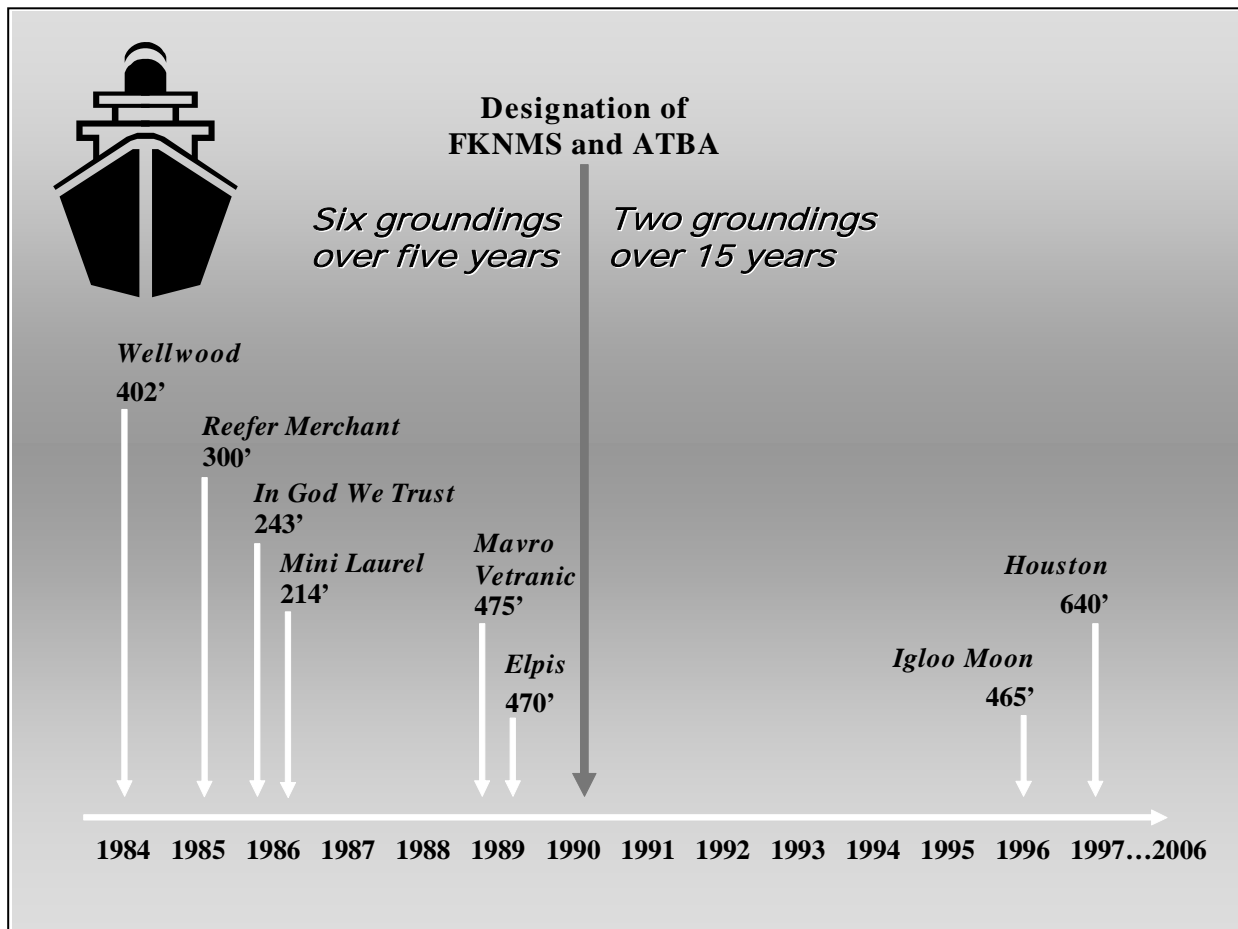
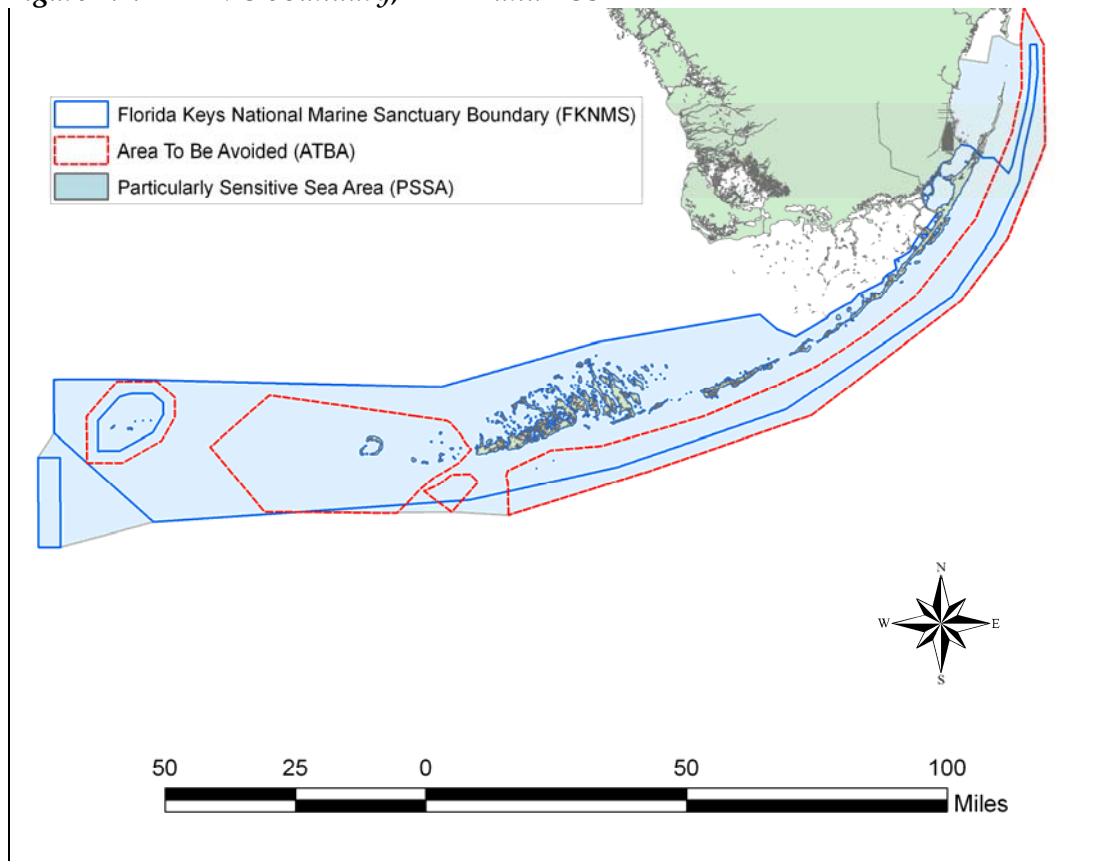


Figure 1.4. FKNMS boundary, ATBA and PSSA



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.

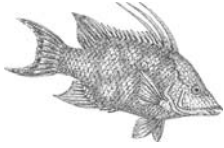
8. Enforcement and Regulations. Both the city of Key West and the State of Florida have declared Florida Keys waters under their jurisdictions as "no-discharge" zones. Additional accomplishments in implementing the Enforcement and Regulatory Action Plans are largely a tribute to the cooperative efforts 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*.



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.

3.5.2 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.

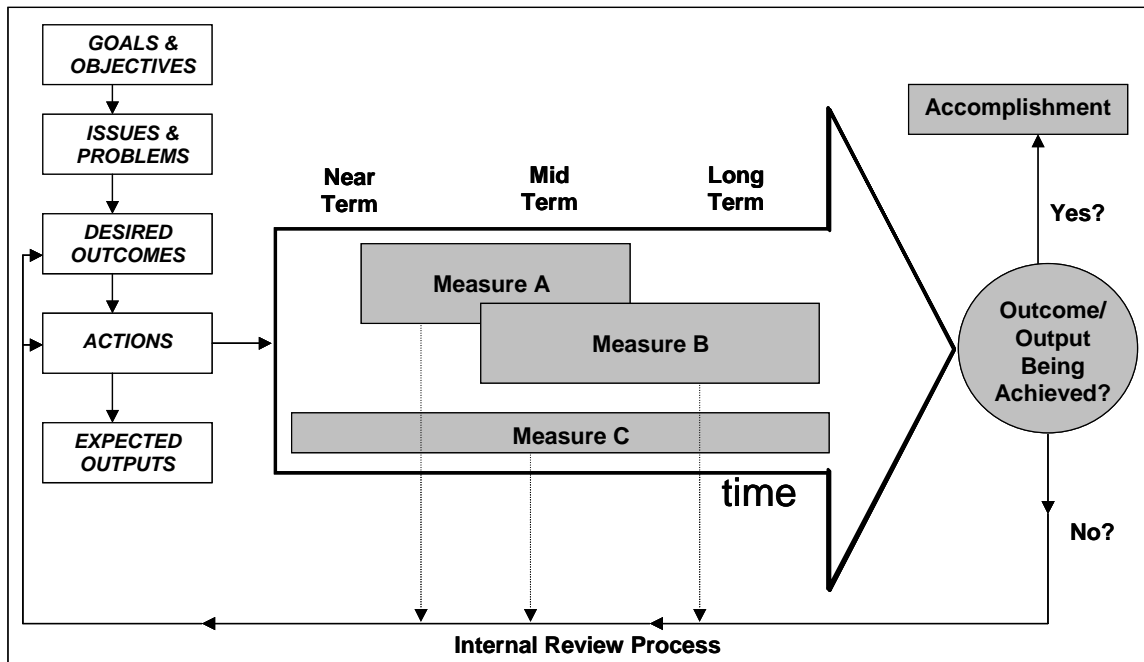
Table 3.16 Estimated Costs of the Evaluation Action Plan.

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
---	--	--	------------------------------

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