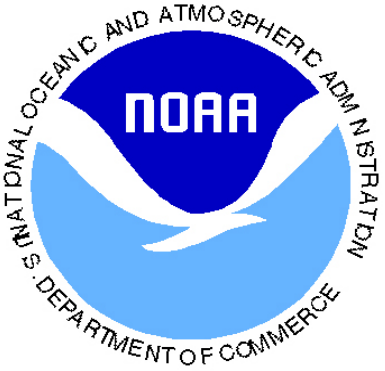
Florida Keys National Marine Sanctuary

Annual Report

July 1, 2004 – June 30, 2005



Introduction and Executive Summary

On January 28, 1997, the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund, approved the Florida Keys National Marine Sanctuary (FKNMS) management plan for implementation in state waters and adopted a resolution containing conditions for that approval. The annual submission of a report of the activities and conditions of the Sanctuary to the Board is one of those requirements. This is the eighth of those annual reports covering the period of July 1, 2004 through June 30, 2005. The following items describe the condition of the resources and the most significant Sanctuary activities during this period.

Corals: Coral reefs declined globally between 1996 and 1999 due to global coral bleaching. In the FKNMS, there was a 38% decline in overall coral cover in the Sanctuary from 1996 (12%) through 1999 (7.4%). From 1999 through 2003, overall coral cover did not significantly change, and coral cover varied between 7.2% and 7.5%. Between 2003 and 2004, however, there was a significant decrease in stony coral cover from 7.2% to 6.8%. The reason for the drop is not clear, but is probably due to multiple stressors, such as degraded water quality, coral diseases, physical impacts, and over-fishing. This monitoring is conducted as part of the Sanctuary's long-term Water Quality Program established in 1995.

Seagrass: The benthic communities at the 27 sampling sites in the Keys remain relatively stable in overall abundance of seagrasses. The monitoring of the permanent stations continues to indicate that the nearshore marine communities are changing in ways that suggest that nutrients are increasing in the system. This monitoring is conducted as part of the Sanctuary's long-term Water Quality Program established in 1995.

Water Quality: In general, water quality is good Sanctuary-wide. There were decreases in several of the metrics used to rate water quality throughout the region. However, several significant trends of elevated nutrients continue in the nearshore waters and the 'back country' areas. Sources for these nutrients are thought to be land based, influence from the southwestern Florida Shelf, and some natural influences. This monitoring is conducted as part of the Sanctuary's long-term Water Quality Program established in 1995.

Tortugas Ecological Reserve: To determine how grouper and snapper populations were doing in the Tortugas North Ecological Reserve, 42 fish-identification experts conducted an extensive survey in the summer of 2004. For 20 days, the team made 1,594 scientific dives covering 500 square miles in the reserve and unprotected areas. Results were compared to surveys of the same areas in 1999 and 2000. In 2004, divers saw 5.5 times more black grouper, and a greater number of legal sized snapper and grouper than in 1999 and 2000.

Management Plan Status: The 1992 Congressional re-authorization of the National Marine Sanctuaries Act requires the review of sanctuary management plans every five years to monitor and evaluate the progress of the mission to protect the natural and cultural resources of national significance. The Board also mandated this review in a resolution on January 28, 1997. The five-year FKNMS management plan review process began in 2001with public scoping meetings throughout the Florida Keys. The revised draft management plan has undergone review by NOAA headquarters, DEP, and a two month public comment period from February – April 2005. The Revised Management Plan is targeted from final release in the fall of 2005.

Hurricane Season 2004: In spite of serious threat from Hurricanes Ivan and Charlie, the FKNMS was fortunate in sustaining no reportable damage from these storms. The FKNMS conducted post-hurricane assessments in the Keys and the Dry Tortugas. The Keys suffered minimal damage to the reefs; the report from the assessment in the Tortugas is pending from the Environmental Protection Agency.

Dolphin Stranding: In March 2005, approximately 70 rough-toothed dolphins stranded on the gulf side of the FKNMS, near Marathon, Florida. The FKNMS worked with NOAA Fisheries, Fish and Wildlife Conservation Commission and numerous other agencies, community groups, and marine mammal organizations to assess the situation and implement a large-scale rescue effort. As of June 2005, 9 animals had been released to the wild, and 4 remain in rehabilitation. The cause of the stranding is still unknown, but NOAA Fisheries Office of Protected Species plans to hold a debriefing in August 2005.

Safe Sanctuary 2005: An emergency response drill "Safe Sanctuaries," was initiated by NOAA in the FKNMS to improve the agency's ability to protect the environment of the Florida Keys and the public in case of a major incident. The drill involved the hypothetical grounding of the hypothetical M/V *Portsmith Trader*, an 800-ft. cargo ship at Elbow Reef off Key Largo. In the scenario, the grounding injures coral reef habitat and submerged cultural resources, and an oil spill threatens other resources. The drill involved multiple state and federal agencies conducting actual field operations and the initiation of an Incident Command System housed out of Monroe County's Emergency Operations Center in Marathon. In all, the drill was a great success for all participants.

Florida Reef Resilience Program (FRRP): The FRRP is an effort initiated through discussions between the State of Florida, The Nature Conservancy, NOAA, and the Great Barrier Reef Marine Park Authority (GBRMPA). In 2004, at the U.S. Coral Reef Task Force meeting, Florida, NOAA, and GBRMPA formalized their commitment to reef resilience through a Memorandum of Agreement (MOA). The FRRP is designed to improve our understanding of reef health in the region, and to identify factors that influence the long-term resilience of the Florida Keys and Southeast Florida marine ecosystem. Ultimately, the FRRP seeks to improve ecological conditions of Florida's reefs and economic sustainability by maximizing the benefits of naturally resilient reefs while seeking to improve the condition of those that are less resilient. Partial funding for this program comes from the State of Florida's Ocean Initiative; additional funding has been secured by The Nature Conservancy.

Maritime Heritage Resources Activities: In June 2005, a team consisting of staff from the State of Florida's Division of Historical Resources, NOAA's Maritime Heritage Program, and the FKNMS conducted a 10-day field investigation of a "mystery wreck" located off the middle Keys. This was the first joint field project conducted under the Programmatic Agreement between NOAA and the State of Florida in the FKNMS. A report detailing the ship's history, overall condition, and suggestions for future research is in production.

Connectivity Conference: "Connectivity: Science, People, and Policy in the Florida Keys National Marine Sanctuary" was held August 2004 in Key West, Florida. The conference brought together more that 150 experts on coral reef ecosystems, scientists, and local

stakeholders to discuss the state of the marine environment in the Keys. Topics ranged from shifting baselines, to land-based sources of pollution, tourism, climate change, and others.

New Interpretive Boat Ramp Signs: In partnership with the National Marine Sanctuary Foundation, 46 new interpretive boat ramp signs at public and private boat ramps were installed. The signs inform about the federally protected areas in the Keys, the natural resources, the different buoys, and what they can do to help. The beautiful signs have been well received.

Status of Action Plan Implementation

Actions plans are the means by which the Sanctuary identifies and organizes a wide variety of management tools. There are 10 action plans in the 1996 FKNMS Final Management Plan.

Waterway Marking: In response to groundings at Tavernier Key Wildlife Management Area, 10 zone buoys were added to the existing system. Recommendations and funding for this effort came through a partnership between the State of Florida's Ocean Initiative, NOAA's Damage Assessment Center, and the FKNMS.

Education and Outreach: Highlights in FY 04/05 include: in partnership with the National Marine Sanctuary Foundation for the design, fabrication and installation of 46 new interpretive signs at public and private boat ramps in Miami-Dade and Monroe Counties; a "Mapping an Ocean Sanctuary GIS Workshop" for teachers was held in June 2005 for 18 teachers. The workshop was made possible through a partnership with the Center for Image Processing in Education (CIPE) and funding from a 2003 Grosvenor Geography Education Grant from the National Geographic Society Education Foundation. The teachers were from throughout the state of Florida and as from as far away as Texas, Oregon and Maryland. The training utilized the four lessons from the "Exploring Data with GIS to Experience Sanctuaries" (EDGES) curriculum that were developed by CIPE with the National Marine Sanctuary Program supported by funding from a NMSP Education Catalyst mini-grant.

"Blue Star," a program to recognize dive and snorkel operators, who protect the Florida Keys coral reef ecosystem and encourage their customers to do the same, is near completion. An inter-disciplinary group of staff, nonprofit organizations, and industry representatives are developing criteria and structure for the program, such as logo stickers and on-board briefing boards. The program is scheduled to be launched in January 2006.

Sanctuary staff are working with NOAA Fisheries and the International Whale and Dolphin Conservation society to develop a similar program to "Blue Star" for charter operators who take their customers to view wild dolphins and promoters who book these tours. This is being done in conjunction with stakeholders, including the industry and nongovernmental organizations.

Enforcement: The Florida Fish and Wildlife Conservation Commission (FWC) Sanctuary Enforcement Team (SET) continues to rely heavily on "Interpretive Enforcement" which seeks voluntary compliance through education. Partnerships continue with other state and federal partners including DEP, NPS and NOAA Fisheries with an emphasis on cross-deputization. The number of SET law enforcement personnel assigned to the FKNMS has remained at seventeen. The Tortugas Ecological Reserve (TER) patrol is still in force, but was limited this year due to

lack of adequate sized vessel, hurricanes, and rough weather. The new 53 ft. high-speed offshore vessel is currently being built and will be ready in early 2006. Shrimping vessels continue to be the largest violator in the TER with several cases pending and settled to date.

Groundings: In FY 04/05 there were 409 reported vessel groundings within the FKNMS, a majority of which occurred in the upper Keys. This was a reduction from the 466 groundings of FY 03/04.

Mooring Buoys: Over 770 mooring buoys, boundary buoys, and marker buoys are maintained in the FKNMS, with the majority in state waters. During FY 04/05 mooring buoys were available for public use approximately 95% of the time. Due to an increase in visitor use, new buoys were added to the Spiegel Grove artificial wreck and at Looe Key fishing area.

Regulation: In FY 04/05, a total of 60 (down from 87 in FY04/05) no-cost, no-paperwork permits were issued for non-consumptive use of the Tortugas North section of the DTER. Over 207 permits have been issued for bait fishing in FKNMS Sanctuary Preservation Areas (SPA). A pilot project to allow bait fishing by hair-hook (a highly selective gear type) in three Upper Region SPAs was initiated with a total of 99 permits being issued from Oct. 2004 – April 2005.

Sanctuary permits were issued for research, education, entrance by large ships into the Area To Be Avoided, and other projects to allow environmentally compatible uses of Sanctuary resources as follows: 71 research permits and permit amendments, 3 educational permits, four ATBA permits, 1 artificial reef permit and 1 special use permit for filming of a PBS documentary.

The FKNMS is continuing to consult with various regulatory bodies (ACOE, DEP, NOAA Fisheries, etc.) on all coastal construction projects that have the potential to impact resources. The U.S. Navy's dredging of the Key West main ship channel to date is approximately 81% complete.

Research, Monitoring, and Water Quality: There are two major monitoring programs in the FKNMS: comprehensive, long-term monitoring conducted through the Water Quality Protection Program (WQPP); and, the Marine Zone Monitoring Program. Coral reef monitoring in 2003 - 2004 showed a significant decrease in stony coral cover from 7.2% to 6.8%. The reason for the drop is not clear, but is probably due to multiple stressors, such as degraded water quality, coral diseases, physical impacts, and over-fishing. Overall seagrass abundance in the Keys remains relatively stable. In general, water quality is good Sanctuary-wide. Elevated nutrients continue to be prevalent in nearshore water and 'back country' areas. Sources for these nutrients are thought to be land based, influence from the southwestern Florida Shelf, and some natural influences. Results of the Marine Zone Monitoring Program continue to indicate that some heavily exploited species have greater abundance and size in fully protected marine zones than those in other areas.

Submerged Cultural Resources (Maritime Heritage Resources): Accomplishments for FY 04/05 include issuance of 7 new Survey/Inventory Permits, and 1 new Research/Recovery Permit. Presently there are 10 active Survey/Inventory Permits and 3 active Research/Recovery Permits. A joint State of Florida / NOAA archaeological survey was conducted in June 2005 to document and detail the history of a "mystery wreck" off Marathon, Florida. An 18th century cast-iron cannon recovered in the FKNMS is undergoing conservation and will be displayed in

Key Largo with financial support being provided by a local resident, Mr. Denis Trelewicz. Mini-grants provided by NOAA's Maritime Heritage Program supported surveys and/or remote sensing surveys of three wrecks: the ALLIGATOR, GUERRO, and HMS HIMBLE. FKNMS staff and volunteers supported these efforts and others. The Submerged Resource Inventory (SRI) team, consisting of sanctuary volunteers, spent 606 hours in survey and inventory of submerged cultural resources within the sanctuary.

Volunteer: FKNMS volunteers supported over a dozen projects including research, stewardship, restoration, and environmental education. Volunteers dedicated to resource protection in the Florida Keys contributed 6,343.45 hours during calendar year 2004, at an estimated value of $111,327. FKNMS Sanctuary Advisory Council member Scott Fowler received one of six nationwide *NOAA Environmental Hero* awards and George Neugent was the FKNMS nominee for the National Marine Sanctuary Foundation *Volunteer of the Year* award. The FKNMS appointed a volunteer coordinator to facilitate the day-to-day management of the volunteer program.

Damage Assessment and Restoration: Over 409 vessel groundings were reported in FY 04/05, 114 resulting in either a seagrass or coral enforcement action requiring some form of injury assessment. FKNMS staff, contractors, and volunteers conducted restoration at 10 coral injury locations and 8 seagrass injury sites. FY 04/05 was highlighted by the implementation of the coral reef restoration monitoring program, and a translocation of over 3,500 coral colonies and fragments threatened by the U.S. Navy's dredging project.

Zoning: The marine zoning plan implemented in the sanctuary provides a common sense approach to protect sensitive resources while restricting commercial and recreational uses to the minimum extent necessary to protect the ecosystem. The results to date have shown that some heavily exploited, mobile species of fish have increased in population density and body size without any indication of adverse socio-economic impact.

Administration: The revised draft management plan has undergone review by NOAA headquarters, DEP, and a two month public comment period from February – April 2005. The Revised Management Plan is targeted from final release in the fall of 2005.

The Dr. Nancy Foster Environmental Complex, comprising a world class visitor center, a maintenance facility, and offices for the FKNMS Headquarters and Lower Region is slated to open 2006. At this time, the construction of the 3 buildings that comprise the complex is well underway, on schedule, and within budget. The National Marine Sanctuary Foundation has raised a substantial portion of the funds necessary for the development and installation of the exhibits for the Florida Keys Eco-Discovery Center (aka the visitor center) at the Dr. Nancy Foster Environmental Complex. The National Marine Sanctuary Foundation has recently signed a contract for the production of a 20+ minute film to be produced highlighting the wonders of the Florida Keys. The Foundation anticipates being able to contract for the balance of the exhibitry in the next few months.

In FY 04/05, 6 SAC meetings were held in the Florida Keys covering a range of topics including waterfront access, climate change, regulating the take of invertebrates and elasmobranches, harmful algal blooms, impacts of hurricanes on artificial reefs, and nuisance watercraft in the back country. The SAC also participated in four working groups: Working Waterfront Access,

Biscayne National Park Fisheries Management Plan, Protecting Corals, Saving Ships, and Spearfishing Tournaments. Members of the SAC also participated in the "Connectivity" conference, Capitol Hills Oceans Week, the Sanctuary's Volunteer Recognition Reception, and attended a mixer hosted by the National Marine Sanctuary Foundation on the occasion of the "Safe Sanctuary 2005" drill.

Annual Status Report for the Florida Keys National Marine Sanctuary Review of Action Plans 2004-2005

Actions plans are the means by which the Sanctuary identifies and organizes a wide variety of management tools. They are the "road maps" for management and articulate the program's and projects used to fulfill the purposes and policies of the National Marine Sanctuary Act. There are 10 action plans in the 1996 FKNMS Final Management Plan. The Final Revised Management Plan, to be released in Fall 2005 will contain four additional plans: Science Management and Administration, Damage Assessment and Restoration, Operations, and Evaluation.

Channel / Reef Marking

Ongoing management of waterways in the FKNMS requires continuing a strong interagency effort to provide safe access to all multi-use areas of the Sanctuary while maintaining a waterway marking strategy that provides natural resource protection. Ongoing coordination between FKNMS, Monroe County Division of Marine Resources (DMR), the United States Coast Guard (USCG), the United States Fish and Wildlife Service (USFWS), and DEP has provided continual improvement in the strategies and outcomes of this action plan.

In FY04/05, the FKNMS worked mostly with the DMR, sitting as a representative on their Marine and Port Advisory Committee (MPAC). No new lateral aids were installed this past year. The FKNMS will continue reviewing marker needs to ensure natural resource protection. The focus of the MPAC has been on developing a Marine Management Plan to look at changes in working waterfronts and public access to the waterways. The survey is being completed by Florida Atlantic University Center for Urban and Environmental Solutions and the South Florida Regional Planning Council. Recommendations will be brought forth to the county commission in early 2006.

Ongoing coordination with the USCG to remove damaged markers and debris continues, but field activities were delayed in 04/05. Theses activities have been rescheduled for the summer of 2005, and the FKNMS plans to work with the USCG to protect the natural resources while supporting their mission of safe navigation on the waterways.

Education and Outreach

In partnership with the National Marine Sanctuary Foundation the design, fabrication and installation of 46 new interpretive signs at public and private boat ramps in Miami-Dade and Monroe Counties was completed. The signs provide information about the federally protected areas in the Keys (National Parks, Refuges and Sanctuary), the natural resources, the different buoys, and what can do to help.

A "Mapping an Ocean Sanctuary GIS Workshop" for teachers was held in June 2005 for 18 teachers. The workshop was made possible through a partnership with the Center for Image Processing in Education (CIPE) and funding from a 2003 Grosvenor Geography Education Grant

from the National Geographic Society Education Foundation. The teachers were from throughout the state of Florida and as from as far away as Texas, Oregon and Maryland. The training utilized the four lessons from the "Exploring Data with GIS to Experience Sanctuaries" (EDGES) curriculum that were developed by CIPE with the National Marine Sanctuary Program and supported by funding from a NMSP Education Catalyst mini-grant.

The FKNMS web site (http://floridakeys.noaa.gov) is continually updated with timely information, publications, press releases, regulations, information on research and monitoring efforts within the sanctuary, and up-to-the-minute weather information. Through the website, members of the public are able to receive vast amounts of printed and graphic information, contact sanctuary staff with questions and information requests, and receive responses to their inquiries.

NOAA's Office of Ocean Exploration and the Girl Scouts of the USA sponsored a Florida Keys field experience for six teenage Girl Scouts who learned about the sanctuary, natural and cultural resources of the Florida Keys, and ocean exploration. Each scout is required to share with other scouts in their hometown what they learned during their experience. Due to Hurricane Charlie the trip was shortened and the participants returned home early. FKNMS staff did provide classroom presentations prior to the trip being cancelled.

The Seagrass Outreach Partnership (SOP) continued its education and awareness efforts to address boating impacts on seagrass in the Florida Keys and throughout the State of Florida. In addition to a media campaign during Seagrass Awareness Month in March, the partners developed a display for use at local festivals and events. Proclamations of "Seagrass Awareness Month" were secured from Monroe County, Key Colony Beach, Islamorada - Village of Islands, Key West, and the State of Florida - Governor Jeb Bush.

Team OCEAN volunteers donated their time to promote safe and enjoyable public use of the marine environment of the FKNMS and to advocate protection of its natural resources. Trained volunteer teams using sanctuary owned vessels were stationed at heavily visited reef sites during peak recreational boating seasons. They educated and informed the public about the FKNMS, encouraged proper use of sanctuary resources and practiced basic safety precautions. Many groundings occur because boaters are unfamiliar with the need to navigate around reefs instead of approaching mooring buoys by motoring directly across the reef. 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.

Team OCEAN staff distributed over 130,000 pieces of sanctuary outreach materials including charts and brochures along with over 3,000 FWC fishing regulations brochures and serve as liaison between the FKNMS and the business community at over 430 locations in South Miami-Dade and Monroe Counties.

Volunteer Hours	Vessel Groundings Directly Prevented	Contacts Made On the Water	Information Packets Distributed On The Water	Pieces Of Trash Collected On The Water And Onshore	Bags Of Trash Collected During Shoreline Cleanups
945	10	1838	615	1478	48

Enhancement of existing school programs continued to be a high priority. In FY 04/05 the FKNMS provided classroom and on-water environmental education through a two-day program called Coral Reef Classroom. Monroe County students in grades 7-9 learned about the interrelated coral reef ecosystem, how to use basic water sampling equipment, and why good water quality is essential to a healthy coral reef. Over 4,800 middle school students have participated in the program since 1991. Coral Reef Classroom ’04 – ’05 faced a year of unprecedented bad weather. Our four trips planned for the fall of ’04 were blown out by the four hurricanes that hit Florida. Two boat trips were cancelled at the last minute, once for lightning and once for boat engine breakdown. In addition, another trip was scuttled just as we arrived at the reef due to a Coast Guard warning of a sudden storm. This year, 337 students and 9 teachers experienced the complete program, which was made possible by trained community volunteers and chaperones.

Coral Reef Classroom													
Year	**‘91**	**‘92**	**‘95**	**‘96**	**‘97**	**‘98**	**‘99**	**‘00**	**‘01**	**‘02**	**‘03**	**‘04**	**‘05**
Trips	12	8	16	21	16	18	15	15	14	15	15	18	14
Students	419	201	345	429	384	438	378	357	363	398	361	463	337
Volunteers			12	13	16	17	14	8	5	6	2	3	3
Teachers			11	14	11	21	15	14	22	16	12	15	9
Chaperones			11	24	31	32	16	22	37	34	32	48	32
Other Volunteers				6	8	4	5	13	13	12	11	8	10

Every year, the FKNMS works to enhance the resources of local teachers by providing them with award opportunities and teacher workshops. In FY 04/05 the FKNMS awarded $5,845 to Monroe County teachers for nine different environmental education projects focusing on coral reefs, geology, historical perspectives of the Florida Keys, environmental ethics, public service announcements, endangered species, and more.

FKNMS and partners Florida Park Service, the Turtle Hospital, Save-A-Turtle, Fish and Wildlife Research Institute, Florida Aquatic Preserves, and the National Marine Sanctuary Foundation hosted teacher workshops for 24 teachers in the fall and spring.

Teacher Workshop	**Partners**
FKNMS Seminar for Teachers (Fall)	Florida Park Service, the Turtle Hospital, Save-A-Turtle, National Marine Sanctuary Foundation
FKNMS Seminar for Teachers (Spring)	Fish and Wildlife Research Institute, Florida Aquatic Preserves, National Marine Sanctuary Foundation, Florida Park Service

FKNMS sponsored the Current Issues station at the South Florida Regional High School Envirothon held in Everglades National Park. Twenty-four teams of students from Miami-Dade and Monroe Counties participated in the annual event. This year’s subject was Managing Cultural Landscapes.

The Monroe County Middle School Envirothon and was held at Crane Point Hammock in Marathon and sponsored by FKNMS and the Monroe County Environmental Education

Advisory Council (MCEEAC). Eight teams competed in this hands-on educational field event that tests students' knowledge about the Florida Keys environment. Emphasis is placed on teamwork and research initiative.

Education staff and other Florida Keys NMS staff presented lectures, hands-on activities, slide shows, and served as interpreters on field trips in support of environmental education opportunities for adults to learn more about the Keys' natural and cultural resources.

Sanctuary staff represented FKNMS and DEP at festivals and trade shows to provide information about sanctuary resources. Festivals and events in FY 04/05 included DEMA, Miami International Boat Show, Earth Day at Bahia Honda State Park, Dania Flea Market in Broward County, Upper Keys Nautical Flea Market, Marathon Seafood Festival, Key West Nautical Flea Market and Boat Show, and Oceans Day in Tallahassee.

Staff attended professional development classes, training, and conferences to expand their knowledge and skill. They have also contributed to and made presentations at local and regional training and conferences.

The Florida Keys Birding and Wildlife Festival was held in October 2004 in Marathon. The event featured an environmental fair at the Museum at Crane Point Hammock and a series of educational programs and field trips about the unique Florida Keys wildlife and environment. Festival membership includes US Fish & Wildlife Service, FKNMS, The Nature Conservancy, National Audubon, Florida Audubon, Florida Keys Raptor Migration Project/Hawk Watch International, and MCEEAC.

Education and outreach products were updated and reproduced to provide information to the public about the sanctuary, its resources and the regulations.

Quantity Printed	**Name of Product**
70,000	2004 Monroe County Lobster Brochure
60,000	Teall's Upper Keys
60,000	Teall's Lower Keys
20,000	Seagrass Placard
180,000	Lower Region Site Brochure
5,000	*Sounding Line* newsletter

The Sanctuary is close to completion in developing its Blue Star program to recognize dive and snorkel operators who protect the Florida Keys coral reef ecosystem and encourage their customers to do the same. The group of staff, nonprofit organizations and industry representatives developing the program are working to reach final agreement on a criteria and structure for the program. Design of materials for the program, such as logo stickers and on board briefing cards is underway. The Sanctuary is planning for a January 2006 launch of the program.

Sanctuary staff are working with NOAA Fisheries and the International Whale and Dolphin Conservation Society to develop a program similar to Blue Star for charter operators that take their customers to view wild dolphins and promoters that book these tours. The program seeks to encourage responsible viewing of wild dolphins to reduce stress on local populations, and

discourage illegal activities, such as swimming with dolphins and chasing them. The Key West area has a large number of dolphin watch operators, who primarily focus their attention on a single group of animals residing in the Gulf waters off Key West. As with the Blue Star program, this program is being developed in conjunction with stakeholders, including the industry and concerned nongovernmental organizations.

Eight new Waterways episodes were produced this year, and several more are in the final stages of production. Five new public access channels began airing the show free of charge, including one out of state channel (in New York City). By beginning to distribute the show to some of these channels on DVDs, the production team has been able to expand distribution while keeping tape costs down. The South Florida National Parks Trust has begun funding the show on behalf of the National Park Service, and the production team is changing the opening and closing credits to reflect that. The show won an award in a national competition for educational products supported by the National Park Service. The production team selected a new narrator for the show this year.

Enforcement

The Florida Fish and Wildlife Conservation Commission (FWC) Sanctuary Enforcement Team (SET) continues to rely heavily on "Interpretive Enforcement" which seeks voluntary compliance primarily through education.

Cross-deputization continues to increase in all areas of law enforcement. Partnerships between other state and federal partners including the Florida Department of Environmental Protection (DEP), the National Park Service (NPS), the National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFW) are ongoing and expanding. Sanctuary officers provided training for approximately 40 NPS rangers at their annual in-service training on the correct documentation and filing of civil violations for seagrass groundings and habitat destruction. The Dry Tortugas rangers have been provided with fish identification techniques and recognition of both state and federal violations.

Dry Tortugas enforcement continues to be a high priority and has been challenging since the busy 2004 hurricane season. Officer deployment to each of the four hurricanes, the lack of an adequately sized vessel, and rough weather conditions contributed to a slow down in enforcement in this area. Despite these setbacks, the offshore crew did a tremendous job when they were able to patrol the area. The majority of cases made were shrimping vessels trawling in the Tortugas Ecological Reserve (TER), North. One case of note was a violator who cut his shrimp nets when approached, thereby requiring the officers to SCUBA dive in 120 ft. of water to locate and remove the nets for evidence.

While in the Tortugas, the National Park rangers have been very accommodating, providing sleeping quarters for our crew while on patrol there. The rangers also provide needed and welcomed back-up when called upon. We often encounter U.S. Coast Guard Cutters when underway and exchange information. There were two instances where officers encountered large numbers of Cuban migrants while on patrol at Loggerhead Key in the Dry Tortugas. The Sanctuary Enforcement Team notified Coast Guard and the National Park Service then continued to monitor the migrants, providing food and water until the Coast Guard arrived.

The shrimpers are the largest group of violators in the reserves. These cases tend to peak in the winter months when the number of shrimp vessels increase. Local commercial snapper/grouper fishermen seem to be more aware and compliant of TER regulations. Recreational users are also more compliant detailed by only one case of fishing in TER, north. Tortugas Ecological Reserve, south usually does not get much activity other than May and June during the annual mutton spawn when the area known as "Riley's Hump" is closed.

The FWC vessel "Orion" has been of great assistance this year due to lack of a Sanctuary offshore vessel while the new *All American Marine* patrol vessel is under construction in Bellingham, WA. The vessel is 53 ft. by 21 ft. high speed hydrofoil assisted catamaran with twin diesel jet drives. It will accommodate four crew members on three to four day patrols in the Dry Tortugas. It is scheduled for delivery to the FWC SET in early 2006.

While not patrolling the TER, the offshore crew assisted the near shore teams in enforcing the Sanctuary Preservation Areas (SPAs) and patrolled the areas between the Dry Tortugas and Keys West. Violations were made involving permit violations, seizures of illegal catch, and cases of commercial and recreational lobstering on illegal habitat. The habitat enforcement in the 2005 season will not only continue, but will be stepped up to include FWC officers statewide, as well as other local and federal agencies.

The implementation of a Sanctuary Investigators position has removed the burden of Sanctuary Officers regarding investigations, thus keeping these officers patrolling sanctuary waters. In his first year, our Investigator has worked critical cases with excellent results. One case was the report of a cruise ship grounding that took place in Key West Harbor. The investigation spanned seven straight days to determine if the ship went aground and caused any damage. Ultimately, it was determined that the ship had not and there was no violation. The Investigator has handled several complaints on information obtained from the Ebay auction website. One case involved the auction of a "Treasure Diving Trip" to the Florida Keys. The Investigator determined that the seller did not have required permits and was sent a written notice. Another incident involved alleged "coral" from the Florida Keys was being sold; the investigation determined that it was actually limestone rock and not coral. The Investigator recently worked with a NOAA Special Agent on a case where over 800 lbs. of illegal fish came in from Bahamian Waters. This case resulted in Felony Lacey Act charges being filed. He continues to work illegal lobster habitats that are plaguing the waters of the National Marine Sanctuary. The investigator routinely works with NOAA General Counsel locating violators and serving delinquent fines. The investigator also patrols Sanctuary waters and responds to groundings. In addition to his investigative duties, he recently sat on the spear fishing workshop and the Near-Shore Quality Water Committee representing the FKNMS. He continues to complete training in critical areas, such as Archeological and Historical Resource Enforcement. The investigator's area of response encompasses all of the FKNMS. SET believes it would greatly benefit the program to have an additional investigator's position to assist in handling an increased work load of enforcement.

HURRICANE RESPONSE 2004 - A significant amount of man hours were spent by the SET for hurricane response during the 2004 hurricane (Charley, Frances, Ivan and Jeanne) disasters. SET and FWC Officers from Monroe county attributed 1662 hours of disaster response under the declared state of emergencies by President George Bush and Governor Jeb Bush.

Hurricane Charley	315 hours
Hurricane Frances	144 hours
Hurricane Ivan	712 hours
Hurricane Jeanne	491 hours

The duties associated with disaster response included: manning the Emergency Operations Centers in affected areas, management of deployment teams and equipment, clearing debris, assisting FEMA Search and Rescue Teams with geographical identification, use of All Terrain Vehicles, distribution of food and water, prevention of crime and looting, assisting USCG in assuring safe and navigable waters and detecting fuel spills upon Florida's waterways. SET and FWC officers have the most extensive knowledge and training in Maritime Salvage Rights and were able to assist persons whose vessels were wrongfully seized by savage companies.

SAFE SANCTUARIES 2005 - In March, 36 hours of Incident Command Systems training and a March tabletop exercise simulating a mock oil spill and major grounding set the stage for NOAA capabilities to be played out during the April field operations exercise. The SET provided critical vessel and aircraft support during the exercise near Elbow Reef in the FKNMS. The scenario was that of an 800-foot cargo vessel carrying 200,000 gallons of fuel grounding in the Sanctuary with hazardous cargo onboard. The first responders to the scene during the mock assessment were SET and USCG.

HAZWOPER TRAINING 2005 – As a result of our Safe Sanctuaries exercise all officers, Lieutenants/Captain, including our FWC pilot will have completed 24 hours of this training.

Year	97	98	99	00	01	02	03	04
Groundings	507	549	581	660	605	647	466	409
Coral Enforcement Actions	16	21	21	22	6	24	8	15
Sea Grass Enforcement Actions	18	32	108	159	122	115	78	97
Federal Citations for FKNMS Violations	69	129	168	213	280	407	319	412
Warnings	625	401	298	2625	+2000	1284	1308	2154
Other State and Federal Violations						495	395	293

In 2004/2005, there were 409 vessel groundings within the sanctuary, these groundings continue to be a high priority issue for the SET. The Upper Keys had 253 groundings and the Lower Keys 156. The overall number of groundings, have decreased, however, 62% of groundings still remain in the upper keys, while 38% are in the lower.

The other law enforcement actions regarding these groundings include:

51 were turned over to the state DEP Park Patrol Law Enforcement Officers.
12 were turned over to the Everglades National Park Rangers.
35 of the 2154 written warnings for groundings were issued.

Of the SET enforcement actions this 2004/2005 state fiscal year, water patrol hours totaled 10,378 hours resulting in the inspection of 8021 vessels. The officers responded to 5787 complaints and 1887 hours of disaster related incidents and 3014 hours of sanctuary resource overtime. Officers issued 524 resource violations for fisheries violations, including 96 spear fishing, 14 spear fishing in a SPA, 187 fishing is SPA, 7 taking lobster from a SPA, and 4 ATBA violations. 250 Uniform Boating Citations were issued. Cases in the Tortugas Ecological Reserve resulted in; 8 commercial shrimping, 3 recreational fishing, 3 federal fisheries and 2 state fisheries.

FWC pilot has flown a total of 102 hours assisting SET with vessel grounding locations, the photography of groundings and/or habitat damage and GPS verifications and coordinates. He has also been a valuable resource in detecting violations within the sanctuary from the Tortugas to the North East Patch.

The CORAL Settlements that were received within this period were from the: Paradiso $325,000, Moderation, $27,500, Miss Betty III, (E307) $8,700 and the Diego, $565,000 (but will be received over time through an annuity). To date, a total of $127,258 has been collected within this period for Sanctuary Settlement Summary or case closures. Approximately, 203 cases are awaiting settlement and payment, including the 4 ATBA violations, which carries a minimum of $10,000 for each violation.

The statistical information provided within this report is true and accurate. It has been taken from three credible sources: 1) FWC CAD dispatch can calculate the number of arrests per officer; 2) ACTIVITYNET, which is also maintained by FWC was also used to accumulate the data provided within this report and; 3) Katherine Frazier has provided the summary settlement information and federal citations for these numbers.

Mooring Buoys

The Mooring Buoy program is an ongoing commitment that utilizes an embedment anchoring system that serves a multitude of functions. The primary focus of the program is the prevention of damage to popular reefs by providing an alternative to anchoring, and providing additional sites for diving and fishing away from the popular reefs. In addition to mooring buoys, the program maintains a system of zone-delineating buoys using the same fixed embedment anchor technology. The zones are Sanctuary Preservation Area (SPA) buoys, Wild Life Management Area (WMA) buoys, Ecological Reserve (ER) buoys, Research Only buoys, Information or Danger-Warning buoys and Existing Management Area buoys. The FKNMS mooring buoy maintenance team maintains 482 mooring buoys, 122 SPA, ER, and Research Only buoys, 145 Wildlife Management Area Buoys (all in state waters), 18 information buoys, and 4 Existing Management Area Buoys for a total of *771* buoys throughout the FKNMS. Throughout this past year, monthly averages of 95 % of the buoys have been on-line and available for public use or serving to mark delineate the zones. This figure of 771 buoys established with embedment technology and maintained within a Marine Protected Area probably exceeds that of any other Marine Protected Area in the world.

In response to groundings at Tavernier Key WMA zone, the Key Largo mooring buoy team installed 10 additional zone buoys to the existing system in the area that was experiencing the most groundings. Recommendations and funding support for these buoy additions in State waters came through the seagrass response and restoration team and from the State of Florida's Oceans

Initiative. Ten more buoys are also planned for this zone based on the greatest need to help prevent boat groundings.

The Spiegel Grove Artificial Reef continues to be a very popular dive site, with survey data now analyzed and available that shows that in addition to heavy visitation on the Spiegel Grove, there is an accompanying reduction in the use of the nearby popular natural reefs in both the private and commercial dive operations. Buoys have been shifted and added on the Spiegel Grove to help accommodate additional boats.

In response to a request from the Key Largo office of the University of North Carolina National Undersea Research Center, the Upper Region team installed 4 manta ray anchors seaward of the Aquarius Underwater Habitat to secure an air cascade system so that saturated aquanaut divers can refill their dive tanks during excursion missions from the habitat. The mooring buoy team continues to support the NURC mission through the installation of embedment anchor systems from time to time as requested.

To help support the FKNMS Maritime Heritage Program, the mooring team installed a manta ray anchored mooring buoy at a historic shipwreck site off Marathon that is being surveyed by a team consisting of personnel from the FKNMS, State of Florida Bureau of Archaeological Research, and the National Marine Sanctuary Maritime Heritage Program. The buoy was used to hold two vessels on the site during the 10-day survey and will serve as future reference point for the site.

During this past year, two buoy maintenance support vessels were re-powered to continue supporting the mission. The smaller inshore Boston Whaler on loan from the lower region was re-powered and served as both the inshore and main buoy maintenance vessel while the larger 39 ft. main vessel was re-powered and retro fitted. There was some buoy maintenance down time during these re-powering events along with down time during the nearby passage of 4 major hurricanes, The main vessel is now fully operational (new engine driven hydraulic power unit to be added) and with the new more powerful diesel engine is capable of almost double the speed of the old worn out engine thereby expanding the daily range of buoy maintenance. There are plans in place to re-power the UR inshore vessel T craft soon to conduct maintenance on the shallow water buoys.

The Key Largo mooring buoy team has designed and will be using a removable experimental buoy with a global positioning system (GPS) antenna that can be attached to the anchor point during buoy cleaning with zero scope, to upgrade and improve the accuracy of the mooring buoy geographic information system (GIS) data base. The mooring buoy team in Key Largo is also currently setting up a system that will allow for communications from the diver to the vessel, for use during routine bottom line and embedment anchor inspections while the boat is attached to the buoy for pick up line and buoy inspection and cleaning.

The program to replace all single pin mooring sites with heavier duty U-bolts continues in the Key West region. To date 150 single pins have been replaced with stainless steel U-bolts. Spring of 2006 is the target date to complete the overhaul. The Key West mooring buoy team has also completed the change out of 7/8” mooring line with 1 ¼” line. We are already seeing the positive effect of this mooring line upgrade. The report of cut offs by vessels has diminished substantially in the past year.

New larger and more visible buoys have been installed at the corners of the Looe Key Existing Management boundaries. This will enhance FKNMS's ability to manage this area. Large vessel buoys have also been installed at Sombrero Reef for use by vessel's 65 ft. or greater.

There presently exist 36 mooring sites in the North Tortugas Ecological Reserve. Out of the 36 sites, 12 will have 24" mooring balls and the additional 24 sites will have available subsurface buoys. The twelve mooring balls will be rotated to other sites periodically throughout the year. All mooring systems are inspected and cleaned on a biannual schedule.

In order to maintain the requirements of the mooring buoy action plan, the Lower Region mooring buoy team plans to begin the Tortugas Ecological Reserve mooring buoy monitoring program, summer of 06. The Florida Fish and Wildlife Research Institute out of St.Petersburg will conduct this monitoring.

Regulatory

The Dry Tortugas Ecological Reserve has been fully implemented for over two years. Regulations for this area include prohibited entry (unless in continuous transit with fishing gear stowed) in Tortugas South and non-consumptive use only in Tortugas North. During FY 04/05, a total of 60 no-cost, paperless access permits were issued for entrance to Tortugas North.

Baitfish permits, which allow the harvest of specific baitfish species from the Sanctuary Preservation Areas (SPA) using a cast or lampara net, are issued in the FKNMS each calendar year and are renewed annually upon submission of a catch log. In calendar year 2005, 207 baitfish permits have been issued to date. At the request of a local fishermen's organization and with input from a community working group and the Sanctuary Advisory Council, a pilot project to allow bait fishing by hair-hook (a highly selective gear type) in three Upper Region SPAs was begun. From the permit period of October 15, 2004 to April 15, 2005, 99 permits were issued for baitfishing by hair-hook.

General Sanctuary permits are issued to support several management goals including research, education, and facilitating multiple sanctuary uses. In FY 04/05, 71 permits and amendments were issued to support research and monitoring on sanctuary resources and qualities. These are further described in the Research, Monitoring, and Water Quality section of this report. Three educational permits were issued, mainly to support field courses of universities. Four permits were issued for large research vessels to enter the Area to Be Avoided (ATBA) that surrounds the Florida Keys and Dry Tortugas. One permit was issued for the sinking of an artificial reef, the U.S.S. Hoyt S. Vandenberg. The FKNMS authorized two permits, one issued by the Florida Department of Environmental Protection, and one by the Florida Department of Transportation, for activities oversee by those agencies. One special use permit was issued to a move production company for the filming of a PBS documentary.

Following the formation of a Personal Watercraft Working Group in February 2000 out of growing concerns regarding the operation of personal watercraft in Sanctuary waters, FKNMS began a process to establish a permit structure and to assist homeowners in obtaining regulatory shoreline markers addressing the 100 yard Idle Speed/No Wake regulation. The process was

further improved with the issuance of an Army Corps of Engineers Nationwide Permit that expedited the approval of the regulatory markers under the FKNMS regulation 922.163.

In FY 04/05, two individuals contacted the FKNMS to inquire about the process of obtaining regulatory shoreline markers addressing the 100-yard Idle Speed/No Wake regulation. Neither homeowner pursued the process to obtain necessary permits for marker installation. No new markers were installed in FY 2004.

In FY 2004 the Village of Islamorada enacted ORDINANCE NO. 03-10 delineating a 100-yard radius from both residential and non-improved shorelines within of the Village as Idle Speed/No Wake. The Village of Islamorada is 18 miles long with 36 miles of shoreline. The project proposed to intall 135 markers on both the Atlantic and Gulf sides. To date Monroe County Marine Resources assisted the incorporated Village of Islamorada with the installation of 125 of 135 markers.

U.S. Navy Dredging Project: In 2003, the U.S. Navy and U.S. Army Corps of Engineers commenced efforts to facilitate the installation of a Homeland Security battleship training group in Key West. Dredging of the Key West main ship channel and Truman Harbor, and associated construction projects continue throughout 2005.

Maintenance dredging of the Key West Main Ship Channel and the Key West/Truman Harbors is approximately 81% complete with a projected completion target of late summer 2005. Preventative measures to protect FKNMS resources include environmental awareness training for dredge contractor's personnel (superintendents, dredge & tug captains, crew, quality control officers), an extensive resource health and sedimentation monitoring program, diver inspection drift dives, periodic agency partnering meetings, over 30 permit special conditions incorporated into the ACOE permit, and corrective actions imposed as lessons learned from resource impacts and Sanctuary violations. Over 900 square meters of injury to coral-dominated, hard bottom communities (14 impact sites) were caused by the hopper dredge *EAGLE I* in April 2004, however, resource violations and impacts have dropped off significantly with the use of the spud barge/backhoe dredge *MARICAVOR* with only 3 minor edge of channel injuries reported to date.

FKNMS staff have partnered with Dept. of Army Corps of Engineers, NOAA Fisheries Habitat Conservation Division and EPA Water Quality Protection staff to provide consultation on multiple near shore development projects within the FKNMS, including condominium developments with large marinas, private community maintenance dredge proposals, large seawall and dock installations, live rock aquaculture lease sites and proposed artificial reefs. FKNMS staff has also extended their management tool box by providing expertise and support for the U.S. Coral Reef Task Force Local Area Strategy working group in their efforts to address coastal development and construction impacts on coral reef systems off Dade, Broward, Palm Beach and Martin counties along South Florida.

Science Management and Administration

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 do not comply with Sanctuary regulations, often in the form of temporarily placing sampling apparatus on the sea floor, and require permits to proceed.

The Sanctuary issued over 66 permits and 5 permit amendments to support research in the Florida Keys from July 2004 through June 2005. Permit holders were largely university researchers, but also included government agencies, students, and private industry. Newly permitted projects and ongoing research focus on areas ranging from coral reef studies (disease and bleaching, community structure, reproductive success, and others), coral propagation and reef restoration, fisheries and invertebrate studies, marine mammal studies, seagrass monitoring, marine protected area design and effects of no-take management, nutrient dynamics, oceanography, and many others.

The Sanctuary organized and hosted a very successful conference, "Connectivity: Science, People and Policy in the Florida Keys National Marine Sanctuary," August 19th through 21st, 2004. The conference brought experts on coral reef ecosystems from other parts of the world together with scientists involved in research and monitoring in South Florida and local stakeholders to discuss the state of the marine environment in the Keys, how it compares to others worldwide, and possible management steps to halt decline. More than 150 people participated. Press coverage included local newspapers, the Washington Post, Florida Scuba News, and radio stations. Staff will prepare a proceedings volume of contributions, which covered a range of topics: shifting baselines, land-based sources of pollution, tourism, fishing, diseases, climate change, the Comprehensive Everglades Restoration Plan, blackwater events, and management tools.

The Technical Advisory Committee (TAC) was convened in May 2005. Up-to-date summaries of the three long-term monitoring projects of the Water Quality Protection Program (corals/hard bottom, seagrass, and water quality) were presented. Also presented was an historical overview of the research program and summaries of several ongoing research projects. Following the presentations, the TAC discussed the effectiveness and completeness of the existing programs and future directions, in response to a request from the Steering Committee.

FWRI staff prepared a web site for the Water Quality Protection Program (http://ocean.floridamarine.org/fknms_wqpp/index.html) that provides "one-stop" access to background information on the Program and the Sanctuary, and data and reports generated since 1995 by the three long-term monitoring projects. In addition, the web site provides access to associated GIS projects.

Research and Monitoring

Congress mandates 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 physical and 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 Sanctuary's Water Quality Protection Program 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 that were implemented in 1997 (23 zones) and 2001 (the Tortugas Ecological Reserve). 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 Sanctuary managers with basic information about the state of the Florida Keys coral reef ecosystem and changes resulting from a key management action – marine zoning.

Water quality has been monitored quarterly at approximately 150 stations since 1995. In general, water quality is good Sanctuary-wide. Compared to last year, there were statistically significant decreases in dissolved inorganic nitrogen, total organic nitrogen (except for increases in the Tortugas), total phosphorus, total organic carbon, and dissolved oxygen throughout the region. However, there are several significant trends that continue to be observed. Compared to reef and Hawk Channel stations, there is documentation of elevated dissolved inorganic nitrogen in nearshore waters that has been evident since 1995. That gradient is not observed in a comparison transect at the Tortugas and implies an inshore source in the Keys that is diluted by low nutrient Atlantic Ocean waters. A similar gradient in total organic carbon and decrease in variability in salinity from land to the reef support that conclusion. The Gulf side of the Keys (back country) consistently has elevated levels of dissolved inorganic nitrogen, total organic carbon, turbidity, total phosphorus, and chlorophyll *a* compared to other stations. Most of those differences are thought to be the result of waters from the Southwestern Florida Shelf moving through that area. In addition to the Shelf influence, elevated nitrate nitrogen is a regular feature of backcountry waters, where some of the highest concentrations are observed in non-populated areas. This is probably the result of the benthic flux of nutrients in this very shallow water column.

Coral reefs declined in health on a global scale between 1996 and 1999 due to global coral bleaching events in 1997 and 1998. Recent media attention about this worldwide decline of corals has heightened awareness and concern for coral condition in the Sanctuary. The U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) funded a coral reef monitoring program that the Fish and Wildlife Research Institute and university partners implemented in 1995. There was a 38% decline in overall coral cover in the Sanctuary from 1996 (12%) through 1999 (7.4%), most probably due to lack of recovery during the bleaching events. The 38% level of decline in the Florida Keys was consistent with that measured throughout the Caribbean for those years. From 1999 through 2003, overall coral cover did not significantly change, and coral coverage varied between 7.2 and 7.5 %. There was a statistically significant decrease in stony coral cover Sanctuary-wide between 2003 (7.2%) and 2004 (6.8%). The reason for this drop in coral cover is not clear, but is probably

due to multiple stressors, such as degraded water quality, coral diseases, physical impacts, and over-fishing.

Two very important coral species have experienced particularly large losses in recent years. *Montastraea annularis* (star coral) represented 35% of the stony coral coverage in 1996, and has decreased from 4.1% coverage in 1996 to 2.6% in 2004. Similarly *Acropora palmata* (elkhorn coral) decreased 91% from 1.1% in 1996 to 0.3% in 2004. These two coral species are important in building the framework of coral reefs in the Atlantic Ocean and Caribbean Sea. Although there has been some local recovery of elkhorn coral, the overall declines Sanctuary-wide do not bode well for the future of healthy, accreting coral ecosystems in the Florida Keys.

Seagrasses have been quantitatively monitored in the Sanctuary since 1995. Surveys have documented the distribution and importance of seagrasses in the Sanctuary. The seagrass bed that carpets 80% of the Sanctuary is part of the largest documented contiguous seagrass bed on earth. Seagrasses were completely lost at 3 of 30 permanent sampling sites during hurricanes in 1998 and 1999. At the remaining 27 sites, the benthic communities are relatively stable. Changes in the nitrogen-to-phosphorus ratios in the nearshore waters of the Keys and shifts in species composition of seagrass beds are two metrics that have been used to document eutrophication. Both have been observed at some nearshore stations. At four of the permanent sites there has been an increase in the relative abundance of macroalgae over the period 1995 to 2004. At four additional permanent sites there have been long-term shifts in nitrogen to phosphorus ratios in seagrass leaves. Both of those changes are consistent with increased nutrient availability. The sites that showed changes consistent with nutrient availability were not randomly distributed, but were sites relatively close to shore in the Middle and Lower Keys.

Results of the Marine Zone Monitoring Program continue to show that some heavily exploited species differ in abundance and size between fully protected marine zones (FPMZs) and reference sites. In 1997, there was little difference between the number of spiny lobsters in FPMZs and reference sites, but after six years of protection there were almost twice as many lobsters inside FPMZs as outside. Legal-sized lobsters were very abundant on the fore reef at the Western Sambo Ecological Reserve and Eastern Sambo Research-Only Area. Since 1999, abundance of legal-sized lobsters has always been greater in those FPMZs than in their respective reference areas. In general, mean lobster size was below the legal limit in FPMZs and reference areas in 1997. Since then, mean lobster size in FPMZs has been larger than legal size and comparatively larger than in reference areas. It appears that a resident population of spiny lobsters is becoming established within the Western Sambo Ecological Reserve. The expansion of lobster size range in this ecological reserve suggests that some of the lobsters remain there for an extended period. Habitat for all life stages of spiny lobsters is protected within the reserve. Once adults establish residence, the ecological reserve is sufficiently large to protect a portion of the population as it travels to foraging grounds and between winter dens and spring spawning habitat. Ongoing research is documenting habitat utilization and individual movements using sonic tags attached to the carapace. A pilot project was conducted at the Western Sambo Ecological Reserve in summer 2004, and a tagging project at the interface of Dry Tortugas National Park and Tortugas North Ecological Reserve is being conducted in the summer of 2005.

Since no-take protection was initiated in 1997, significant density increases have been observed for several exploited reef fish species in FPMZs compared to fished reference areas. Among exploited species, mean densities were higher in FPMZs for Gray Snapper, Black Grouper,

grouper species combined, and Yellowtail Snapper. In contrast, concordance was observed in changes in density between FPMZs and reference areas for Stoplight Parrotfish and Striped Parrotfish, two species not directly exploited.

To determine how grouper and snapper populations were doing in the Tortugas North Ecological Reserve, 42 fish-identification experts conducted an extensive survey in the summer of 2004. For 20 days, the team made 1,594 scientific dives covering 500 square miles in the reserve and unprotected areas, and amassed 900 hours (37.5 days) of bottom time. Results were compared to surveys of the same areas in 1999 and 2000. Among the team's findings: 1) in 1999 and 2000, divers saw black grouper at 17% of the stations; in 2004 they saw black grouper at 36% of the stations, 2) divers saw 5.5 times more black grouper, and 3) divers saw more snapper and grouper in the legal-size range in 2004.

In 2004 NOAA economists published a report and a series of fact sheets comparing results between 1995-96 and 2000-01 (http://marineeconomics.noaa.gov/pubs/welcome.html). Topics included linking socioeconomic and ecological monitoring, five-year comparisons of resident and visitor importance-satisfaction ratings, and valuations of Sanctuary Preservation Areas and Ecological Reserves.

An investigation that has completed its first year of a two-year study has found viruses in coral mucus at 45.5% of corals at a nearshore station and in 12.5% of corals at an offshore site. Viral detection in surface waters varied from no findings at the offshore site, to a high of 67% of samples taken at a station near shore. In the groundwater, viral genetic material was detected in 100% of the three samples taken from two offshore stations and in two of three stations sampled nearest to shore. These preliminary data suggest that contaminated groundwater may be reaching offshore reefs in the Upper Keys. However, more research is required to verify the preliminary results and explain confounding data such as presence of viruses in groundwater in the Tortugas stations that are remote from land-bases sources of pollution. FWRI staff and collaborators launched investigations into impacts of mosquito sprays on queen conch larval development and continued an investigation of possible endocrine disruptors affecting conch reproduction in nearshore waters of the Keys.

Water Quality

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. Results of the Water Quality Monitoring Project are presented in the Research and Monitoring section.

The third year of the No Discharge Zone in State waters was a success. The No Discharge Zone was implemented in June 2002 in all State waters of the FKNMS at the request of Governor Bush. An education and outreach initiative that began in the spring of 2003 is continuing. At present there are approximately 38 pumpout facilities available throughout the Keys, which is an improvement over the 31 facilities reported last year. Mobile pumpout vessels are operating in

Key West and Marathon, and plans for a mobile pumpout vessel in Key Largo are nearing completion.

The No Discharge Zone Work Group initiated State-federal joint inspections of anchorages for compliance. Anchorages in the Key West area were inspected in April 2005. A total of 68 boats were boarded and no violations were found on 48 boats. Two written warnings were issued and there were four non-criminal infractions. One arrest was made. Inspections of other anchorages in the Keys are planned.

The FDEP has issued a $250K grant to Monroe County to assist local governments in the management of boat wastewater, including collection and transportation of solid wastes.

There is much news to report on improving wastewater and stormwater treatment infrastructure in the Florida Keys. In June 2004, the Little Venice Sewage Treatment Plant officially came online. This state-of-the-art sewage treatment plant will treat sewage generated by approximately 970 equivalent dwelling units in Marathon. The plant provides advanced wastewater treatment that includes nutrient removal and meets all Florida Statute 99-395 requirements. Water quality of oceanside residential canals has been monitored weekly for three years prior to the operation of the wastewater treatment plant. Monitoring of the canals and nearshore waters after homes have been hooked up to the treatment plant has just begun and will continue weekly for two years. The activation of this treatment facility is expected to reduce nutrients and bacteria entering the nearshore waters.

The City of Key West continues to make important progress on clean water issues. Repair and replacement of leaky main and secondary sewer lines has been completed. Work on improving stormwater treatment is continuing with installation of gravity and pumped injection wells in critical areas.

The Florida Keys Water Quality Improvements Program Project Development Team has been working with State, federal, and local governments to prioritize wastewater and stormwater projects and has reached an agreement on allocation of resources to the County and municipalities. The U.S. Army Corps of Engineers has taken the lead in publishing Draft Environmental Assessments for the Cities of Marathon and Layton. Both projects are preparing engineering plans for centralized wastewater collection and treatment facilities.

Wastewater treatment collection and treatment facilities are being upgraded or constructed in Stock Island, Saddlebunch Key, Conch Key, and Islamorada. The Key Largo Wastewater Board is in the process of site selection for a treatment plant to serve several identified water quality hotspots in the Upper Keys.

Three proposals have been received and are being evaluated for a $3.8 million Special Appropriation Grant from EPA for a demonstration project on the centralized management of decentralized wastewater treatment systems. The grant will be issued in the fall of 2005.

Maritime Heritage Resources

Since June1998, the State of Florida and NOAA have worked closely together on the implementation of a Programmatic Agreement for historical resource management in the Florida Keys National Marine Sanctuary (FKNMS) and in furthering the objectives set forth in the Maritime Heritage Resources (MHR) Action Plan as described in the FKNMS Final Management Plan. The Programmatic Agreement was negotiated through an extensive process involving the interaction among the public, the Historic Shipwreck Salvage Policy Council (HSSPC), the Florida Department of State, Division of Historical Resources, the Advisory Council on Historic Preservation and NOAA. As the agreement has been implemented, significant strides have been made in the comprehensive management of Maritime Heritage Resources within the Sanctuary. This report summarizes the key activities performed under the Programmatic Agreement and in fulfillment of the FKNMS, MHR Action Plan during the period 1 July 2004 through 30 June 2005.

The Florida Keys National Marine Sanctuary issued seven Maritime Archaeological Survey and Inventory Permits and one Maritime Archaeological Research and Recovery Permit. Currently there are ten active Survey and Inventory Permits and three active Research and Recovery Permits within the FKNMS. All permitted activities are conducted in strict accordance with the requirements of the Programmatic Agreement among NOAA, the State of Florida, and the Advisory Council on Historic Preservation and consistent with the Federal Archaeological Program, the Abandoned Shipwreck Act, and the National Historic Preservation Act. Staff time allocated to the management of the Maritime Archaeological Permitting Program includes review and consultation of permit requests, cataloging and dissemination of permit activity reports, maintenance of a permitting database to track MHR permit sites and activities to facilitate management decision making, and evaluating excavation techniques in relation to impact on associated natural resources.

An 18th Century cast-iron cannon, recovered from the Upper Region of the FKNMS on October 22, 2003 under the FKNMS Manager's Permit continues to undergo conservation at Motivation, Inc. in Key West. Mr. Denis Trelewicz, a Key Largo resident and member of the FKNMS Maritime Heritage Resource Inventory Team (FKNMS Volunteer Group) and the FKNMS Sanctuary Advisory Council has personally funded the conservation of the cannon and construction of a replica gun carriage to mount the cannon.. The FKNMS and Mr. Trelewicz are in the process of arranging for a Maritime Heritage Interpretive Exhibit at the Key Largo Chamber of Commerce to include display of the cannon. FKNMS is in the process of drafting a Curatorial Services Agreement between NOAA and the Key Largo Chamber of Commerce focusing on the loan of the Federally-owned artifact.

In July 2004, members of the U.S. Naval Historical Center's Underwater Archaeological Branch conducted a shipwreck survey to locate, identify, and document the remains of ALLIGATOR, a United States Navy schooner that actively participated in naval operations against the African slave trade and Caribbean piracy during the early19th Century. Historic documents indicate that ALLIGATOR wrecked on a shallow coral reef near Islamorada on 20 November 1822. The project was funded by a mini-grant from the NOAA, Maritime Heritage Program. FKNMS staff and the FKNMS Maritime Heritage Inventory Team provided essential personnel and logistical support.

In August 2004, the Mel Fisher Maritime Heritage Society in alliance with RPM Nautical Foundation conducted another remote sensing survey of reefs surrounding Turtle Harbor off North Key Largo. The purpose of the survey was to attempt to locate iron objects associated with shipwrecks. Two sites, the wreck of the Spanish slave ship GUERRERO, and the grounding site of the HMS NIMBLE, both of 1827, were of special interest. The magnetic anomalies detected during the survey are in the process of being investigated by scuba divers from FKNMS and the FKNMS Maritime Heritage Inventory Team (Volunteer Group). Funding for the project was provided by a mini-grant from the NOAA, Maritime Heritage Program.

February 2005, during an underwater filming expedition to the QUEEN OF NASSAU (formerly CGS CANADA) shipwreck site, NOAA Archaeologist, Tane Casserley, recovered a Taffrail Log. The artifact was recovered under the FKNMS Manager's Permit after consultation with Florida State, Division of Historical Resources and NOAA Senior Archaeologist. Due to its exposure and the possibility of being illegally removed from the site, the artifact was determined to be an attractive nuisance and therefore threatened. The Taffrail Log was conserved by the Mel Fisher Maritime Heritage Museum in Key West. It has been incorporated into the collection of QUEEN OF NASSAU artifacts previously recovered from the site in 2001 and on display in the lobby of the FKNMS Upper Region Office in Key Largo. Arrangements are currently being made for loan of the QUEEN OF NASSAU artifacts to the Vancouver Maritime Museum for a traveling exhibit to commemorate the centennial of the Canadian Navy.

April 2005, the FKNMS received the final report from Indiana University, Underwater Science Program, on their assessment of seven of the nine shipwreck sites that make up the FKNMS Shipwreck Trail (SWT). The FKNMS SWT was selected in 1997 to promote interest and stewardship of Florida Keys maritime history. As part of their contract with FKNMS, Indiana University developed a SWT assessment protocol based on four overarching components: site maintenance, diving conditions, archaeological assessment, and biological assessment.

June 2005, a "Tiger Team" consisting of staff from NOAA, FKNMS and the Florida State, Division of Historical Resources conducted an underwater archaeological investigation of a "Mystery Wreck" located approximately 2 nautical miles south of Vaca Key. The ten-day field project involved detailed documentation of the site including the creation of a site plan, underwater photographs and video, and inventory of natural and cultural resources. Assessment data will be utilized to produce a report detailing the ship's history, overall condition, and suggestions for future research. This was the first ever joint field project, conducted in furtherance of the formal Programmatic Agreement between NOAA and the State of Florida for Historical Resource Management in the FKNMS. Funding for the project was awarded through a mini-grant from the NOAA, Maritime Heritage Program.

The FKNMS, Maritime Heritage Resource Inventory Team (MHRIT), consisting of Sanctuary volunteers, logged a total of 606 hours since 1 July 2004. MHRIT members assist with surveying, investigating, and researching submerged historical resources that lie within Sanctuary waters.

Volunteer

People are an integral part of the Florida Keys ecosystem. Ultimately, protecting the FKNMS requires that local residents take responsibility and participate in its protection. Recognizing this, the State of Florida and NOAA seize opportunities to work in partnership with individuals, non-government organizations and communities in environmental problem solving. This strategy encourages a growing conservation ethic in the Florida Keys and results in solutions that benefit humans as well as the greater ecosystem.

The Nature Conservancy (TNC) has been FKNMS's partner in volunteerism from 1992 to 2004. Under their expert guidance, a Keys-wide volunteer program was developed that has provided over 170,000 volunteer hours (an estimated $2.8 million dollar value) during the twelve-year partnership. The sanctuary formally assumed management of its own volunteer program in Spring 2004, and continued insurance coverage for volunteers (Workman's Compensation) through NOAA.

In October 2004, FKNMS appointed a volunteer coordinator to oversee the day-to-day volunteer activities. Management of the FKNMS volunteer program has meant the creation of a volunteer application, position descriptions, database and handbook. New opportunities for community involvement are in development.

Volunteer activities supporting the FKNMS management plan include: Coral Reef Classroom and Team OCEAN, Maritime Heritage Resources, Reef Medics, Adopt-A-Reef, a FKNMS partnership with The Ocean Conservancy. Volunteers contribute greatly to protecting sanctuary resources through reef cleaning, coral restoration, education and mooring buoy maintenance. Volunteers dedicated to resource protection in the Keys contributed 6,343.45 hours during calendar year 2004, at an estimated value of $111,327.

Organization	**Project**	Volunteer Hours
Florida Fish and Wildlife Conservation Commission (FWCC)	Queen Conch Restoration Program	568
The Nature Conservancy	Florida Keys Watch	127
The Nature Conservancy	Green Sweep	1310
The Nature Conservancy	Diadema Restoration Project	103
FKNMS	Adopt-A-Reef	1044
FKNMS	Coral Reef Classroom	110.5
FKNMS	Submerged Resources Inventory	684.5
FKNMS	Team O.C.E.A.N.	944.75
FKNMS	Special Projects	126
FKNMS	Reef Medics	172.7
FKNMS	Operations	153.75
FKNMS	Sanctuary Advisory Council members attendance at regular meetings	944.25
FKNMS	Sanctuary Advisory Council members attendance at Working Group meetings	182
TOTAL		**6343.45**

The FKNMS Sanctuary Advisory Council (SAC) members participated in six regular meetings and served on the following Working Groups: Biscayne National Park Fisheries Management Plan Working Group, Waterfront Access Working Group, Permit Fish Working Group. SAC member Scott Fowler received one of six nation-wide *NOAA Environmental Hero Awards* and George Neugent was the FKNMS nominee for the National Marine Sanctuary Foundation *Volunteer of the Year Award*.

Damage Assessment and Restoration Program (DARP)

Of 409 reported groundings in FKNMS in FY 04/05, 114 of those resulted in either a seagrass or coral enforcement action requiring some form of injury assessment. FKNMS staff, contractors, and volunteers conducted restoration at 10 coral injury locations and 8 seagrass injury sites.

FY 04/05 was highlighted by sanctuary-wide coral rescue efforts. Staff coordinated a massive effort to rescue over 3,500 corals and coral fragments from the U.S. Navy construction rehabilitation of Truman Mole Pier walls in Key West Harbor. Some 450 orphan corals were relocated and transplanted by staff and volunteer SCUBA scouts and Reef Medics to vessel grounding sites, patch reefs and Fort Zachary Taylor State Park. In May '05, a follow-up survey revealed that, of those surveyed, approximately 80% of the original transplants were still stable and thriving, indicating that reef corals are more tolerant of relocation to dissimilar reef situations than previously expected. All additional corals were placed in coral nurseries, coral aquaculture facilities or donated to scientific research projects that support FKNMS management objectives.

Coral restoration projects of note that were completed in FY 04/05 include: the *Sabattica* grounding, a sailboat that grounded while being moved in order to avoid Hurricane Frances; the *Moderation* and *Mary Maxine* groundings, both of which were very cooperative responsible parties and hired contractors to conduct immediate on-site restoration; the *Kai'ma'loa*, a sailboat that grounded during some tropical force winds off Key West but whose grounding location was mis-reported for several days. Several smaller coral restoration projects, including stabilization of orphan sites were completed during this time period using federal grant money with the assistance from contractors, and/or Reef Medics volunteers.

Several coral reef restoration efforts are ongoing in the summer of 2005: the *Jeu Des Eaux*, a 45 ft. sailboat that grounded at Carysfort Reef; the *Perseverance*, a 62 ft. powerboat grounding at Grecian Rocks reef; the *Paradiso* framework restoration, and others.

Two long-standing cases in the Key West and Dry Tortugas regions, the *MSC Diego* and the *Paradiso*, have finally settled out of court this fiscal year. The *MSC Diego* was a Panamanian freighter that anchored in a no-anchor zone in the Dry Tortugas Ecological Reserve damaging 1,175 square meters of living coral and benthic resources. The *Paradiso* went aground in Rock Key SPA injuring 176 square meters of living coral and reef framework. Primary restoration has been completed at the *Diego* site, and the *Paradiso* injury is slated for additional restoration activities this summer.

FY 04/05 also marked the implementation of a monitoring program that focuses on expressly on restored vessel grounding sites in coral reef habitats. During FY04/05, physical and biological conditions were monitored at 8 coral restoration sites to assess the status of repaired areas versus nearby reference habitats. The goals of the monitoring program are to determine the recovery time of a restoration site and evaluate when a site is similar to nearby reference habitats. Restoration monitoring sites are located in a variety of reef habitats found throughout the Sanctuary. The *Wellwood*, *Elpis*, and *Maitland* sites are forereef sites offshore of Key Largo. The *Wave Walker* site is at a patch reef offshore of Islamorada while the *Jacquelyn L* and *Connected* sites are near Key West in an elkhorn coral area of Western Sambo Reef. The *Columbus Iselin* site is at Looe Key Reef in the middle Keys. Finally, the *Diego* site is a deepwater location on Tortugas Bank. Preliminary monitoring results suggest that the physical integrity of restoration structures is sound and benthic organisms are actively recruiting to restoration sites. Monitoring events will continue at these and additional restoration sites over a series of years to evaluate the success of the restoration efforts.

FKNMS DA&R staff played an instrumental role in the Safe Sanctuary ’05 drill that took place in the Keys in April ’05. Upper and Lower Region DA&R staff participated in the drill, providing logistical support, underwater video/photo imagery, biological assessments, oil spill monitoring in the field, as well as environmental planning support in the unified command center.

The seagrass portion of the DAR program is currently in transition from being overseen and led by NOAA’s Damage Assessment Center to the FKNMS. In FY04/05, 37 seagrass assessments were conducted on vessel grounding sites and 8 restorations were completed. As the program continues to transition, it is anticipated that the State of Florida will take more of a lead role in both coral reef and seagrass damage assessment and restoration. Additional restoration of 3 sites was conducted under the State of Florida’s Oceans Initiative.

Zoning

The marine zoning plan implemented in the sanctuary provides a common sense approach to protect sensitive resources, while restricting commercial and recreational uses only to the minimum extent necessary to protect the ecosystem. The results to date, as discussed in the research and monitoring section, have shown that some heavily exploited, mobile species have increased in population density and body size without any indication of adverse socio-economic impact.

As discussed previously in the mooring buoy section, the FKNMS maintains, installs, and assists in establishing markers and buoys for the existing Wildlife Management Areas (WMA), Sanctuary Preservation Areas (SPA), Special-Use Areas (Research Only) and Ecological Reserves. In FY 04/05 the team maintained 145 WMA boundary buoys and 122 SPA/ER/Special-use boundary buoys.

Administration

The 1992 Congressional re-authorization of the National Marine Sanctuaries Act requires sanctuaries to review their management plans every five years to monitor and evaluate the progress of the mission to protect the natural and cultural resources of national significance. The Board also mandated this review in a resolution on January 28, 1997. The management plan review process began in 2001 with public scoping meetings held throughout the Florida Keys. The revised management plan includes new actions plans for Administration, and Damage Assessment and Restoration. The revised draft management plan has undergone review by NOAA headquarters and a two month public comment period from February – April 2005. FKNMS are currently reviewing comments received during the public comment period. The Revised Management Plan is targeted for final release in the Fall of 2005.

In February 2004, local, state, and national representatives joined by President Bush's environmental advisor Jim Connaughton, Congresswoman Ileana Rod-Lehtinen, and ocean explorer Jean-Michel Cousteau participated in a dedication of the Florida Keys Eco-Discovery Center in Key West. The Eco-Discovery Center will be a world-class visitor center facility, one of the three-building Dr. Nancy Foster Keys Environmental Complex (Complex) slated to open in 2006. The Eco-Discovery Center is a cooperative effort of the FKNMS, the National Park Service, the U.S. Fish and Wildlife Service and the South Florida Water Management District. The National Marine Sanctuary Foundation has raised a substantial portion of the funds necessary for the development and installation of the exhibits for the Florida Keys Eco-Discovery Center (aka the visitor center) at the Dr. Nancy Foster Environmental Complex. The National Marine Sanctuary Foundation has recently signed a contract for the production of a 20+ minute film to be produced highlighting the wonders of the Florida Keys. The Foundation anticipates being able to contract for the balance of the exhibitry in the next few months. The construction of the three buildings that comprise the Complex is well underway, and at this time, is expected to be completed on schedule, potentially ahead of schedule, and on budget.

The FKNMS Sanctuary Advisory Council (SAC) was established to provide advice to Sanctuary managers regarding management of the Florida Keys National Marine Sanctuary. The SAC consists of appointed members and includes representatives of commercial and recreational user groups (i.e. commercial and recreational fishermen, the dive and snorkel industry and the boating industry), conservation, research and educational interests and members of the public concerned with resource protection and multiple-use management within the Sanctuary. In FY 04/05 6 full-day SAC meetings were held in the Florida Keys covering a range of topics including waterfront access, climate change, regulating the take of invertebrates and elasmobranchs, harmful algal blooms, impact of hurricanes on artificial reefs and nuisance watercraft in the backcountry. Law enforcement and other agency reports were given at every meeting. The SAC also participated in four working groups: Working Waterfront Access Working Group, Biscayne National Park Fisheries Management Plan Working Group, Protecting Corals, Saving Ships Working Group and a Spearfishing Tournaments Working Group. Members of the SAC participated in an international meeting hosted by the Sanctuary, "Connectivity: Science, People and Policy in the Florida Keys National Marine Sanctuary", Capitol Hill Oceans Week events, the Sanctuary's Volunteer Recognition Reception and attended a mixer hosted by the National Marine Sanctuary Foundation on the occasion of the Safe Sanctuaries drill conducted in the Keys.

In the draft of the Revised Management Plan, the Florida Keys National Marine Sanctuary has included a Program Evaluation Action Plan. The Evaluation Action Plan was included as part of an effort to improve overall management of the Sanctuary as a routine part of program and site management.

As outlined in the draft revised management plan the goals and objectives of the Evaluation Action Plan are to highlight successes of the site management, improve accountability, keep the trustees and stakeholders informed, provide clear guidance to managers and staff; develop and implement measurable outcomes; and identify resource gaps. To accomplish this, each action plan will incorporate sets of performance targets, and the FKNMS will plan accordingly on an annual basis in order to effectively and efficiently reach specific milestones and complete identified projects which should be linked directly to the performance measures.