

Florida Keys National Marine Sanctuary

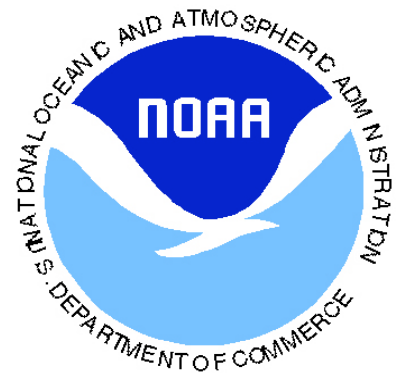
Annual Report

July 1, 2002 – June 30, 2003



NATIONAL MARINE
SANCTUARIES TM

FLORIDA KEYS



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 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 Trustees is one of those requirements. This is the sixth of those annual reports covering the period of July 1, 2002 through June 30, 2003. The following items describe the condition of the resources and the most significant sanctuary activities during this period.

Status of the Coral Reefs: 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 the 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 Florida Marine Research Institute implemented in 1996. Although there was a 35% decline in the overall coral cover and diversity from 1996 through 1999 in the Florida Keys, the coral cover has not shown a decline for the past four years. The 35% level of decline in the Florida Keys was consistent with that measured throughout the Caribbean for those years. The major problems attributed to coral reef degradation in the Florida Keys are the stresses from pollution, physical impacts and over-fishing.

Status of the Seagrass Communities: Changes in the nitrogen to phosphorus ratios in the nearshore waters of the Keys have caused the expected corresponding shift of the plant community from a seagrass to an algae dominated community.

Status of Marine Protected Areas: 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 have shown that heavily exploited, mobile species have increased in population density and size without any indication of adverse socio-economic impact.

Temporary Closure of White Bank Dry Rocks Reef: The north and south patch reefs of White Bank Dry Rocks Reef was closed for 60 days because of coral mortality. Staghorn coral in the north patch reef died while other coral colonies showed partial mortality. Scientists from NOAA and the Coral Disease and Health Consortium monitored the site and performed studies to determine the cause of the coral mortality. In other regions of the sanctuary, this condition has been documented but has not caused significant mortality, with the exception of an area in the Dry Tortugas National Park where approximately 70% of a large coral patch died. The Corals demonstrating partial mortality may recover. This site was re-opened for public use on August 10, 2003.

Implementation of the Particularly Sensitive Sea Area (PSSA): The International Maritime Organization (IMO) designated a 3,000 square nautical mile area, which encompasses the entire sanctuary as a PSSA on December 1, 2002. This is one of only five PSSAs in the world. Ships greater than 50 meters (164 feet) are prohibited from anchoring in the zone and are entirely excluded from certain areas within the zone. This will safeguard vulnerable natural resources while simultaneously supporting shipping.

U.S. Navy Dredging Project: The U.S. Navy submitted plans and permit requests to the permitting agencies for a proposed maintenance dredging project in the Key West Harbor and Main Ship Channel to provide safe passage for large U.S. Navy vessels. The project was designed to support Homeland Security Department objectives, and U.S. Navy and Marine Corps training operations following the discontinuation of training at Vieques, Puerto Rico. The NOAA and DEP sanctuary staff will review the Navy's proposal to ensure the protection of the natural and cultural resource throughout the two-year project, which will start in January, 2004.

Restoration of the *Diego Grounding*: More than 1,100 coral colonies and fragments were re-attached at a large-scale coral reef restoration site in the Tortugas Ecological Reserve (TER) where the M/V *MSC Diego* anchored illegally.

Whale Strandings: On April 18, 2003, a pod of 28 pilot whales were stranded in shallow, near-shore waters of the Lower Florida Keys. The public and government agencies responded rapidly to rescue the stranded whales. Volunteers joined the National Marine Fisheries Service rescue team to assist, as well as other agencies including DEP, NOAA, Florida Fish and Wildlife Conservation Commission (FWC), and the U.S. Coast Guard. Approximately ten of the whales were successfully guided to deeper waters. However, several whales died of natural causes and six of the sickest animals were euthanized. Five others were rehabilitated over the following three months in a canal on state property on Big Pine Key. They were released on August 9, 2003 in the nutrient rich waters of the Gulfstream. The five rehabilitated whales were tagged with tracking devices and monitored for two weeks by large offshore vessels and researchers from the NMFS.

Increased Enforcement: The FWC Sanctuary Enforcement Team (SET) now has all seventeen enforcement officer positions filled with trained officers. Thus, violations in the Tortugas Ecological Reserve have decreased approximately 40% in the second half of the 2002-2003 state fiscal year. Additionally, the officers have developed new and innovative tactics such as using light duty, portable kayaks to work in the shallow waters of the Keys where many of the small craft groundings occur.

Tortugas Mooring Plan Implementation: The Tortugas Ecological Reserve North mooring buoy field is near completion. The third of four phases of mooring buoy installation in TER North has been completed and is now available for public use.

Use of Delegated Authority for Emergency Actions: In December 2002, the M/V *Done Deal* sank in state waters of the sanctuary and was abandoned and forfeited by the owner to the state. Under Board delegated authority, DEP allocated funds from the Ecosystem Management and Restoration Trust Fund to rapidly remove the derelict shrimping vessel from a sensitive coral area in the Dry Tortugas on February 2003. This expedient cooperative effort with the National Park Service allowed for a cost-effective salvage of the abandoned vessel while avoiding additional damage to the natural resources.

Status of Marine Protected Areas: 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 have shown that heavily exploited, mobile species have increased in population density and size without any indication of adverse socio-economic impact.

No Discharge Zone: The state waters of the sanctuary were designated as a No Discharge Zone in June 2002. An education and outreach initiative was launched in the Spring of 2003 to publicize this designation to seek public compliance with the new provision that disallows any craft to discharge sewage effluent and other pollutants into these waters. The public has been mostly receptive to the new regulation. Over 30 pump-out stations are now available for use throughout the Florida Keys, thus facilitating compliance and resulting in cleaner sanctuary waters.

Status of the Management Plan: 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 is scheduled for availability to the Board and NOAA headquarters late in 2003.

Status of Action Plan Implementation

Channel / Reef Marking: Ongoing interagency coordination between FKNMS, Monroe County Division of Marine Resources (DMR), the U.S. Coast Guard (USCG), the U.S. Fish and Wildlife Service (USFWS), and FDEP have allowed for remarking of at sensitive reef complex off Key West, installed 14 lateral aids and shoal markers in shallow water seagrass habitats, and completed all the identified recommendations and objectives of the Channel Marker Master Plan for the Florida Keys.

Education and Outreach: Highlights for 2002/2003 in this program include: Seagrass Awareness Month Proclamation by Governor Jeb Bush and the Seagrass Festival; hosting local Monroe County leaders to a “splicing party” where mooring lines were prepared; sponsoring numerous, hands-on experiences for approximately 1,000 school children from K-12; awarding \$6000 in grant money for Monroe County teachers to develop environmental education projects; producing and distributing thousands of high-quality printed and audio-visual materials to over 430 businesses for distribution to the public; and producing approximately 10 locally televised episodes about the Florida Keys environment.

Enforcement: A successful year in Florida Fish and Wildlife Conservation Commission’s (FWCC) law enforcement efforts in the FKNMS is attributed to more enforcement positions, strong leadership and organizational improvements. Partnerships with the U.S. Coast Guard, National Park Service, Florida Park Service, and others are being developed to increase awareness of the FKNMS and allow for cross-training and cross-deputization. Notification and response time of vessel groundings has decreased due to communication improvements. Innovative methods utilizing kayaks in shallow habitats and digital cameras to document evidence such as illegally harvested lobster have been implemented. In 2002/2003, there were 647 reported vessel groundings; 139 warranted grounding enforcement actions; 443 written warnings were given for resource violations; and 841 boating safety warnings were written.

Stepped-up enforcement in the Tortugas Ecological Reserve (TER) decreased the number of violations by 40% in the second half of FY03.

Mooring Buoys: Over 730 mooring buoys, boundary buoys, and marker buoys are maintained in the FKNMS, with the majority in State waters. During 2002/2003, the mooring buoys were available approximately 97% of the time and 12 new mooring buoys were installed in the TER for public use, logging over 800 SCUBA dives. Buoys were installed at several shipwreck sites and a coral reef restoration site in the TER. Improvements in materials and installation methods decreased costs by approximately 10%.

Regulatory: In 2002/2003, a total of 70 free no-paperwork permits were issued for non-consumptive use of the TER north. Over 200 permits have been issued for bait fishing in the Sanctuary Preservation Areas of the FKNMS. Permits were issued for education, entrance into the Area To Be Avoided, shoreline markers, and one special use permit. Five authorizations for routine construction permits and live rock aquaculture were also issued. A temporary emergency closure was authorized at a Key Largo patch reef to allow scientists to monitor a fast spreading coral disease which killed a substantial portion of a patch reef in that area.

The FKNMS and FDEP have partnered with the U.S. Navy, ACOE, and others to review the Navy's proposal to maintenance dredge the Key West Harbor and main ship channel. As part of the permitting and authorization process, special conditions addressing resource protection have been addressed and will be implemented during the two-year project which is consistent with the Navy's Homeland Security and training objectives.

Research, Monitoring, and Water Quality: The Water Quality Protection Program began in 1994 and consists of status and trends monitoring of three components: water quality, coral reefs and hardbottom, and seagrasses. Water quality data from March 1995-2002 at offshore monitoring sites indicates water quality surrounding the Keys and along the reef tract remains to be good overall, although an increasing trend in nearshore waters of total phosphorus concentrations and elevated nitrate levels have been documented. These elevated nutrient levels nearshore may be coming from land-based sources and are consistent with data from the seagrass monitoring project which indicates a significant shift in relative abundance of macroalgae to seagrass. Percent coral coverage remains stable at a 7.3% average in 2002 throughout the Keys showing no significant change from the last sampling year. Coral diseases, specifically "white diseases" have increased from 5 stations in 1996 to 90 stations in 2002. Monitoring of no-take zones have shown an increase in the percentage of legal-sized lobsters and the overall mean size of lobsters in Western Sambo's Ecological Reserve, as well as greater mean densities of several commercially exploited fish in protected areas compared to fished sites.

Permitting of research remains active throughout the FKNMS with 43 new permits and 5 permit amendments issued. Special studies were funded using \$690K from the Environmental Protection Agency (EPA), NOAA, FDEP, and Sanctuary Friends of the Florida Keys to look at cause and affect relationships between declining biological resources and environmental triggers.

The City of Key West continues to upgrade its wastewater infrastructure, and the No Discharge Zone in state waters has been widely accepted since its implementation in June 2002.

Submerged Cultural Resources: In 2002/2003, 8 new survey and inventory permits were issued for non-intrusive surveys of potential historically significant submerged cultural resources. Additionally, there are 13 active survey permits and 5 active research and recovery permits all of which are maintained in a GIS database. The potential remains of the vessel *Notre Dame de Deliverance*, a 1755 shipwreck off the Florida Keys were surveyed and inventoried but uncertainties remain about the potential sovereign and public interests; the State of Florida, FKNMS, and NOAA are consulting with all potential sovereign interests at this time. Artifacts from the *Queen of Nassau*, a 1926 shipwreck and influential vessel in Canadian history, were placed on display in the FKNMS Key Largo office in December 2002.

Volunteer: Volunteerism in the FKNMS supports over a dozen projects and partnering organizations which support research, stewardship, restoration, and environmental education. Total volunteer hours for calendar year 2002 was 12,412 valued at \$205,294 dedicated to resource protection in the Keys. A new program known as “Reef Medics” teaches volunteers how to report vessel groundings, assist in assessment and restoration, and to re-stabilize and monitor coral resources. Over 79 participants attended 10 training sessions and assisted in 7 projects in FY 2003.

Damage Assessment and Restoration: Over 647 vessel groundings were reported in 2002/2003, 139 of those resulted in a seagrass or coral enforcement action requiring injury assessment. FKNMS staff, contractors, and volunteers conducted restoration at 5 coral injury locations including a deep water, large-scale coral restoration project in the TER and 1 seagrass injury site. In 2002/2003, two special projects were completed expeditiously using Ecosystem Management and Restoration Trust Fund (EMRTF) monies under authority delegated last year by the Board of Trustees. The projects included enhancement of an old vessel grounding site, restoration of orphaned corals, and the salvage of a derelict vessel on coral habitat in the Dry Tortugas.

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 have shown that heavily exploited, mobile species have increased in population density and size without any indication of adverse socio-economic impact.

The areas known as the Particularly Sensitive Sea Area (PSSA) was implemented December 1, 2002 by the International Maritime Organization (IMO) and exceeds 3,000 square nautical miles and surrounds the FKNMS. Ships greater than 50 meters (164 feet) are prohibited from anchoring in the zone and are entirely excluded from certain areas within the zone. This will safeguard vulnerable natural resources while not interrupting highly traveled shipping lanes.

Administration: In 1992, Congress re-authorized the National Marine Sanctuaries Act, and required all National Marine Sanctuaries to review their management plans every five years. The Florida Governor and Cabinet also mandated this review in a resolution on January 28, 1997. The management plan review process began in 2001 with public meetings held throughout the Florida Keys. In December 2002, the revised Draft Revised Management Plan was submitted to National Marine Sanctuary Program Headquarters for review. The revised Plan is currently being evaluated by the co-trustees and includes incorporated changes and two new actions: an Administration Action Plan and a Damage Assessment and Restoration Action Plan.

The FKNMS Draft Revised Management Plan should be available for final review by the Board of Trustees and NMSP headquarters in late Fall 2003 in anticipation of public accessibility in early 2004.

Annual Status Report for the Florida Keys National Marine Sanctuary Review of Action Plans 2002-2003

Channel / Reef Marking

Ongoing management of waterways in the FKNMS requires maintaining 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 2002/2003, the FKNMS and Monroe County Division of Marine Resources (DMR) coordinated with the USCG to improve reef marking at the Western Sambos reef complex, an Ecological Reserve in the Lower Keys. Three new shoal markers were installed and three lateral aids markers were replaced with "Danger Shoal" boards to aware boaters of the shallow reefs in that area. Plans for remarking this region had been discussed since the implementation of the FKNMS management plan. (Strategy B.4).

In 1998, the DMR completed the Channel Marking Master Plan for the Florida Keys through cooperation and contributions from partnering agencies. The plan culminated from seven years of growing concern of impacts to shallow-water resources from boating activities. In 2002/2003, the DMR installed 7 new lateral aids and 7 new "Danger Shoal" markers in shallow water seagrass habitats consistent with the Plan's objectives of minimizing prop-damage from boating and improving navigation. An internal database is maintained of all newly installed, improved, and maintained markers, and a series of GIS maps are updated as necessary. Data from these records are used to identify needs for future marking and update charts and public boating guides as necessary. At this time, the DMR considers the recommendations and objectives of the master plan to be complete, however the department and the FKNMS will continue to review the navigational marking situations as they arise. (Strategy B.1 and B.4).

Hurricane Georges caused extensive damage to Marker 24 on the east side of Looe Key Reef in 1998. The marker was replaced in 2000 but the old damaged marker was not removed. Currently, the FKNMS is coordinating with the USCG to remove the storm-damaged marker which is sitting on the spur and groove formations in approximately 25 feet of water. The USCG utilized a team of NAVY divers to cut the damaged steel beams and burn rigging holes in preparation for removal. The FKNMS will assist the USCG vessel M/V Hudson in late summer 2003 in final removal of the damaged marker (Strategy B.4).

Education and Outreach

Educating the public about the marine environment surrounding the Keys is one of the primary mandates of the Florida Keys National Marine Sanctuary and Protection Act. The sanctuary has continued to use two main strategies (community involvement / community programs; and product development) to provide the best available information and services to the public. The

FKNMS Education and Outreach team coordinates with local public and private schools, municipalities, educational advisory councils, non-governmental organizations, and other government agencies to promote environmental awareness and education, and to provide high quality products for the entire community. These programs and products are also essential in reaching millions of visitors the Florida Keys attracts annually.

In 2002/2003, the Seagrass Outreach Partnership continued its outreach efforts to enhance understanding of the importance of seagrass and the impacts boating activities can have on these sensitive habitats. Efforts to raise awareness included the annual “Seagrass Festival” in Islamorada as well as a media campaign during Seagrass Awareness Month in March. Governor Jeb Bush, Monroe County, and the Village of Islamorada announced proclamations of “Seagrass Awareness Month.” (Strategies E.5, E.11, E.1, E.2, and E.3)

Several forms of information dissemination were employed in order to reach and educate the public about the unique environments of the Florida Keys. In 2002/2003, the Education team participated in and staffed booths at festivals, trade shows, children’s fairs, association meetings, and stand-alone events throughout the Florida Keys, Miami-Dade County, the State of Florida, and national conferences. Information about the FKNMS was provided through one-on-one discussions, product distribution, presentations, visual aids, and on-the-water interpretation. (Strategies E.11, E.4, E.1, and E.2)

Electronic information and educational material is maintained, updated, and continually available through the FKNMS website (<http://floridakeys.noaa.gov>). In May 2003 alone, the FKNMS website received 572,135 hits for a total of 13,223 unique users (Strategy E.5).

FKNMS sponsored two “splicing parties” for the Monroe County Leadership “Oceans 11” class in June. The group, composed of community leaders from government, private sector, and other organizations, voted to assist the mooring buoy team in preparing lines for the sanctuary program while interacting with staff and learning more about the FKNMS. The class also donated funds to adopt a FKNMS mooring buoy. (Strategy E.4)

Team OCEAN volunteers continue to be a great asset to the overall education/outreach effort. With comprehensive classroom and on-water training from FKNMS staff, these citizens independently operate Sanctuary vessels and engage with the boating public on the water. These generous volunteers work during the peak season to encourage proper use of sanctuary resources and to educate fellow citizens about boating safety; they have directly prevented many vessel groundings by intervention and informative discussion. In 2002/2003, Team OCEAN volunteers spent 95 days on the waters, interacted with 1,133 boaters and users, and were joined by 30 new volunteer recruits. (Strategy E.4) The program’s success was reflected in the national and international invitations the sanctuary received to share Team OCEAN methods. A Team OCEAN coordinator traveled to American Samoa and the Hawaiian Islands to assist in developing similar programs. (Strategy E.12)

Enhancement of existing school programs continued to be a high priority. In 2002/2003, 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 four thousand middle school students have

participated in the program since 1991. This year, 361 students and 12 teachers experienced the complete program, which was made possible by AmeriCorps and other trained community volunteers and chaperones. (Strategy E.4)

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

The FKNMS sponsored a Monroe County middle school “Envirothon” and hosted a booth at the Everglades regional high school “Envirothon.” These annual events test teams of students on their knowledge of the local environment and environmental issues. (Strategy E.4)

Each fall, the FKNMS participates in organizing and sponsoring the annual Florida Keys Birding and Wildlife Festival. During the 2002 Festival, a series of activities were offered including an environmental fair, educational slide programs, various interpretative field trips, and a “Children’s Day” which treated 350 students to hand-on activities designed to teach third grade children about birds and their habitats. (Strategies E.11, E.4)

Every year, the FKNMS works to enhance the resources of local teachers by providing them with grant opportunities and teacher workshops. In 2002/2003, the FKNMS awarded environmental educational grants totaling \$6,000 to Monroe County teachers for eleven different projects focusing on coral reefs, geology, historical perspectives of the Florida Keys, environmental ethics, the Everglades, underwater photography, endangered species, and more. FKNMS and partners Mote Marine Lab, the Water Quality Protection Program, Crocodile Lakes National Wildlife Refuge, and Southeast Fisheries Science Center hosted teacher workshops in the fall and spring. (Strategy E.4)

The above services and community programs are all supported by printed and visual materials that are distributed by staff and volunteers at countless events and over 430 businesses and centers throughout South Miami-Dade and Monroe counties. The FKNMS, Florida Fish and Wildlife Conservation Commission, The Nature Conservancy, State of Florida, The Ocean Conservancy, and other agencies and organization produce the materials independently and through partnerships.

Waterways, a episodic television program exploring the natural treasures of South Florida and the Florida Keys is produced through a cooperative effort between the FKNMS, Environmental Protection Agency, and Everglades National Park. Over 140 half-hour television episodes of have been produced, approximately 10 of those in 2002-2003. Filmed on location, each episode includes interviews with local environmental experts who explain the various projects currently underway to protect this unique ecosystem.

Materials printed and/or distributed by FKNMS and volunteers: (Strategy E.1 and E.5)

<u>Product</u>	<u>Quantity</u>
<i>Sounding Line</i> , a quarterly newsletter	1,600
<i>Monroe County Lobster Regulations</i>	55,000
<i>Teall's Guides for the Upper and Lower Keys</i> , visual and informational guides to the FKNMS	120,000
<i>Coral Reef Ecosystem Poster</i>	60,000
<i>Summary of FKNMS Regulations</i>	50,000
<i>Yellow Buoy Card</i> , a quick flashcard for recognizing boundaries of no-take areas	40,000
<i>Fact Sheet for closure of White Banks</i> , an informational sheet for the dive community about the temporary closure	as needed

Enforcement

The Florida Fish and Wildlife Conservation Commission's Sanctuary Enforcement Team (SET) has vastly increased its effectiveness and efficiency in all areas of the program during the past year. The program and agency goals are being fulfilled through an increase in the number of officers, organizational improvements, strong leadership, proactive enforcement, dedicated equipment, and teamwork. (Strategy B.6)

Partnerships have been initiated and solidified with other agencies at all levels of government in an effort to maximize natural resource protection throughout the FKNMS. A unique initiative has also been launched to form partnerships and exchange programs with nations in Central and South America. In May 2003, Belize hosted the SET captain to tour their national marine reserves. In exchange, the FKNMS hosted ten Belize Marine Reserve Rangers in the FKNMS for one week of training and information exchange. Support and funding for future exchanges will be sought from the United Nations Environmental Program (Strategy B.12).

To address a diverse array of challenges, all law enforcement supervisors have now completed the same accredited training courses dealing with modern management and leadership. This has strengthened the working environment and been passed on to all lieutenants and officers. All officers have been cross-trained to work throughout the FKNMS regardless of their assigned areas. The crew of the 82' *Point Monroe*, the offshore patrol vessel, have attended eight weeks of safety training including Advanced Radar Plotting and Advanced Shipboard Firefighting as required by NOAA regulations for large vessels. The crew of the 82' *Point Monroe* is equally proficient in operating in nearshore waters in the Upper and Lower Keys. In keeping with this theme, nearshore patrol units have also made the four-day extended patrol to the Tortugas Reserves. This type of cross-training assures patrol of the Tortugas Reserve and nearshore waters will not be limited due to lack of qualified crew. (Strategy B.12)

In 2002/2003, timely communication was a high priority for the SET. At the urging of SET, Nextel cellular / radios were provided to all officers along with key FKNMS staff. Consequently, notification and subsequent coordination with Sanctuary biologists regarding vessel groundings has been decreased from days down to hours. The decrease in response time

can and has resulted in better case management and a reduction in secondary impacts from improper salvage of grounded vessels. With quicker response and efficient case management, primary restoration may be implemented more quickly. Other equipment needs addressed this past year include replacement of aging/obsolete nearshore patrol vessels and engines with new, higher quality equipment (Strategy B.6). Initially, it was believed that enforcement of the Tortugas Reserves should be carried out utilizing two large (82') vessels and crew, but logistics, budget, and personnel restrictions did not make this feasible. The Sanctuary adapted to this by combining crews into one and the other 82' vessel *Point Lobos* was sold to fund refitting of the *Point Monroe*.

An unusual yet beneficial pilot program utilizing kayaks to access shallow water grounding sites inaccessible to normal patrol boats began in the summer of 2003. In the past, Sanctuary officers had to wade in water from 3 to 30 inches deep to inspect and cite a grounded vessel. Now Sanctuary officers can deploy a kayak from their 30' patrol vessel and reach the grounded vessel without compromising officer safety. All officers have been supplied with digital cameras allowing violations and illegal acts to be caught on camera. These cameras are cost effective due to lack of film and development and allow for evidence such as illegally possessed spiny lobster to be returned to the environment alive while allowing the photographic evidence to still be submitted in court. These innovative ideas are part *employee career pathing* strategy that encourages SET members to find new and better ways of conducting enforcement efforts by identifying professional needs and career goals (Strategy B.12).

Per Strategy B.6, additional enforcement officers were hired in 2002/2003 allowing the SET to run at full capacity with 17 staff. Additional needs were identified for the upcoming year including a chief marine engineer for the offshore patrol vessel, and an office/administrative support position to cope with the logistics of 17 staff and the SET budget of 2.3 million dollars. The budget and NOAA/FWCC Memorandum of Agreement were both modified to allow for future expansion of the mentioned positions and other SET needs.

Due to SET efforts this year, the United States Coast Guard is more aware than ever of the FKNMS and routinely works with sanctuary officers and independently enforcing Sanctuary rules and regulations. Sanctuary officers have flown with crews of the USCG aircraft in an effort to spot sanctuary violations and direct the aircraft crew to appropriate response. Along the same lines, the National Park Service and Florida Park Service are looking to train and cross-deputize their law enforcement officers to enforce National Marine Sanctuary regulations to deal with vessel groundings and other rules and regulations (Strategy B.12).

In 2002/2003, there were 647 vessel groundings reported in all areas of the FKNMS. It should be noted this is probably not indicative of an increase in groundings over the last year, but that more people are aware of this violation and how to report it, and that more enforcement is on the water. Of the enforcement actions, 115 occurred in seagrass while 24 occurred in coral habitat. Water patrol by SET members totaled 14,386 hours resulting in inspection of 9,205 individuals and making contact with 24,414 users aboard these vessels. Officers issued 443 written warnings for resource violations and 841 boating safety warnings. A total of 407 federal citations for Sanctuary violations were issued with penalties and fines totaling \$145,123, excluding the *MSC Diego* freighter anchoring. Sanctuary officers worked 7,262 hours of overtime during the reporting period.

	YEAR					
	97	98	99	00	01	02
Groundings	507	549	581	660	605	647
Coral Enforcement Actions	16	21	21	22	6	24
Seagrass Enforcement Actions	18	32	108	159	122	115
Federal Citations for FKNMS violations	69	129	168	213	280	407
Warnings	625	401	298	2625	+2000	1284
Other State and Federal Violations						495

Violations in Tortugas Ecological Reserve (TER) decreased approximately 40% in the second half of the state fiscal year 2002/2003. Poaching by large commercial trawlers has decreased, threats to Sanctuary officers from commercial operators have stopped, and resistance to the presence of the *Point Monroe* has ceased. Reports indicate five vessels that used to poach in the TER now journey down to Honduras to engage in wire fish trapping due to the stunning success of the SET.

Mooring Buoys

The Mooring Buoy program is an ongoing commitment that continues to expand. Mooring buoy program staff maintains 450 mooring buoys, 131 wildlife management buoys, 122 Sanctuary Preservation Area boundary buoys, and 29 spar buoys for a total of 732 buoys. By far the majority of the buoys maintained are in state waters. In 2002/2003 the program has kept a consistent level of approximately 97% of mooring buoys available for use throughout the FKNMS. Over 800 dives were completed to inspect, maintain, and install mooring buoy systems (Strategy B.15).

In the Tortugas Ecological Reserve, 12 new mooring buoys were installed in 2002/2003 bringing the total to 24 buoys available for public use. New buoys were also added throughout the FKNMS at natural reefs and artificial reefs including the Spiegel Grove, the Adolphus Busch, and the Cayman Salvor. Improvements to the mooring buoy systems such as replacing existing single pin anchoring system with a heavier duty U anchor system have been identified and implemented. These new systems have decreased maintenance schedules due to longer lasting materials and decreased costs of materials by approximately 10% (Strategy B.15).

Mooring buoy staff also supported the University of North Carolina Wilmington with the installation of 33 hydrophones, 5 underwater buoys for University of Georgia researchers, and the Damage Assessment and Restoration team with the installation of 5 mooring buoys for restoration activities at the site of the *MSC Diego* (Strategy B.15). As part of an emergency closure under the FKNMS regulatory authority, the mooring buoy team temporarily removed mooring buoys at White Bank Dry Rocks while coral health scientists monitored the areas due to an unknown and rapidly-spreading coral disease.

Regulatory

Rules implementing the FKMNS Tortugas Ecological Reserve became fully effective July 1, 2001. Regulations for Tortugas South prohibit entry unless in continuous transit with fishing gear stowed while Tortugas North is open for non-consumptive use with a free no-paperwork

access permit. During the 2002-2003 season, a total of 70 permits were issued for entrance to Tortugas North.

Baitfish permits are issued in the FKNMS each calendar year and must be renewed annually. So far in calendar year 2003, 203 baitfish permits have been issued. Three educational permits were issued for a college marine biology course, a series of educational reef trips done by Marine Resources Development Foundation and an educational art project to a private individual. One permit was issued for entrance to the Area to Be Avoided for a research vessel operating in the Dry Tortugas. Three permits issued by DEP, ACOE and Village of Islamorada were authorized for routine construction projects in the FKNMS. And one special use permit was issued to a commercial operator in the Key Largo area for dispersal of human remains (Strategy B.11).

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 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 (Strategies B.4 and B.17).

Since June 2002, 14 individuals and Home Owners Associations (HOA) have contacted the FKNMS inquiring about the shoreline markers, and 7 buoys have been approved and installed, bringing the total to 47 shoreline marker buoys installed to date (Strategy B.4).

Under the regulatory authority given to the FKNMS in 15 CFR § 922.165, a temporary emergency closure was authorized at White Bank Dry Rocks Reef June 2003 due to a rapidly-spreading coral die-off. The north and south patch reefs of White Bank Dry Rocks, a popular snorkeling area in Federal waters of the FKNMS off Key Largo was closed for 60 days to allow coral health scientists from NOAA and the Coral Disease and Health Consortium to monitor the site and perform field experiments. Due to a still unknown condition, a substantial portion of staghorn coral in the north patch reef died while other coral colonies showed partial mortality. In other regions of the Florida Keys and elsewhere, the condition has been documented but has not shown to cause significant die-offs, with the exception of an area in the Dry Tortugas National Park where approximately 70% of a large coral patch died from what is likely the same condition. Corals demonstrating partial mortality may have some recovery but it is unpredictable at this time. The location was reopened August 10, 2003 for public use.

The U.S. Navy has submitted plans and permit requests to the appropriate permitting agencies for activities relating to a maintenance dredge of the Key West Harbor and Main Ship Channel in order to give safe and suitable passage into Key West for large U.S. Navy vessels. The project was designed in support of Homeland Security objectives, and in support of U.S. Navy and Marine Corps training operations following the discontinuation of training at Vieques, Puerto Rico. The FKNMS and FDEP have partnered with the U.S. Navy, ACOE, and others to review the Navy's proposal. As part of the permitting and authorization process, special conditions addressing natural resource protection have been addressed and will be implemented throughout the two-year project. The project has a proposed start date of January 2004.

Research, Monitoring and Water Quality

Monitoring in the FKNMS occurs at two scales: Comprehensive, long-term monitoring conducted through the Water Quality Protection Program (WQPP). The WQPP has been funded by various sources including the U.S. Environmental Protection Agency (EPA), NOAA, FDEP, Monroe County / Tourism Development Council, and the Sanctuary of the Friends of the Florida Keys. The WQPP began in 1994 and consists of status and trends monitoring of three components: water quality, coral reefs and hard-bottom communities, and seagrasses. Sanctuary-wide status and trends monitoring is designed to detect large-scale ecosystem changes associated with Everglades restoration and other regional-scale phenomena (Strategies W.20, W.33, W.5).

Long-term water quality monitoring from March 1995 – September 2002 at sites off the Florida Keys indicates water quality along the reef tract and in the Dry Tortugas to be good overall with the lowest levels of nutrients, turbidity, and chlorophyll A in all the FKNMS. Areas closest to land were highest in total phosphorus and dissolved inorganic nitrogen. The data are from 29 quarterly sampling events at 154 stations within the FKNMS including the Dry Tortugas National Park. Temporal trends showed most variables relatively consistent from year to year, with some seasonal excursions. The exception was the increasing variability in total phosphorus throughout the region. Distinguishing internal and external sources of nutrients in the FKNMS is a difficult task particularly when discriminating between natural and anthropogenic inputs, however recent studies have shown that nutrients from shallow sewage injection wells could be leaking into nearshore surface waters (Strategy W.20 and W29).

The Coral Reef Evaluation and Monitoring Project data for 2002 shows the percent of stony corals in the Florida Keys at 7.3%. This is not significantly different from the last sampling year. The data does indicate a decrease in the number of species at 70% of the stations, and an increase in species at 20% of the stations. Coral diseases have been reported to be present at a greater number of stations, with a greater number of species showing signs of disease, and an increase in the number of overall diseases observed (Strategy W.33).

Enough data from seagrass monitoring project has now been collected in the FKNMS to indicate for the first time significant changes in seagrass communities that are consistent with the model predictions of nutrient-induced changes of these systems. At several nearshore sites in the Florida Keys, there has been an increase in the relative abundance of macroalgae over the period 1995 - 2003 that is consistent with an increase in nutrient availability as shown in the nearshore water quality data mentioned above. In addition to these sites where relative abundance of primary producers has changed, there have been long-term shifts in the ratio of nitrogen to phosphorus in seagrass leaves that are consistent with increases in nutrient availability (Strategy W.33).

Monitoring of the no-take zones indicates some heavy exploited species exhibit differences in abundance and size between the zones and reference sites. An increase in the percentage of legal-sized lobsters and the mean size of lobsters in the Western Sambo Ecological Reserve has been observed since protection began in 1997. In contrast, no differences in the size of legal-sized lobsters between the smaller sized SPAs and their reference sites were detected, suggesting

that the effectiveness of reserves for spiny lobsters is a function of reserve size, location, and the type of habitat protected. Mean densities of gray snapper, combined grouper, and yellowtail snapper were greater in fully protected zones than in fished sites (Strategy Z.2 and Z.3).

The Sanctuary staff hosted several tours and fact-finding missions for visitors from around the world, presented papers and posters at scientific workshops, moderated joint sessions on regional ecosystem management, and represented the FKNMS on committees and scientific working groups (Strategies W.29, W.33).

The Sanctuary issued 43 permits and 5 permit amendments to support research in the Florida Keys from July 2002 through June 2003. 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, fisheries and invertebrate studies, seagrass monitoring, marine protected area design and effects of no-take management, effects of mosquito pesticides on coral larvae, reef restoration, reef geology, and many others (Strategy B.11).

In 2003, a request for proposals was published for research in the Sanctuary to investigate cause and affect relationships between declining biological resources and environmental triggers. Proposals were peer reviewed and selected based upon ranking and management implications of the research. Total funding for research was \$690K and sources of these funds were the EPA (\$340K), NOAA (\$150K), FDEP (\$100K), and Sanctuary Friends of the Florida Keys (\$100K). Research will begin October 2003 and will include investigations on causes of failure of reproduction of queen conch, the effectiveness of marine protected areas as havens for spiny lobster populations, and factors that control the fate and successful settlement of coral larvae. The distribution of human intestinal bacteria and viruses in coral mucus will also be investigated, and risk assessment to public health from nearshore waters will be conducted (Strategies F.6, W.20, and W.33).

The City of Key West continues to make important progress on clean water issues. Leaking main sewer lines have been replaced, eliminating a source of surface water contamination. Lateral collection lines are being replaced and a stormwater plan has been prepared and endorsed by an interagency review committee appointed by the Water Quality Steering Committee. Stormwater improvements are being implemented at trouble spots in Key West and include the elimination of surface outfalls and the installation of gravity assisted injection wells (Strategy W.4).

The first 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. The purpose of the no discharge zone is to help protect and preserve water quality and the unique marine resources of the FKNMS from discharges from vessels. An education and outreach initiative was launched in Spring of 2003, and the majority of the public at-large have been receptive of the new regulation. Over 30 pump out stations are now available for use located throughout the Florida Keys. Enforcement of the no discharge zone will be a combined effort of State, federal, and local law enforcement officers. Monroe County and the City of Key West have also installed mooring buoys in some harborages that will help in the implementation of the pumpout requirements (Strategy B.7).

On April 18, 2003, a pod of 28 pilot whales stranded in the Lower Florida Keys. The FKNMS, the Florida Fish and Wildlife Conservation Commission's Law Enforcement team, the United States Coast Guard, the Florida Marine Research Institute, the United States Fish and Wildlife Commission, and numerous other volunteers assisted NOAA's National Marine Fisheries Service (NMFS) and volunteer marine mammal rescues teams in responding to the mass stranding. Volunteers guided approximately ten of the whales to deeper water, several whales died of natural causes and six of the sickest animals were euthanized. Over the next three months, five of the healthiest whales were rehabilitated on Big Pine Key. They were released on August 9, 2003 in the nutrient rich waters of the Gulfstream with assistance from the FKNMS, the USCG, and FWCC Law Enforcement. The five whales were tagged with tracking devices and monitored for two weeks by large offshore vessels and researchers from the NMFS.

Submerged Cultural Resources (SCRs)

A Programmatic Agreement among NOAA, the Advisory Council on Historic Preservation, and the State of Florida for Historical Resource Management in the Florida Keys National Marine Sanctuary, hereafter referred to as the Programmatic Agreement (PA), was executed on June 29, 1998. Section V.2. of the Agreement provides for periodic reporting to the Advisory Council on Historic Preservation on the implementation of the Agreement. In accordance with the Agreement, the Advisory Council is to forward a copy of the review and its comments to the State of Florida. This will serve as the second implementation report prepared during the term of the Agreement

Since 2000, the State of Florida, the Florida Keys National Marine Sanctuary, and NOAA have worked closely together on the continued implementation of a Programmatic Agreement (PA) and FKNMS Submerged Cultural Resources Action 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 over the five-year term, significant strides have been made in the comprehensive management of SCRs within the Sanctuary. This report summarizes the key activities performed under the Agreement and provides a general overview of newly discovered historic sites, as well as other issues related to historical resource management in the Sanctuary.

Since June of 2002, 8 survey and inventory (S/I) permits have been issued, including 2 S/I permits that are pending approval signatures in accordance with the guidelines established in the PA (Activity under section III. E of PA). Presently there are 13 active S/I permits and 5 active research and recovery (R/R) permits. Permit information is incorporated into a Geographic Information System (GIS) database to facilitate ongoing management decisions (Strategy R.1).

In the Fall of 2002 the Florida Keys National Marine Sanctuary received a Survey and Inventory permit application to investigate the potential remains of a shipwreck site alleged to be the *Notre Dame de Deliverance*. Due to uncertainties regarding sovereign interests and public interests within Sanctuary waters, a non-intrusive S/I permit was issued to investigate the age and identity and origin of the potential historical shipwreck. Consultation with the Government of Spain revealed no archival indication that the vessel was in its employ at the time of the alleged sinking. The United Kingdom has expressed a potential sovereign interests based on historical

research; further information and consultation has been requested from Her Majesty's Government (Strategy R.1).

In December 2002, the FKNMS received artifacts from the site identified as the Queen of Nassau formerly the CGS Canada. The artifacts were conserved by the Department of State, Bureau of Archaeological Research and are on display in the Key Largo office. Originally discovered in 2001, the 1926 shipwreck lies upright in 230 feet of water seven miles off the Lower Matecumbe Keys. One of the most influential ships in Canadian history, she represents a transition in the style of Canadian warships from the old wooden schooners to fast steel cruisers (Strategy R.1).

In the summer of 2002, in preparation for a large-scale restoration project at Molasses Reef, NOAA contracted for the production of a comprehensive cultural resource assessment within the project footprint. Recommendations for protecting historical resources were incorporated into project plans and the statement of work. The report was provided to the Florida Division of Historical Resources (Strategy R.1).

Throughout 2002/2003 the FKNMS has continued to consult with the State of Florida Division of Historical Resources on smaller scale restoration efforts to protect SCRs. The Key West dredging project is undergoing joint review by FKNMS and the State of Florida Division of Historical Resources for potential impacts to historical resources (Strategy R.1).

On May 16, 2002 the USCG Cutter Duane was officially listed on the National Register of Historic Places. The nomination of the *Duane*, a shipwreck in the Upper Keys, to the National Register of Historic Places was through the Indiana University Underwater Science and Educational Resources program under the direction of Charles Beeker (Strategy R.1).

Volunteer

People are an integral part of the Florida Keys ecosystem and critical in protecting our resources. Recognizing this, the State of Florida, National Oceanic and Atmospheric Administration (NOAA), and The Nature Conservancy (TNC) seize opportunities to work in partnerships with individuals and communities in environmental problem solving. This strategy encourages a growing conservation ethic in the Keys and results in solutions that work.

The Nature Conservancy (TNC), a non-profit organization, assists in coordinating volunteers for the FKNMS through its Volunteer Stewardship Exchange. The Volunteer Stewardship Exchange is a program designed to connect volunteers with projects that advance conservation goals. TNC staff assist in recruiting, training and placing volunteers. Services supplied by the exchange result in:

- Support for research science and resource management that normally would be cost-prohibitive
- In-service training that focuses on enhanced understanding of environmental issues and encourages public stewardship
- Shifting public opinion toward sustainability through participation

Partner organizations that are served by the exchange include FKNMS, FDEP, Florida Fish and Wildlife Conservation Commission (FWCC), and Mote Marine Laboratory (Mote). Volunteer work in calendar year 2002 resulted in over 12,412 hours valued at \$205,294 dedicated to protection of the natural environment of the Keys.

<u>Partner Organization</u>	<u>Project</u>	<u>Volunteer Hours</u>
FWCC	Queen Conch Restoration Program	1857
TNC	Florida Bay Watch	229
TNC	Florida Keys Watch	69
TNC	Green Sweep	6067
TNC	Sea Stewards	57
TNC / MOTE	Diadema Restoration Project	456
TNC	Special Projects	650
FKNMS	Adopt-A-Reef	240
FKNMS	Coral Reef Classroom	237
FKNMS	Submerged Resources Inventory	1208
FKNMS	Team O.C.E.A.N.	1078
FKNMS / MOTE	Special Projects	244
FKNMS / MOTE	Reef Medics	20
TOTAL HOURS		12,412
MONETARY VALUE		\$205,294

In 2002/2003, the damage assessment and restoration team fully implemented the new volunteer program known as Reef Medics, in which volunteers are utilized to report “orphan” vessel grounding sites, assist in damage assessment and re-stabilization of injured coral colonies, and monitor small vessel grounding sites. The training program is a collaborative effort among TNC, FKNMS, Mote, and FWCC. Ten training sessions were offered to 79 participating volunteers during 2002/2003, with an additional special training session conducted at the request of John Pennekamp Coral Reef State Park. Volunteers have participated in approximately 7 projects involving the assessment, salvage, documentation and re-stabilization of injured corals from vessel grounding incidents in the FKNMS and the Dry Tortugas National Park (Strategy B.2 and Strategy B. 10).

Damage Assessment and Restoration

Of the 647 reported vessel groundings, 139 of those resulted in a seagrass or coral enforcement action requiring some form of injury assessment. During 2002/2003, the damage assessment and restoration team conducted primary restoration at 5 of the coral injury locations including a deep water, large-scale coral restoration project in the Dry Tortugas Ecological Reserve (TER) and 1 seagrass injury site. Over 1,100 coral colonies and fragments were directly reattached in the TER as part of the primary restoration efforts following the prohibited anchoring of the *M/V MSC Diego*, a Panamanian freighter. The *MSC Diego* case is still under negotiation for monitoring and compensatory restoration costs.

Other restoration projects not directly associated with the above enforcement actions included the enhancement of an old vessel grounding site and restoration of orphaned coral injuries in the Newfound Harbor Keys / Coupon Bight Aquatic Preserve; and the transplantation of corals threatened by maintenance of the American Shoal lighthouse to an adjacent habitat. In December 2002, the *M/V Done Deal* sank in State waters of the FKNMS near sensitive coral reef habitat. The vessel was abandoned by the owner and forfeited to the State. In February 2003, the

FKNMS worked in cooperation with an ongoing National Park Service allowing for cost-effective salvage of the abandoned vessel. The coral reef enhancement/ orphaned coral project and the salvage of the abandoned vessel were both expeditiously completed under the 2001 authority delegated by the Board of Trustees using funds from the Ecosystem Management and Restoration Trust Fund.

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 have shown that heavily exploited, mobile species have increased in population density and 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 (ER). In 2002/2003, the team maintained 131 WMA boundary buoys and 122 SPA/ER/Special-use boundary buoys. (Strategies Z.2, Z.3, Z.4 and Z.5) No new zones were established nor were any existing zones expanded in FY 03.

Implementation of the Particularly Sensitive Sea Area (PSSA) by the International Maritime Organization (IMO), December 1, 2002: The PSSA is one of only five in the world, exceeds 3,000 square nautical miles, and encompasses the entire FKNMS. Ships greater than 50 meters (164 feet) are prohibited from anchoring in the zone and are entirely excluded from certain areas within the zone. This will safeguard vulnerable natural resources while limiting any diversions to the shipping industry which highly utilizes the Florida Straits as a main shipping lane.

Administration

Status of the Five Year Management Plan Review: In 1992, Congress reauthorized the National Marine Sanctuaries Act, and required all National Marine Sanctuaries to review their management plans every five years to monitor and evaluate the progress of the national mission to protect national resources. The Florida Governor and Cabinet 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. In December 2002, the revised FKNMS Draft Revised Management Plan was submitted to National Marine Sanctuary Program Headquarters for review and is currently being evaluated by the co-trustees. The revised Plan includes changes from the original plan, most notably two new actions plans were added: an Administration Action Plan and a Damage Assessment and Restoration Action Plan. The FKNMS Draft Revised Management Plan should be available for final review by the Board of Trustees and NMSP headquarters in late Fall 2003 in anticipation for public accessibility in early 2004.