

SAVE THE MANATEE TRUST FUND

Fiscal Year 1999 – 2000

ANNUAL REPORT



Florida Fish and Wildlife Conservation Commission

December 2000

EXECUTIVE SUMMARY

Welcome to the annual status report on expenditures from the Save The Manatee Trust Fund (STMTF). This report is prepared each year and is provided to the President of the Florida Senate and the Speaker of the Florida House of Representatives. The purpose of this report is to inform the reader about the types of activities performed during the past fiscal year with the funds appropriated from the STMTF by the Florida legislature. The Florida manatee is a true native to Florida's coastal and riverine waters and a federally listed endangered species. Florida has protected manatees since 1892. Current state efforts to recover the population are guided by the Florida Manatee Sanctuary Act of 1978 and the federally approved Florida Manatee Recovery Plan of 1995. The Florida Manatee Sanctuary Act declared the state to be a refuge and sanctuary for the manatee and subsequent amendments have given the Florida Fish and Wildlife Conservation Commission (FWC) a wide range of responsibilities. The Recovery Plan lists 126 separate tasks that need to be accomplished. Many of these tasks are addressed through a cooperative effort between federal, state, and local governments.

Florida's manatees typically average around 8-10 feet in length and weigh around 1,000 pounds. The largest manatees may reach 13 feet in length and weigh over 3,500 pounds. Despite their large size, manatees can be difficult to see in the wild. Manatees eat a variety of aquatic plants and may be seen near natural or artificial fresh water sources. Female manatees are pregnant for 12-14 months and usually give birth to a single calf measuring about 3-4 feet in length. The calves remain with their mothers for up to two years. Manatees are killed or injured by a variety of human-related causes (e.g., colliding with watercraft, being crushed in water control gates and boat locks, and becoming entangled in fishing gear). Manatees also die as a result of exposure to harmful algal blooms (red tide), the effects of cold water, and natural disease. Manatee habitat loss or degradation is also of concern, including future changes in artificial warm water refugia upon which many have become dependent.

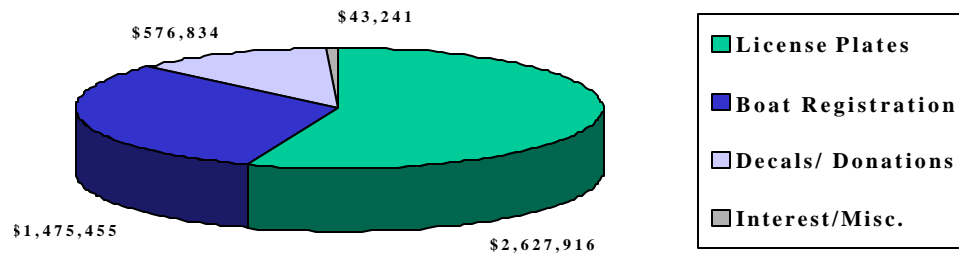
Funding for the State's manatee related research and management activities is provided primarily from the STMTF, which receives money from sales of manatee license plates and decals, boat registration fees, and voluntary donations. Revenues for FY 1999-2000 totaled \$4,723,446. Expenditures for the same fiscal year were approximately \$4,611,200. Details are presented in the accompanying pie charts in this report. The 1999-2000 expenditures were distributed over the FWC's research, management, and environmental education programs, as well as to three oceanaria facilities that participate in the rescue and rehabilitation of manatees. Research activities coordinated by the Florida Marine Research Institute (FMRI) in St. Petersburg totaled \$1,634,746. Management activities within the Bureau of Protected Species Management (BPSM) totaled \$1,166,263. Mote Marine Laboratory received \$600,000, oceanaria received \$400,000, and \$499,500 were allocated in Environmental Education Grants. Budgetary breakdowns for individual program units for both the research and management efforts are provided followed by summaries of the work performed at the FMRI and the BPSM.

The past year brought both good and bad news concerning the fight to save this endangered species. On the positive side, new data analyses show that manatee populations in two areas of the state, northwest Florida and the upper St. Johns River, have been expanding at a healthy pace. Less encouraging however were data for the Atlantic Coast, where concerns exist that the population in this area is neither stable nor increasing. The number of manatees killed by watercraft was the highest ever recorded during the months of February, March, and April 2000. The FWC response (detailed in this report) included increased law enforcement activities and expanded public outreach. While it is sometimes necessary to temporarily divert resources in response to unexpected problems, the FWC recognizes that it will take a long-term strategy and continued resolve to recover this endangered species.

Save the Manatee Trust Fund Revenues

Fiscal Year 1999-2000

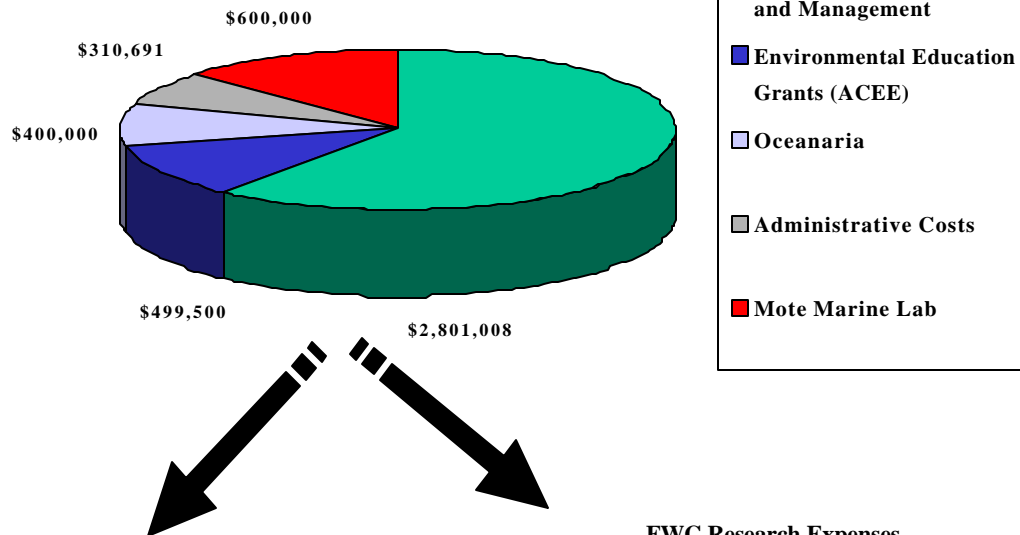
Total = \$4,723,446



Save the Manatee Trust Fund Appropriations

Fiscal Year 1999-2000

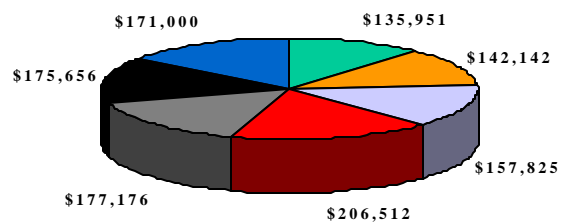
Total = \$4,611,199



FWC Management Expenses

Fiscal Year 1999-2000

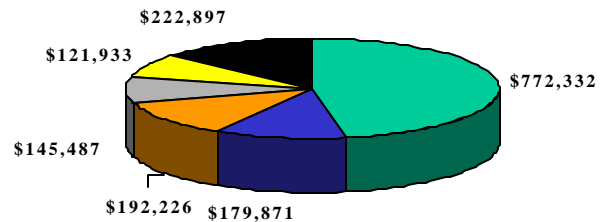
Total = \$1,166,262



FWC Research Expenses

Fiscal Year 1999-2000

Total = \$1,634,746

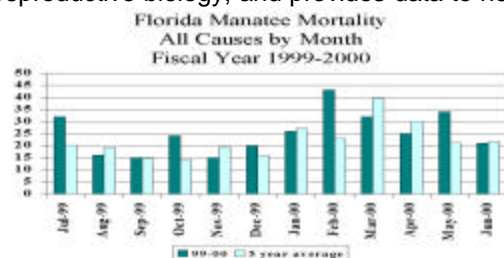


FLORIDA MARINE RESEARCH INSTITUTE MARINE MAMMAL RESEARCH

The Marine Mammal Research Program is headquartered at the Florida Marine Research Institute (FMRI) in downtown St. Petersburg. Additional staff are located at the FMRI Marine Mammal Pathobiology Laboratory (MMPL) in St. Petersburg and at field stations in Port Charlotte, Jacksonville, Melbourne, and Tequesta. Manatee research is organized into six projects: mortality and rescue; population monitoring; ecology and migration; life history and biology; marine mammal geographic information system (GIS), and human dimensions. Research on the endangered North Atlantic right whale is coordinated by program staff at the Jacksonville field station.

MORTALITY AND RESCUE

A network of researchers and law enforcement agencies was established in 1974 to recover manatee carcasses and provide assistance to injured manatees. The mortality and rescue program now rests largely with the Florida Fish and Wildlife Conservation Commission. All carcasses are retrieved by dedicated staff statewide and thoroughly examined (necropsied) in order to determine cause of death. Most necropsies occur at the Marine Mammal Pathobiology Laboratory, opened in 1993 in St. Petersburg. Information gained through carcass salvage, rescue and rehabilitation is crucial in providing wildlife managers with information about manatee health, life history, general and reproductive biology, and provides data to help in



developing population models.

1999-2000 Highlights

- The carcasses of 303 dead manatees were documented in Florida during the 99-00 fiscal year. Cause of death was determined for 231 cases including 92 deaths from collisions with watercraft, eight more than the 98-99 fiscal year total. This is highest number

recorded. Eighteen manatees were killed in floodgates, canal locks, and eight mortalities were caused by other anthropogenic factors such as entrapment in drainage pipes or entanglement in monofilament line. Fifty-seven carcasses were categorized as perinatal and 46 animals died from natural causes such as prolonged exposure to cold water or inhalation and/or ingestion of brevetoxin from red tide events. A cause of death could not be determined for 71 cases. Of these, 11 manatee carcasses were verified but not recovered.

- FMRI actively participates in the USFWS manatee rescue program. State rescue activities are headquartered at MMPL and four regional field laboratories. Forty-one manatees were rescued during the 99-00 fiscal year. Of these, 14 animals died and 16 recovered sufficiently to be released. Most were rescued because of watercraft collisions. Other reasons for rescue include entanglement in crab traps and other debris, ingestion of foreign material, entrapment in man-made structures, natural diseases or complications, unaccompanied dependent calves, and dependent calves of rescued mothers. Severely ill or injured manatees were transported to one of three oceanaria participating in the rehabilitation program for treatment. Fully rehabilitated manatees were released into the wild and restored to the breeding population. Manatee rescues provide specific information on causes and geographic occurrence of manatee injuries.
- Carcass necropsy provides the opportunity to extract useful information that can be applied to many areas of manatee biomedicine. Several manuscripts were produced during the 1999-2000 fiscal year. These include a publication in *Anatomical Record* describing the structure and function of the manatee diaphragm and a publication in *Florida Scientist* on the sexual dimorphism in vestigial pelvic bones of the Florida manatee. A presentation was given at the joint annual meeting of the American Association of Zoo Veterinarians and the International Association of Aquatic Animal Medicine describing the anatomy of the current and potential blood sampling sites in the Florida manatee.
- The MMPL hosted and assisted with three workshops. A Life History workshop and an

Age Determination workshop were held at the MMPL, and a Manatee Mortality workshop was hosted by FMRI. The Life History and Age Determination workshops were designed for students and professionals to learn about life history research and age determination methods for manatees and cetaceans. The Mortality Workshop reviewed manatee mortality research performed by MMPL. Twenty-three invited scientists and 50 additional scientists evaluated current methods of cause of death determination and manatee biological research.

- Two new research proposals were developed to better use existing data. The first will focus on wound analysis using information from witnessed vessel strikes and necropsy reports from manatees killed by watercraft since 1990. The second focuses on cold-related deaths and looks for correlation between temporal, spatial and biological factors. These projects will begin in the 00-01 fiscal year and will result in technical reports and publications.

POPULATION MONITORING

Aerial surveys are important for acquiring information on manatee distribution, relative abundance, and use of habitat types. State-wide winter aerial surveys of all manatee wintering habitats in Florida and southeast Georgia are conducted after cold fronts, when the animals gather at warm springs and thermal discharges from power plants and industries. These surveys are useful in determining minimum estimates of manatee populations. Other aerial surveys are done year-round to map seasonal distributions of manatees.

Population models are being developed using data from aerial surveys and from mortality, life history, and ecology studies, to estimate trends in regional population sizes. While population models are preliminary, most point toward a slowly increasing population of manatees. However, that increase may be ending now. There is no reason to believe that manatees are any less endangered than before or that any ongoing manatee conservation strategies should be halted. The record number of deaths in recent years remains a major impediment to the recovery of the species. Continued high rates of mortality from watercraft collisions, as well as

habitat loss and environmental degradation are serious ongoing concerns.

1999-2000 Highlights:

- A total of 105 flights was made during fiscal year 99-00.
- Two interagency, statewide "synoptic" aerial surveys of manatees were conducted in 2000, funded by FMRI. The highest count was 2,222 manatees on January 26-27, 2000 (East Coast, 1,131; west coast, 1,091). Manatees were counted on 25 survey routes. A total of 40 biologists from research labs, universities, and 17 state, federal, and county agencies participated. Teams of observers included 20 aircraft crews and ten crews on the ground. The highest count in the previous year was 2,353 manatees on March 6, 1999. Counts vary depending on weather conditions and manatee response to cold weather.
- FMRI flew intensive aerial surveys this winter to assess the accuracy of counts at the Tampa Bay power plants, in conjunction with Eckerd College and Mote Marine Lab (MML). Replicate aerial counts were made to improve and calibrate survey procedures and to better track manatee population trends. Two Tampa power plants were counted, twice each day, for a total of 94 counts on 49 days. Flights were made twice weekly, and on 4-6 consecutive days during three cold fronts. Counts are being analyzed in relation to air and water temperatures. Ground and boat counts were also made. A new record count in Tampa Bay, 273 manatees, was recorded on 9 February 2000, under perfect counting conditions.
- FWC staff and contractors in Brevard, Sarasota, and Charlotte counties conducted twice-monthly aerial surveys of manatee distribution. A technical report summarizing 12 of these studies, 1984 to 1999, is being prepared.
- FWC surveys in Brevard County were initiated in September 1997. These surveys took two days to cover the county, and ended September 1999 (46 surveys on 82 days). Brevard County contains a high proportion of all East Coast manatees. The highest count was 790 manatees in March 1999.

- Surveys in Charlotte County were conducted by MML, under contract to FWC, from September 1997 to October 1999 (42 surveys). The highest count was 260 manatees in April 1999.
- Sightings from all of these surveys were entered into the GIS system for assessment of manatee distribution for management decisions. Maps of all the aerial survey studies (38 data sets) and the flight paths are available on the FMRI Atlas of Marine Resources CD-ROM, updated May 2000
- FMRI and MML cooperated on innovative aerial surveys in Sarasota County, funded by FMRI. Tandem surveys were conducted twice monthly in warm months from July 1998 to November 1999 (14 flights). Two planes covered the same survey route 30 minutes apart, to compare the counts made by the two observers.
- Population modeling research continues, incorporating 1999 mortality and 2000 synoptic survey counts. Population status information was provided to the interagency Population Status Working Group, to the Manatee Recovery Team, and to the Manatee Technical Advisory Council (MTAC). A manuscript on population models was prepared.
- Adult survival rates were estimated from photo-identification data from Tampa Bay and southwest Florida (7000 sightings of 600 recognizable individuals). State-of-the-art "sight-resight" statistics were used to estimate survival rates based on whether individuals were seen at least once during each winter.

ECOLOGY AND MIGRATION

Research on how manatees use the coastal habitats of Florida is essential to understanding what resources the population requires to expand and flourish. By following the movements of individual manatees in fresh, brackish, and saltwater habitats, valuable information is obtained about manatee behavior, migratory routes, and preferred habitats. Researchers place satellite and radio transmitters on manatees using a belt fastened around the narrow part of the tailstock and attach a floating transmitter housing to the belt. Signals from the satellite

transmitters are processed by a commercial satellite service and delivered to FMRI daily via the Internet. Research teams working in the field use the satellite locations to determine general areas where manatees are located and then use the VHF radio signals to find the individual manatees. Staff can then observe the manatee and record its behavior and movements.



Rehabilitated manatees were tagged and monitored to assess the success of their introduction or reintroduction to the wild. Five rehabilitated manatees were released

from captivity during this fiscal year. The rehabilitated animals included three orphaned manatees in captivity from 3-6 years and two captive-born manatees in captivity 5-6 years. One orphan was released into Salt Creek, a tributary of the Myakka River in Charlotte County, on January 28, 2000. Warm Mineral Springs is located at the end of Salt Creek and is used by approximately 30 manatees as a wintering site. The remaining orphaned and captive born manatees were released into Everglades National Park on March 15, 2000. Three manatees still tagged were captured for a health assessment 2-3 months after their release. They were in good health and released back into the wild. At the end of the fiscal year, only two of the five animals released continued to be monitored.

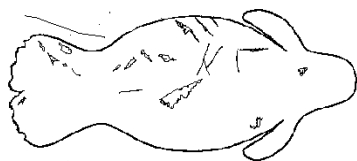
1999-2000 Highlights:

- Five manatees were tagged by FWC and MML staff in January and February as part of a study contracted to Mote to study manatee use of Matlacha Pass and Matlacha Isles canals in Lee county during the winter.

LIFE HISTORY AND BIOLOGY

Information on manatee life history is an essential component in formulating an assessment of manatee population dynamics and recovery. Data on long-term growth and survival of individuals, reproductive capabilities of mature females and health of wild manatees are important to a population model. Data are gathered from a variety of research projects. These projects include the photo-identification catalog, use of passive integrated transponders

(PIT tags), and non-invasive body condition indices.



Scar sketch of
"Vector"
Many individual
manatees are
recognized both
by natural
markings and

by scars inflicted mainly by interactions with powerboats or entanglement with fishery gear. The USGS Sirenia Project developed the photo-identification protocols and the image-based computerized database, the Manatee Individual Photo-identification System (MIPS), currently used by the Sirenia Project, the FWC, and MML. Federal, state, and local organizations contribute data to a southeastern U.S. manatee photo-identification catalog. FMRI coordinates and maintains the portion of the catalog for west-central and southwest Florida. In addition, FMRI field station staff photo-document manatees statewide.

PIT tags are small, unpowered microchips that are placed under the skin of a manatee to provide permanent marking of individuals for identification purposes. All manatees handled for rescue, rehabilitation or radio tagging are marked with PIT tags. All manatee carcasses are scanned for PIT tags before necropsy to identify known individuals for life history and distribution data, and to assess the success of rehabilitated animals to the wild.

1999-2000 Highlights:

- Currently, the west-central and southwest MIPS catalog consists of approximately 3000 images and 7000 sightings representing 600 manatees. Southwest Florida MIPS data were used by population assessment staff to estimate adult survival rates.
- FMRI photo-identification staff worked with MML, Lee County Parks, Florida Gulf Coast University, the U.S. Army Corps of Engineers, the National Park Service, and others to photo-document animals in southwest Florida. Staff collaborated with MML on photo-identification related STMTF contracts.
- Tampa Electric Company (TECO) funded approximately \$4,000 for photo-identification

studies at the Big Bend power plant in Apollo Beach, Florida for the fourth consecutive winter. FMRI staff provided assistance to the Manatee Viewing Center in updating manatee-related public outreach information and displays.

- In cooperation with the Save the Manatee Club (STMC), FMRI photo-identification staff have provided information, images, and maps for the Adopt-a-Tampa-Bay Manatee project. Staff provided quarterly updates for the SMC member newsletter. Funds donated are used for manatee-related research, education, and outreach programs. Since inception, there have been approximately 3,300 adoptions.
- The FMRI photo-identification internship program continues to grow. Interns collect photographic, geo-spatial, behavioral, biological, and environmental data year round. This fiscal year, 32 interns from across the U.S. and abroad (Canada, Switzerland, and the United Kingdom) participated.

MARINE MAMMALS GEOGRAPHIC INFORMATION SYSTEM

A geographic information system (GIS) is a computer-based mapping system designed to manipulate, analyze, and display large volumes of geographically referenced data called coverages. Staff working on the Marine Mammals GIS (MMGIS) have created numerous manatee data coverages including carcass recovery sites, aerial survey locations, and locations of animals tracked by satellite. The MMGIS is a module of the comprehensive Marine Resources GIS (MRGIS), which facilitates access by scientists and managers to a variety of data on the marine environment. The MRGIS is a primary tool for marine resource research and management. GIS applications facilitate an ecosystem approach to coastal resource management by allowing users to combine and query coverages representing different data themes relevant to the coastal environment. For example, GIS users can map and analyze manatee locations in relationship to habitat features such as depth contours, seagrass, aids to navigation, and managed areas. The MMGIS facilitates the exchange of ideas and information by interfacing management and research activities. The MMGIS staff works with research and management teams to provide manatee data in GIS format to the public and to develop spatial analyses and modeling

capabilities for manatee protection and ecosystem management. The staff also maps bottlenose dolphin and right whale sightings.

1999-2000 Highlights:

- Over 150 copies of the Atlas of Marine Resources CD-ROM's version 1.3 were provided to scientists, managers, educators, and consultants. Distribution is expected to exceed 700 copies. This release includes new and updated coverages, graphics, and information designed to serve the needs of organizations interested in manatee and sea turtle research and management. Data are stored as ARCVIEW shapefiles for use in GIS. Data are provided on manatee mortality, aerial survey results and flight paths, manatee density polygons, and protection zones. Base data include the Florida shoreline, depth contours, seagrass distribution, aids to navigation and other habitat-related features. The Atlas of Marine Resources CD-ROM can be obtained by contacting Kathy Smith at (727) 896-8626 or e-mailing kathy.smith@fwc.state.fl.us.
- Experts reviewed the computer model that converts aerial survey data to maps of manatee relative densities and a manuscript describing the model was accepted for publication in a scientific journal. This model helps standardize the interpretation of where manatees are likely to be found that are based on evaluations of manatee aerial survey data. This work was represented at the annual meeting of the International Association of Landscape Ecologists in Fort Lauderdale, Florida in April.
- Maps were generated showing statewide density of carcass locations related to watercraft deaths since 1974. Density of watercraft related deaths was mapped in five-year increments to illustrate consistent and changing areas of higher watercraft-related deaths. The preliminary maps were presented to MTAC in August 2000.
- The computer model developed by FMRI MMGIS staff for estimating manatee travel patterns from satellite and visual locations was evaluated by field biologists familiar with manatee travel patterns in the area studied. This model mapped areas that manatees visit frequently for extended periods and areas

possibly used as travel corridors. A manuscript describing the model is being prepared for submittal to a peer-reviewed scientific journal.

- Significant progress was made regarding the development of a right whale GIS. Several years of aerial survey sightings and effort information collected by state and private organizations in the southeast U.S were compiled into GIS format and spatially verified. Mandatory Ship Reporting information was received from the National Marine Fisheries Service (NMFS) and generated into ship tracks in critical areas for right whales. GIS staff are in the process of verifying the generated tracks for future analyses. The sightings and ship traffic information will be used to assist management by enhancing their ability to make data-driven decisions.

HUMAN DIMENSIONS

Understanding how humans affect the welfare of manatees is important to the recovery effort. Factors such as changes in habitat distribution, pollution and mortality resulting from boat strikes are all related to human activities. To make wise decisions regarding habitat protection, boat speeds, refuge and sanctuary delineation, harassment, and compliance, a deep understanding of human behaviors and motivations is necessary. Examples of human dimension studies include gathering data on boating patterns and speed-zone compliance, assessing knowledge and attitudes via telephone or mail surveys, and evaluating the effectiveness of educational materials.

- FMRI initiated work on assessing the efficacy of speed zones for manatee protection. The results will be used for a variety of purposes, including mapping boat-use conflicts, examining the boater "experience," and assessing environmental effects related to boating. FMRI research involves characterizing watercraft use patterns and manatee distribution, abundance and movement. These studies are then merged to estimate how the placement of speed zones has affected the risk of manatee boat strikes. Initial studies focused on the boating characterization in Charlotte and Lee Counties. This characterization involved a team from several institutions using aerial surveys to map boat distributions, meetings

with boating experts to identify areas of specific boating activities, and telephone surveys to understand boater decision making with respect to crowding, favorite areas to visit, routes taken, and preferred boating times. Early results show boating activities are widely distributed in Charlotte and Lee Counties with the highest densities in the Caloosahatchee River and the Intra-coastal Waterway. The most common activity was fishing, and boaters tend to be “distance minimizers”; they have destinations in mind and do not simply “cruise around.”

- FMRI staff initiated a statewide boater compliance study with MML staff, FWC field station staff and volunteers. The study is composed of three phases: baseline, intensive, and enforcement. For the baseline study, staff collected information on boat traffic and vessel speeds for one year. This study evaluates boater compliance seasonally, at six sites statewide. Preliminary data indicate that vessel speed is closely related to vessel size and type. During the summer of 2000, FMRI staff completed the second phase, an intensive boater compliance study examining four sites for ten days. Staff recorded information to provide managers and law enforcement with immediate results by creating a snapshot of boater compliance. Initial data support the vessel size and vessel type influences on compliance. Compliance within slow speed zones was 55%. FMRI staff will complete the third phase of the compliance studies by conducting a time-halo effect study. This study will determine boater responses to the presence of law enforcement, and any lingering effects after law enforcement officers leave an area.
- FWC hosted the National Watchable Wildlife Conference in October of 1999. FMRI staff presented information about manatee harassment, participated in a panel discussion, and hosted a manatee harassment workshop. Workshop goals were to: 1) bring scientists, managers, enforcement officers, and manatee educators together to discuss manatee disturbance issues to reduce harmful activities; 2) clarify enforcement regulations, allowing officers to identify infractions and enforce existing laws; and 3) help achieve the Florida Manatee Recovery Plan objective, “to identify and

minimize causes of manatee disturbance, injury and mortality.” Participants discussed manatee harassment concerns and will promote a universal message of, “passive observation.” A Manatee Harassment Outreach Working Group was formed and met in January 2000 to brainstorm how to promote the “passive observation” message and other Watchable Wildlife viewing guidelines.

- The first year of a 3-year study comparing education and regulation as tools for manatee protection was completed. This project operates under the guidance of the Tampa Bay Estuary Program’s Manatee Awareness Coalition and involves FWC, Tampa BayWatch and the University of Florida. This first year served as the baseline to characterize boaters in two study areas. Information including boat types, activities, and whether boats remained in a designated channel were collected on 3,771 vessels. A sample of these boaters was included in a telephone survey conducted by the University of Florida to measure attitudes and knowledge of boating, manatees, and environmental stewardship in general. The second year of the study will focus on implementing an education program and the third year will be an assessment of educational efficacy.

RIGHT WHALES



Photo by Jackie Ciano, FWC

In addition to manatee recovery efforts, the FWC is involved in recovery efforts for other endangered marine mammals, including the northern right whale, *Eubalaena glacialis*, the most endangered of the world's large whales. Efforts have been heightened to prevent human-caused mortality in this species, where even one death per year has a significant impact on the population estimated to number less than 350 individuals. The National Marine Fisheries Service (NMFS) designated Florida and Georgia coastal waters as critical habitat for the right whale in 1994. This region is the only known calving ground of the northern

right whale. FWC is dedicated to assisting NMFS in its efforts to protect the northern right whale as outlined in the 1991 Northern Right Whale Recovery Plan.

Efforts to protect right whales in the Florida/Georgia critical habitat have resulted in the formation of the Southeastern U.S. Implementation Team for the Recovery of the Northern Right Whale, a multi-agency/citizens advisory group. The Team makes management and research recommendations and assists in implementing the Recovery Plan. The FWC has been a member of the Implementation Team since its inception in 1993, and in 2000 a FWC right whale researcher was appointed chairperson. Since 1987 FMRI staff have conducted numerous aerial surveys to monitor seasonal presence of right whales, to determine the number of calves born, and to mitigate ship/whale collisions.

1999-2000 Highlights:

- The 99-00 winter season resulted in comprehensive aerial survey coverage of the right whale calving grounds and surrounding areas. This included over 100 coastal, offshore, and public sighting surveys flown by FWC.
- FMRI, the New England Aquarium, and the Georgia Department of Natural Resources (GDNR) sighted only one mother/calf pair this season, the lowest calving numbers on record.
- FMRI initiated a biopsy darting program in an effort to gather genetic data from animals that are sighted in the SE United States but not in other known right whale aggregation areas.
- FMRI received a \$45,000 grant from NMFS to assist in right whale recovery efforts. Funding was used for coastal aerial surveys, for confirming public sighting reports along Florida's East Coast, for funding the early warning system communication network, and for management and education activities. FWC continues work to establish an agreement with NMFS that will provide additional funding for right whale recovery efforts.

- A cooperative offshore aerial survey effort between FMRI and GDNR was funded by NMFS, who provided \$99,900 to FMRI for aircraft services to cover 50-60 offshore flights.
- Presentations were given at scientific meetings and shipping seminars, as well as to the general public to educate Floridians about the plight of the right whale.
- FMRI continued to coordinate a complex communication network utilizing 25 alphanumeric pagers to disseminate right whale sighting locations to all mariners in the southeastern United States in an effort to prevent ship collisions with right whales.
- The MMGIS at FMRI continued to be an integral part of the right whale program, incorporating results of FMRI aerial surveys, ocean surface water temperatures, water depths, and other valuable information. Additional funding was received from NMFS to substantially increase the right whale activities of the MMGIS.

OFFICE OF ENVIRONMENTAL SERVICES BUREAU OF PROTECTED SPECIES MANAGEMENT

The Bureau of Protected Species Management (BPSM), in Tallahassee serves as the management component of the FWC marine mammals program. It is responsible for planning and implementation of management activities directed toward the protection and recovery of manatees, the endangered right whale, and of marine turtles and their essential habitats. During the 1999-2000 fiscal year, BPSM's marine turtle activities were funded from the Marine Resources Conservation Trust Fund. As of July 1, 1999, BPSM was transferred to the FWC as a bureau within the Office of Environmental Services. BPSM serves as the Commission's primary liaison on manatee issues by working closely with federal, state, and local governments to facilitate strong comprehensive planning and implementing tasks of the federal manatee recovery plan. Protection activities are principally implemented in four ways: state rules are developed, permit applications for resource development are reviewed and commented on, manatee protection plans are developed and implemented with the assistance of local governments, and Floridians and visitors are

educated on how manatees and their habitat can be protected.

MANATEE PROTECTION PLANS

Manatee protection plans (MPPs) are one tool that can assist in the long-term preservation of manatees and their habitat. MPPs address boat-facility siting, habitat protection, local educational campaigns, and waterway-use regulations. County-specific boat speed zones can be a component of these plans, although state rule making must implement state zones. The plans can also address solutions for manatee mortality caused by locks, gates, large vessels, ships, and commercial fishing practices. Indirectly, MPPs may also increase the safety of boaters, facilitate recreational planning, and protect aquatic habitat critical to many other species. Because of the complexity of issues a county must address in its plan and the range of information that must be collected, plans can take several years to develop. The preferred mechanism for implementing plans is for each local government to adopt them as an amendment to their comprehensive plan and adopt appropriate implementing regulations. MPP staff coordinate assistance with protection planning for the following counties and others as requested by local governments.

1999-2000 Highlights

- MPP staff met with the Brevard County Board of County Commissioners and County staff to discuss future revisions to the manatee protection plan. BPSM staff participated in a public meeting held in Viera on August 19, 1999. The County held public workshops on February 17, 2000 and April 27, 2000 to discuss revisions to their MPP. Attempts to finalize the MPP are ongoing by the County. One of the primary areas of contention is the boat facility siting component.
- The Dade County Manatee Education Advisory Group was renamed the Manatee Protection Implementation Team in 1999. The purpose of this committee is to bring together law enforcement agencies, scientists, special interest groups, and concerned individuals to facilitate the public's understanding, concern, and knowledge about manatee mortality and possible extinction in the state of Florida.
- Since the Duval MPP was approved in June 1999, MPP staff assisted Jacksonville

University staff by providing comments on the "Summary Guide to the Duval County Manatee Protection Plan – A Guide for Boating, Swimming & Personal Watercraft Operation in Duval County 2000." This is an excellent guide to manatee protection and the new speed zones that will become effective later in 2000.

- MPP staff attended the Indian River County Commission meeting on August 17, 1999, where the MPP was discussed and approved for transmittal to BPSM. On August 27, 1999, the MPP was submitted to BPSM for review. In October, the MPP was sent back to the County with recommended revisions. Indian River County staff and BPSM staff conducted an updated marina inventory in January 2000. County and BPSM staff finalized the boat facility siting section. MPP staff attended a meeting of the Marine Advisory Narrows Watershed Action Committee (MANWAC) in June, where the MPP was discussed. County staff were directed to finalize the abundance and mortality criteria and then the MPP was recommended for transmittal to the County Commission.
- A custom ArcView Seagrass mapping project of 110 sites in Palm Beach County was completed and over 100 CDs were distributed. MPP staff presented training sessions on the CD and interpretation of the data to the Department of Environmental Protection (DEP) Southeast District Environmental Resources Permitting, South Florida Water Management District, and Palm Beach County Dept. of Environmental Resources Management staffs in West Palm Beach. Publication of these data assisted in the critical area designation of the listed species of seagrass, *Halophila johnsonii* and in review of permit applications. A presentation was also made to the Manatee GIS workgroup.
- BPSM staff met with Volusia County Environmental Management (VCEM) staff on March 6-7, 2000, to discuss BPSM's June 1999 comments on the County's draft MPP report. County staff will be working to finalize the plan. BPSM staff also assisted VCEM by reviewing and providing comments on the their new manatee issue of the EnviroNET newsletter. This newsletter was one of four manatee projects that VCEM created with a

grant from the Advisory Council on Environmental Education (ACEE), and should be an excellent environmental education product for Volusia County. BPSM staff also attended a meeting of the Halifax/Indian River Task Force in Daytona Beach on March 7. The meeting involved in-depth discussions of the Volusia MPP and the progress that will be made over the next few months.

- A legislative appropriation of \$241,000 to be used by counties for developing manatee protection plans enabled BPSM to contract with St. Lucie, Martin and Lee Counties to develop boat facility siting plans. These studies will be completed by 2001.
- Several counties received grants from ACEE for environmental education projects. Dade County's proposal includes 14 educational kiosks to be placed at County boat ramps and the reprinting of the Biscayne Bay boater's guide.

LAW ENFORCEMENT COORDINATION



BPSM and FMRI staff continued to increase involvement and coordination with federal, state, and local law enforcement agencies. This was

done by training law enforcement recruits, distributing maps and educational materials to officers, and holding coordination meetings with law enforcement agencies, especially the FWC.

1999-2000 Highlights

- As a result of high watercraft mortality in the first three months of 2000, an FWC education and enforcement initiative was begun in Brevard, Dade, Collier and Lee counties in April and then expanded statewide. BPSM staff aided this effort through the creation and distribution of 20,000 county-specific brochures. Volunteers from county environmental organizations helped distribute this manatee information to the public.
- BPSM and FMRI assisted the Office of Information Services and the Division of Law Enforcement at three simultaneous press conferences in May 2000 that highlighted manatee awareness and the FWC law enforcement initiative.

- BPSM developed information packages that included general manatee information, laminated speed zone maps with appropriate citations, and speed zone reference wall maps. These packages were provided to federal, state, and local law enforcement officers. Since training for FWC has been done, MPP staff were able to present materials and training to many more local marine police departments.
- The "Manatee Alert" Program implemented by MPP staff involved six extra law enforcement details during the manatee season, and was considered successful. The program involves relaying data on manatee use patterns in specific areas to the officers that patrol those areas. BPSM believes that manatees will benefit from this increased enforcement presence.
- With the creation of the Fish and Wildlife Conservation Commission, MPP staff made an effort to provide county-specific manatee information to inland officers who were formerly with the Game & Freshwater Fish Commission.
- In April 2000, MPP staff participated in the Federal training program for officers of all five U.S. Coast Guard stations located on Florida's west coast. In addition, MPP staff made presentations to several Coast Guard Auxiliary groups.

STRUCTURE-RELATED MANATEE DEATHS

More manatee deaths are attributed to structures (navigation locks and water control gates) than any other human cause except for watercraft. From 1974-1999, 160 manatees were crushed or drowned by navigation locks or water control structures in Florida. Structure-caused manatee deaths were up from the previous fiscal year with 18 reported in FY 1999-2000. FWC staff continued to have an active role in coordinating with the U.S. Army Corps of Engineers (USACE), the South Florida Water Management District (SFWMD) and the Department of Environmental Protection (DEP) to develop solutions to this serious problem. The most important is the development of technologies to make locks and water control structures "manatee-safe."



SFWMD Photo

1999-2000 Highlights:

- BPSM staff met with the interagency task force for the elimination of structure-caused deaths to coordinate agency efforts to solve this problem.
- The acoustic ladder array installed at St. Lucie Lock had to be taken off-line for adjustment and repair and unfortunately a manatee was killed there while the system was down.
- The structure on the Tamiami Canal (S-25b) killed two manatees near the end of 1999 despite being equipped with manatee protection devices which were installed in October 1998 by the USACE. SFWMD and USACE discovered several possible problems and made a number of adjustments to the system.
- There was yet another setback for the manatee protection technology when the structure on the Little River in Dade County (S-27) killed a manatee in early 2000. While no specific malfunction could be found, the positioning of the manatee detection strips was modified to improve the system.
- The USACE, working with Harbor Branch Oceanographic Institute, installed an acoustic array manatee protection system on the Port Canaveral Locks. The Canaveral Port Authority locally sponsored this project.

GEOGRAPHIC INFORMATION SYSTEM

GIS applications and data facilitate computer-aided coastal systems management by allowing users to combine and query map layers using "location" as a qualifying theme for environmental review. Staff use manatee information map layers including speed zones, aerial surveys, and satellite tracking locations. Data and maps are

provided to scientists, managers, educators, and consultants.

1999-2000 Highlights:

- BPSM staff distributed 197 GIS maps, 75 AutoCAD maps, and 63 digital data sets to external customers.
- One product designed to assist FWC and other law enforcement officers is color laminated, citation referenced speed zone maps. These have proven to be invaluable tools that simplify the job of the enforcement officer. This year 368 map sets were produced and distributed.
- Staff implemented and maintained network presence for proper intra and inter agency communication in the newly formed FWC.

HABITAT CHARACTERIZATION, ASSESSMENT AND PROTECTION

A viable population of manatees will not persist without suitable habitat. Florida's increasing human population, and particularly the associated coastal development, is a long-term threat to the manatee's habitat. Historically, coastal development has resulted in degradation of water quality and destruction of seagrasses - the manatee's primary food. Ways to minimize negative effects of coastal development are being explored. Reductions in the flow of warm springs, due to human consumption, threaten significant natural warm water refuges in the northern half of the state. An uncertain future for the power industry, with looming deregulation and existing plant senescence, also poses possible threats to established artificial warm water refuges. Understanding the manatee's habitat needs and assessing habitat health and stability is a primary focus of habitat protection programs.

1999- 2000 Highlights:

- BPSM staff continued to serve on the Crystal River Interagency Working Group to establish plans for using aquatic herbicides in Kings Bay and the Homosassa River. Monitoring of manatee numbers and aquatic vegetation abundance led to the decision to continue the October 1 through April 1 moratorium on all aquatic plant management activity in Kings Bay and the Homosassa River. Harvesting of floating mats of the blue-green alga *Lyngbya*

sp. will continue in an effort to encourage the growth of preferred manatee forage plant species.

- BPSM staff coordinated the Blue Spring Interagency Working Group to ensure that manatee habitat in this area will be sustained and monitored on a regular basis. The group continued a ban from October to April on aquatic plant management activities in the vicinity of Blue Spring from Lake Beresford to channel marker 85 on the St. Johns River.
- Manatee concerns for protection of natural spring habitat were addressed through coordination with the DEP's Springs Task Force. FWC contributed recommendations regarding manatee use of springs that were incorporated into the final document that will be submitted to the DEP Secretary and Governor.
- In order to address protection of manatees using power plants, FWC coordinates with the DEP's National Pollution Discharge Elimination System (NPDES) program to address short and long-term concerns regarding industrial thermal discharges. To date, six power plant manatee protection plans have been established with several more near completion. FWC continues to coordinate with USFWS, USGS Sirenia Project, and the power production industry to address the long-term future of industrial warm-water refuges.
- BPSM and the DEP Bureau of Coastal and Aquatic Managed Areas (BCAMA) continued to investigate the effect of structures (docks, piers) on seagrass community health. Regular monitoring of experimental docks developed over existing seagrasses in the lower Indian River Lagoon has neared completion. A variety of dock designs were used to assess the effect that dock height and construction material use has on light levels reaching seagrass plants surrounding the structures. Higher docks with grating as decking material allow greater light transmittance, which allows improved seagrass growth under and around these structures. BPSM staff completed a two-year study of seagrass using a Before/After Control/Impact (BACI) design. Two new BACI docks were identified and sampling has begun at these sites. Comparison of

seagrass communities surrounding experimentally designed docks and those constructed based on current requirements will help determine the relative effectiveness of regulations for current dock design criteria. The focus of this research is to develop innovative designs and construction criteria that will allow seagrasses to persist below and adjacent to such structures.

- Artificial warm water refuges have continued to be a focus of the habitat program over the past year. Changes in the power generating industry have heightened concerns that the consistency of warm water delivery at power plants might be in jeopardy. BPSM and USFWS staff developed a warm water refuge task force to address long-term provision of warm water at or near these sites or development of alternative warm water sites for manatees.

RULE ADMINISTRATION



The Rule Administration Section focuses primarily on establishing comprehensive manatee protection

boat speed and access zones and administering activities related to these zones, such as signposting, permit issuance and variance reviews. The first state-designated boat speed zones for manatee protection were established in 1979. There were 13 counties identified in 1989 by the Governor and Cabinet as high priority for establishment of county-wide speed zones: Brevard, Broward, Citrus, Collier, Dade, Duval, Indian River, Lee, Martin, Palm Beach, Sarasota, St. Lucie, and Volusia. By the close of the fiscal year, zones were established in all 13 counties.

1999-2000 Highlights:

- Following the creation of the Florida Fish and Wildlife Conservation Commission (FWC) and the transfer of the manatee program to the FWC, all of the manatee protection rules were moved from Chapter 62N to Chapter 68C of the Florida Administrative Code (FAC). The chapter was also renamed "Manatees" instead of "Manatee Sanctuary Act."
- Amendments to the Lee County rule (68C-

22.005, FAC) were approved by the Commission on October 6, 1999, and adopted on November 10, 1999. Rule adoption was the culmination of several years of intensive work following the invalidation of proposed amendments in 1995. The amendments had been ready for adoption during the previous fiscal year when the manatee program was still a part of the Department of Environmental Protection, but the process could not be completed because of a pending administrative challenge. Sign posting and other implementation activities were ongoing at the close of the fiscal year.

- At the direction of the FWC Commission, staff conducted a workshop in December 1999 and proposed an amendment to the Lee County rule (68C-22.005, FAC) in February 2000 to address an access issue in the southern portion of the county. A rule amendment was proposed that would provide improved access during low tides. This proposal was challenged by the Save the Manatee Club in March 2000. The Commission conducted a public hearing on May 24 in Pensacola and approved the amendment, with minor revisions. The challenge by the Club remains unresolved at this time.
- Amendments to the Duval County rule (68C-22.027, FAC) were proposed in April 2000 in association with the city of Jacksonville's Manatee Protection Plan that was approved in June 1999. On May 24, 2000, the Commission approved the proposed zones with two changes. A Notice of Change was published in June 2000.
- BPSM staff and FWC attorneys spent a considerable amount of time during the first half of 2000 responding to a rule challenge filed by a Brevard County resident contesting several of the existing zones in the Canaveral Barge Canal area. This challenge to the Brevard County rule (68C-22.006, FAC) was initially set for hearing in January 2000. The hearing was postponed several times and eventually was held in June 2000.
- In November 1999, Collier County created new marked channels in the Hall Bay, Henderson Creek and Caxambas Bay areas. These newly marked channels did not require any rule adjustments, although speeds of up

to 30 MPH are allowed in the new channels following the existing Collier County rule (68C-22.023, FAC). Staff continued to work with county staff and law enforcement personnel to fine-tune sign posting in the county and to finalize an agreement with Collier County to take over maintenance of the signs used to mark the state-designated zones. At the end of the fiscal year, an agreement had not been finalized but this was expected to occur within several months.

- Staff continued evaluating the need to amend the Volusia County rule (68C-22.012, FAC). Staff conducted on-water tours of the St. Johns River area in July 1999 and the coastal area in June 2000.
- FWC continued to issue permits (in accordance with 68C-22.003, FAC) for commercial fishing and professional fishing guide activities around the state (predominately in Volusia, Brevard, Indian River, Lee, and Collier counties). Many of the requests were for professional fishing guide permits in Collier County. Opposition to these permits continues to grow. Both law enforcement agencies and others, including recreational boaters, have stated that they believe that the permit system should not exist. A Notice of Rule Development was published in March 2000 to announce that the Commission was considering the need to amend the rule. Two workshops were held in April 2000, in Lee and Brevard counties. As of the end of the fiscal year, staff was reviewing the rule to determine what or if any changes should be recommended.

- Several permits were issued during the 99-00 fiscal year. The vessel-testing permit for Outboard Marine Corporation for portions of St. Lucie, Martin, and Palm Beach counties was reissued in August 1999. The vessel-testing permit for Polaris Industries for Martin County was reissued in September 1999. The June 1999 vessel-testing permit for Bombardier Corporation in Brevard County was revised in September 1999 to add two



additional conditions that were negotiated between Bombardier and Save the Manatee Club. The vessel-testing permit for Boston Whaler for Volusia County was reissued in January 2000. The permit allowing Mote Marine Laboratory to access Pansy Bayou in Sarasota County was reissued in January 2000. Several permits were issued to allow residents to access waterfront property within various limited-entry areas around the state.

- Considerable time was spent this year with sign posting issues. Staff coordinated closely with FWC Division of Law Enforcement (DLE), navigation districts and county staff, and conducted a number of field inspections of sign plans. Meetings were held with U.S. Coast Guard and U.S. Fish and Wildlife Service to discuss possible changes to sign designs. Some changes in text are being implemented to make the signs more legible to boaters.

PERMIT REVIEW

Activities permitted by state and federal agencies (DEP, water management districts, Department of Community Affairs, the U.S. Coast Guard, and U.S. Army Corps of Engineers) can produce adverse impacts to the endangered manatee. BPSM reviews these projects and drafts agency opinions to reduce or eliminate negative effects. Staff performed 377 reviews during the 99-00 fiscal year.

1999-2000 Highlights:

- BPSM represented the FWC at the Submerged Lands Tactical Advisory Committee meetings.
- Staff provided expert testimony for the DEP during an administrative hearing on the issuance of a permit for the Hy-Power hydroelectric power plant in Inglis, Florida.
- A training video for manatee observers required by permit conditions was developed and distributed.
- Coordination meetings were held with the following offices: St. Johns River Water Management District, DEP Southwest, Central and Southeast Districts, and the Southwest Florida Water Management District.

- Staff met with DEP and USACE to discuss the manatee key used to determine “may affect” projects, which implement the State Programmatic General Permit. Revisions of the key were later reviewed.
- Coordination between BPSM and the U.S. Coast Guard Group Mayport was improved and the Conservation Measures for High Speed Events were revised.
- Project meetings were held with DEP Northeast, South, and Southeast District staff members and with the USFWS Office of Ecological Services staff in Vero Beach.
- FWC recommended against approval of the Port Manatee expansion project and hopes to provide additional input to the construction permit to reduce the impacts to seagrasses. The Governor and Cabinet, acting as the Board of Trustees, approved the conceptual permit for the project.
- The Indian River Landings is a residential development that includes about 154 single and multi-family units in Brevard County and includes a proposed marked channel through dense seagrass beds in shallow water. FWC recommended against approval due to seagrass impacts and level of boat traffic. The applicant’s agent continues to provide proposed modifications to reduce impacts.
- The National Marine Manufacturers Association requested a 20% increase in mooring capability for the Miami Boat show, and an official deletion of lease conditions approved by the Governor and Cabinet but waived by DEP. Additional mooring was approved with some modification of the existing lease conditions.
- Lee County Electrical Co-op received a permit to dredge a channel to facilitate the installation of a new electrical cable across Pine Island Sound. A permit condition was violated due to a change in location of the spoil and the illegal construction of a bulkhead to facilitate the mooring of a barge to offload spoil. Increased risk to manatees was possible due to a very large barge accessing a shallow residential canal to offload spoil. Objections by local residents and comments by FWC and USFWS resulted in a modification of the permit.

- Diplomat Ltd. proposed a docking facility in Broward County would have had boats moored over threatened *Halophila johnsonii* seagrass beds. FWC recommended denial of the project as proposed and suggested a redesign of the project. DEP issued the permit with a redesign, however, the federal permit required a redesign that reduced impacts to seagrasses.
- The 1999 Hurricane Classic, a high-speed boat race in Tampa Bay, took place in November. The required watch group observed manatee/spectator boat interactions including several near misses and one possible collision. Due to the history of problems associated with this event, FWC sent a letter recommending denial of future applications to the applicant and to the US Coast Guard. Subsequently, the proposed racecourse was modified and verified with GPS. Additional conditions were included in the November 2000 permit application and FWC withdrew its objections.
- Kramer Dock in Palm Beach County was a request for a deepwater access channel for a single-family dock that would result in 0.6 acres of seagrass impacts. The majority of the seagrass at the site was *Halophila johnsonii*, a threatened species. FWC recommended denial of the project and DEP concurred.
- A proposed project in Dade County, Brickell Key, was reviewed. The request was for a 112-slip marina to be used by residents of the key and the public. FWC made recommendations based on available manatee data and consistent with the approved county Manatee Protection Plan. The plan does not identify this location for future marina development, but it will allow waterfront residents to exercise their riparian rights.
- Whitley's Marina in Brevard County: FWC recommended a powerboat restriction to both wet and dry boat storage at the marina, to maintain the current level of powerboats housed at the site. The agenda item for the Governor and Cabinet stated that all FWC conditions would be included in the permit. However, the permit placed the powerboat restriction only on the wet slips. The Save the Manatee Club (STMC) objected to the powerboat restriction as written in the permit,

however, the cabinet passed the item. It is presently under litigation.

- Suncoast Offshore Races in Sarasota: FWC recommendations for the year 2000 event included the use of a helicopter for the manatee watch program, due to the increased number of manatees seen during past events. Organizers appealed to the agency for assistance and a FWC helicopter was donated for the watch. The event was halted twice, once for bad weather conditions and once for a marine turtle in the racecourse.

ADVISORY COUNCIL ON ENVIRONMENTAL EDUCATION

During this fiscal year, the legislature provided \$499,500 from the STMTF to be administered by the Advisory Council on Environmental Education (ACEE) for manatee-related environmental education projects. The Council, whose members are appointed by the Commission, serves as a forum for the discussion and study of problems that affect the environment and is responsible for recommending environmental education projects funded through the STMTF. In December, a meeting was held to address the potential shortfall in the STMTF. As a result, it was decided to forego expending \$258,000 from the fund. The remaining funds were distributed to grantees chosen through a competitive selection process by ACEE.

Proposals were accepted from county governments for projects designed to increase Floridian's understanding of the importance of coastal and freshwater ecosystems to survival of the West Indian manatee. Proposals were required to include active participation by community stakeholders, and to provide opportunities for citizens to become involved in activities to benefit manatee habitats. Projects focusing on watercraft-related mortality were especially encouraged.

Five proposals were selected and entered into performance-based grant agreements with the Commission. The activities include: installing educational panels at boat ramps, developing and implementing a monofilament line recycling program, and distributing manatee newsletters, boat console decals and floating key chains to registered boaters. These projects will be completed in June 2001.

PUBLIC EDUCATION AND INFORMATION

An integral component of the Florida Manatee Recovery Plan involves educating the public. Recovery of the manatee depends ultimately on broad public support, which depends on an informed public that understands manatee conservation issues and the rationale behind regulatory and management actions. Knowledge of manatees, their habitat requirements, and general biology contributes to the reduction of manatee disturbance, harassment, injury and death. BPSM develops public service announcements, television messages, brochures, teachers' guides, posters, pamphlets, and signs for public education purposes. The goal is to provide factual, timely information to the target user group.

1999-2000 Highlights

- The move from DEP to the FWC resulted in an evaluation of all manatee education materials. Staff updated brochures, posters and other materials to include the new agency's address, logo and web site and other facts or figures requiring changes.
- BPSM E&I staff completed a new publication targeted to middle and high school students. The student activity workbook is called "The Manatee-Florida's Endangered Marine Mammal." The workbook was developed to fill the education gap between the elementary student and the boater.
- A new "Ramp Ranger" program was developed and tested. This involves BPSM organizing volunteers from local environmental or civic groups to distribute manatee and other environmental information at public boat ramps. BPSM provided the materials and targeted those counties where the number of manatee deaths had been particularly high.
- E&I staff distributed education materials to 600 individuals or groups requesting information. Bulk orders of information were sent to tax collection offices, oceanaria facilities, Division of Law Enforcement offices and environmental education groups around the state.
- Each year in June, BPSM coordinates with county tax collectors in conducting the Voluntary Contribution Campaign for

manatees and marine turtles. A manatee decal is given to anyone who donates \$5 to the manatee program. In addition to decal sales, many counties hold other fund raising events that benefit the manatee trust fund. This year the campaign experienced numerous changes as the tax offices changed to a birth month registration period. An overlap of decals from one year to the next occurred in May as counties tried to meet the demand of vessel registrants whose birthdays fell during May. In Fiscal Year 99-00 Florida's tax collectors sold 18,529 manatee decals and brought in about \$100,000 to the Save the Manatee Trust Fund.

- A new multi-lingual waterproof boater's card proved to be a big success with law enforcement and environmental agencies. An additional printing of 150,000 cards was distributed statewide.

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Florida residents can buy manatee license plates for their vehicles.
Receipts from license plate sales are available for marine mammal research and
management efforts through the Save the Manatee Trust Fund.



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