SAVE THE MANATEE TRUST FUND

FISCAL YEAR ANNUAL REPORT

JULY 1, 2012—JUNE 30, 2013

Florida Fish and Wildlife
Conservation Commission

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to report fish and wildlife violations, as well as manatee injuries and mortalities

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Photographs Courtesy of FWC, unless otherwise noted

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SAVE THE MANATEE TRUST FUND

Annual Report

FY 2012-2013

Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
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SUBMITTED BY

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Fish and Wildlife Research Institute
and
Division of Habitat and Species Conservation

Table of Contents

Executive Summary

The Florida Fish and Wildlife Conservation Commission (FWC) is pleased to submit this annual report on the expenditures from the Save the Manatee Trust Fund (Trust Fund), per section 379.2431(4)(b), Florida Statutes (F.S.). The Trust Fund is the primary source of funding for the State's manatee-related research and conservation activities. As required by Florida law, the report is provided to the President of the Florida Senate and the Speaker of the Florida House of Representatives by December 1, each year. This report covers the period from July 1, 2012, through June 30, 2013.

Recent annual reports described heavy impacts to manatees associated with unusually cold winter weather. The Fiscal Year (FY) 2009 – 2010 report found that record cold followed by below-average temperatures contributed to the in-state total of 756 reported manatee deaths - the worst on record at the time. Unfortunately, during FY 2012-2013 even more manatee deaths were reported, with a total of 865 reported deaths in Florida waters and an additional 11 from other states. Red tide along southwest Florida is associated with the deaths of at least 291 of the reported manatees during the entire fiscal year. Additionally, 111 manatee cases from Florida's central east coast suspected to be from a common but still unknown cause of death are also a contributing factor to this record mortality number. When mortality levels reached a predetermined notification trigger earlier in FY 2012-2013, the National Working Group on Marine Mammal Unusual Mortality Events was contacted and subsequently declared a Manatee Brevetoxicosis (red tide) Repeat Mortality Event for southwestern Florida, and declared a separate Manatee Unusual Mortality Event (UME) for Florida's central east coast. These designations are in recognition of the serious nature of the events and the need for immediate response and investigation to better understand manatee population threats and stressors.

Substantial effort was put forth statewide, and particularly in southwest and east central coastal Florida, to effectively respond to large inflows of public reports of dead and distressed live manatees. FY 2012-2013 was unparalleled in the frequency of incoming reports and response needs. Fortunately, the State of Florida along with its partners has a manatee conservation program in place that allows FWC to effectively respond. Early activation of contingency plans including assignment of coordinators that directed response actions and the assembly of comprehensive teams are part of the program's strategy to meet the unique and complex challenges of catastrophic wildlife events such as these.

Agency actions during the red tide die-off included reconnaissance missions conducted via aircraft and boat to find manatees in distress and conduct rescue operations. A record number of red tide-related manatee rescues for a single event were accomplished in southwest Florida. Most have been treated and returned to the wild. Importantly, insights are gained through experience, and response capabilities, therefore, improve over time. Regarding the Florida East Coast UME, reports of manatee mortality have decreased during recent months and an active investigation utilizing researchers from multiple disciplines and organizations continues. The information gleaned from the investigation will help to inform managers about potential emerging issues and will aid in the development of appropriate conservation actions.

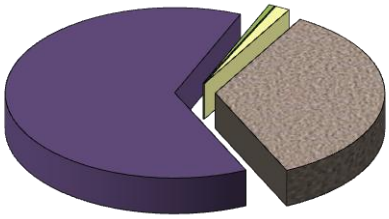
This report provides an overview of progress, accomplishments, and challenges related to manatee conservation and research that occurred over the 2012-2013 fiscal year. Priority conservation work will provide a better understanding of the impacts of primary threats, such as red tide, and other environmental stressors, on manatee population growth. FWC intends to incorporate information from recent mortality events into future population modeling efforts in an attempt to better understand the relative roles of various threats and improve the ability to forecast population changes.

These activities are possible because of the funding of the Save the Manatee Trust Fund. The Trust Fund receives money from sales of manatee license plates and decals, boat registration fees, and voluntary donations. Revenues for FY 2012-2013 totaled $3,759,261. Appropriations from the Trust Fund for the same period were $4,066,397, with $325,000 provided for manatee research activities at Mote Marine Laboratory and a service charge to General Revenue of $340,116 that most trust funds are required by law to pay. In FY 2012-2013, FWC's Division of Habitat and Species Conservation expended $981,426 for conservation activities and the Fish and Wildlife Research Institute expended $1,831,124 on research and monitoring. Details of revenues, appropriations, and expenditures are shown on page seven of this report.

Photo shows manatee carcasses at the Cecil M. Webb Wildlife Management Area.

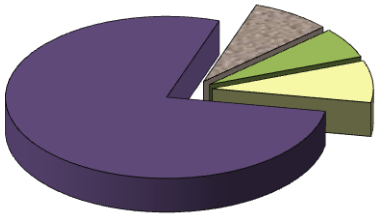
Trust Fund FY 2012–2013 Revenues and Expenditures

REVENUES
$3,759,261



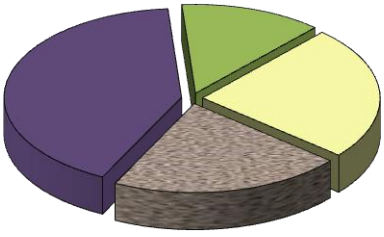
- Save the Manatee License Plate ($1,306,772)
- Vessel Registrations ($2,377,999)
- Interest ($21,333)
- Decals and Donations ($53,157)

APPROPRIATIONS
$4,066,397



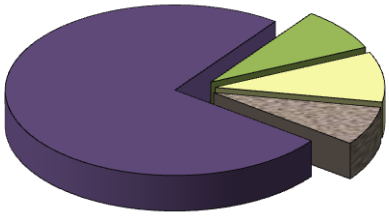
- FWC Manatee Program ($3,152,589)
- Mote Marine Laboratory ($325,000)
- Administrative Overhead ($248,692)
- Service Charge to General Revenue ($340,116)

FWC MANATEE PROGRAM CONSERVATION MANAGEMENT EXPENDITURES
$981,426



- Manatee Protection Zones ($208,263)
- Plan and Permit Reviews ($406,704)
- Habitat Protection ($127,474)
- Public Outreach ($238,985)

FWC MANATEE PROGRAM RESEARCH EXPENDITURES
$1,831,124



- Behavioral Ecology ($134,716)
- Mortality and Rescue ($1,372,591)
- Photo Identification (Life History) ($149,772)
- Population Assessment and Monitoring ($174,045)

Manatee Basics

COMMON NAME Florida manatee

SCIENTIFIC NAME *Trichechus manatus latirostris* (Order: Sirenia)

STATUS Endangered (federal and state)

RANGE Throughout Florida (summer months into southeastern states but reported as far north as Cape Cod and as far west as Texas)

MAXIMUM CENSUS 5,076 in 2010

HISTORY A native species found in Florida's fossil record and recorded by earliest explorers

DIET Freshwater and marine species of plants

REPRODUCTION Breed year-round; most calves born in spring; mature female can produce one calf approximately every three years, rarely twins

LIFE SPAN Can live over 60 years; of manatees that reach adulthood, about half are expected to survive at least into their early 20's

A CLOSER LOOK

Adult manatees average 8-10 feet (2.5-3 meters) in length and weigh around 1,000 pounds (450 kg). The largest manatees may reach 14 feet (4.2 m) in length and weigh over 3,500 pounds (1,450 kg). Adults are gray in color, with sparse hairs distributed over much of the body. Algae growing on the skin may make them appear green or brown. Manatees that live in saltwater may also have barnacles growing on their skin. Stiff whiskers (called "vibrissae") grow around the face and lips. Despite their large size, manatees can be difficult to see in the wild because of their color and behavior.

Manatees eat a variety of marine and freshwater aquatic plants and are often seen near natural or artificial freshwater sources. Manatees mate year-round; however, most calves are born in the spring. Gestation lasts approximately 13 months and results in the birth of a calf (rarely twins) measuring 3-4 feet (1-1.2 m) in length. The calves remain with their mothers for up to two years.

There are a variety of threats to manatees, both natural and human-related. They may die from exposure to harmful algal blooms (red tide), the effects of cold weather, and disease. Human-related causes of death include collisions with watercraft, crushing in water control gates and boat locks, and entanglement in fishing gear. During periods of cold weather, manatees gather in waters warmer than 68°F (20°C). This warm water may be in south Florida or may be from an artesian spring or industrial discharge. Manatee habitat loss, including future changes in artificial warm-water refuges and reductions in natural spring flows, is also of concern.

Florida Manatee Management Plan

GOAL

"To remove the manatee from the State imperiled species list and effectively manage the population in perpetuity throughout Florida by securing habitat and minimizing threats."

Approved at the December 2007 FWC Commission meeting, the Florida Manatee Management Plan (Plan) guides key conservation work supported through the Save the Manatee Trust Fund. The 267-page document provides an overview of the myriad programs, initiatives, and strategies implemented to protect and conserve manatees and their habitat along with a detailed listing of tasks with timelines for both research and management activities.

The primary objectives of the Plan upon which the individual tasks are based are:

- Implement improved methods to estimate manatee population and trends
- Reduce the human-caused mortality rate by reducing human-caused threats
- Develop and implement plans to address future changes in power plant operation
- Assist in the development of minimum flow rules at Florida springs
- Enhance management practices to secure seagrass and freshwater vegetation
- Use measurable biological goals to measure progress toward recovery

The Plan relies on the ongoing collection of manatee-related data to support science-informed decisions and to guide management actions. The major areas of focus are:

- Speed zone review
- Improve enforcement efforts
- Improve permit review process
- Review and development of county-level Manatee Protection Plans
- Secure warm-water resources
- Monitor and protect seagrass
- Retrofit water control structures
- Launch new outreach initiatives

This annual report serves as a way to present progress in implementing key conservation strategies described in the Plan. Copies can be downloaded from the Commission Web site:

http://www.myfwc.com/media/415297/Manatee_MgmtPlan.pdf

Mortality and Rescue

research activities

Photo shows staff rescuing an injured adult manatee.

A network of researchers and law enforcement agencies was established in 1974 to recover manatee carcasses and assist injured manatees. In 1985, the responsibility of the manatee carcass salvage, necropsy, and field coordination of the rescue program were transferred to the State of Florida by the U.S. Fish and Wildlife Service (USFWS) and therefore now rests largely with the FWC's Fish and Wildlife Research Institute (FWRI).

FWC staff members from five coastal field stations retrieve all reported carcasses, a key monitoring activity described in the Florida Manatee Management Plan. These stations are located around the State: Jacksonville, Melbourne, Tequesta, Port Charlotte, and St. Petersburg. Most recovered carcasses are transported by field personnel from recovery locations to FWC's Marine Mammal Pathobiology Laboratory (MMPL) in St. Petersburg. MMPL performs consistent, high quality, post-mortem examinations to determine cause of death. Information gained from the carcass salvage and manatee rescue program is crucial to providing wildlife managers with information about manatee health, mortality factors, life history, and general and reproductive biology as well as potential causes for Unusual Mortality Events[1] (UMEs). Through this work, FWC contributes significantly to the evaluation of threats facing Florida manatees and provides key information to resource managers and partner agencies. MMPL makes timely mortality information available on the FWC website (http://myfwc.com/research/manatee/rescue-mortality-response/mortality-statistics/).

In addition to manatee carcass salvage, FWC receives calls from the public reporting manatees in distress. Field staff members respond to these calls and coordinate a network of personnel from various agencies and organizations to work with FWC biologists to rescue and, when necessary, transport manatees to rehabilitation facilities.

FWC is a contributing organization to multiagency efforts to release and track rehabilitated manatees that were rescued due to injury, cold stress, or other problems. The Manatee Rehabilitation Partnership consists of representatives from federal and state agencies (USFWS, U.S. Geological Survey - USGS, FWC), academic institutions (University of Florida - UF), non-governmental organizations (Caribbean Stranding Network, Hubbs-Sea World Research Institute, Save the Manatee Club, Sea to Shore Alliance), and private oceanaria (Cincinnati Zoo, Columbus Zoo, Lowry Park Zoo, Miami Seaquarium, The Seas at Epcot, Sea World Orlando, South Florida Museum).

[1] Unusual Mortality Events are defined by the Marine Mammal Protection Act as "a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response." See http://www.nmfs.noaa.gov/pr/health/mmume/ for more information.

FY 2012–2013 highlights

- Statewide, there were 865 manatee carcasses documented in Florida during FY 2012-2013. All but 97 were recovered and examined. Additionally, one carcass was documented in Alabama, five in Georgia, one in South Carolina, and one in Texas.

- Eighty-four rescues were performed statewide during FY 2012-2013. As of June 2013, 38 of these rescued manatees were released back into the wild, 15 died, and the remaining 31 animals were still being rehabilitated in facilities around the State.

- On February 23rd, a Manatee Brevetoxicosis Repeat Event was declared for southwest Florida. Between January and May, 276 confirmed and suspected red tide-related deaths were reported and 18 red tide-related rescues were conducted. These are the highest numbers recorded for a single red tide event.

- On April 11th, a Manatee Unusual Mortality Event was declared for the Indian and Banana rivers in Brevard County. During FY 2012-2013, 111 manatee deaths were documented in this event. The cause of this event is still under investigation.

- Researchers collected tissue samples for genetic analysis from most carcasses. Other tissues were collected for toxicology, histology, aging and for requests from external researchers.

- MMPL staff members conducted several necropsy training workshops and classes in order to build and sustain a network of trained stranding partners.

Manatee Mortality FY 2012-2013

Cause of Death	*Number of Deaths*
Human—Flood Gate or Canal Lock	9
Human—Other (entanglements, etc.)	15
Human—Watercraft Related	77
Natural—Cold Stress	40
Natural—Other (includes red tide)	205
Perinatal (total body length less than 150 cm or about 5 feet)	120
Undetermined (decomposed or other)	302
Verified, Not Recovered	97
Total Carcasses July 1, 2012-June 30, 2013	865

Manatee Rescues FY 2012-2013

Type of Rescue	*Number of Rescues*
Calf—Alone	9
Calf—With Rescued Mother	1
Mother—With Rescued Calf	1
Human—Entanglement	14
Human— Entrapment*	12
Human—Watercraft- Related	12
Human—Other	4
Natural–Includes Red Tide	31
Total	84

*includes power plant intake canals, irrigation canals, weirs, culverts, man-made canals, manmade lakes, etc.

Population Monitoring and Assessment *research activities*

FWC scientists use a variety of methods to assess and monitor the current and future status of the Florida manatee population. Population assessments currently include: a) conducting manatee counts at winter aggregation sites; b) aerial surveys to determine regional distribution of manatees and to assess habitat use; and c) estimating survival, population growth, and reproductive rates through photo-identification and genetic identification. Assessments also include estimates of risk to the population, including projected declines in population size and probability of persistence into the future (i.e., risk of extinction).

FWC traditionally uses two types of aerial surveys to monitor manatees. These surveys provide minimum counts and information about habitat use and seasonal distribution. The first type of survey (known as the 'synoptic survey') is flown statewide and provides a minimum count of manatees at known aggregation sites and other sites in winter. These surveys are conducted annually, weather permitting, pursuant to section 379.2431(4)(a), F.S., requiring an impartial scientific benchmark census of the manatee population in the State. The survey is flown after cold fronts, and under specific weather conditions, when animals aggregate at natural springs and thermal discharges from power plants. Because weather and water conditions (among other factors) change year-to-year, the ability to see and detect manatees on any given day, at any given site, may change appreciably. Therefore, statistical estimates of total population size are not possible from these surveys. Due to warmer than average weather, FWC did not conduct the annual synoptic survey in 2013.

The second type of survey, manatee distribution surveys, was flown to monitor Usual Mortality Events (UME) in both Brevard and Lee counties. Two surveys were flown to document manatee distribution and to search for sick or dead manatees caused by a red tide bloom in southwest Florida. Two other distribution surveys were flown in Brevard County to document manatee distribution (or look for sick or dead manatees) as part of a monitoring effort of an UME in Florida's central east coast.

Currently, FWC researchers are developing new techniques for both surveys with the goal of providing precise and reliable estimates of population size and improved information on manatee distribution. These new methods and resulting data will incorporate information about how well observers detect manatees from the air and will relate environmental variables to the number of animals counted by observers.

In FY 2012-2013, FWC staff worked on improving the analytical steps used to estimate manatee abundance. In addition to analyzing data collected during the previous fiscal year, experiments were conducted to improve estimates of the probability of a manatee being available to be seen by an observer. This parameter is an important component of abundance estimation. In these experiments a model manatee was used as a surrogate (for a live manatee) to measure an observer's ability to see a manatee at various water depths

and under different water conditions. Results from these experiments will be used to help FWC obtain a statistically improved manatee population estimate.

Details of the abundance estimation method are described in the Florida Manatee Management Plan (see Chapter 9, Monitoring Activities p. 86 and Chapter 10, Ongoing and Future Research p.114).

Information on manatee life history is essential for assessing manatee population dynamics and recovery. Specifically, long-term data on growth and survival of individuals, reproductive performance of mature females, and health of manatees are important to the development of reliable population models. Manatee photo-identification is a research technique that uses the unique pattern of scars and mutilations on a manatee‘s body and tail to identify individual animals over time. The scars usually are the result of encounters with boats, but they can also be caused by entanglement in fishing gear, cold- stress lesions, and by infections. This research is conducted through a partnership between FWC, the U.S. Geological Survey (USGS), and Mote Marine Laboratory (Mote). Partners work collaboratively to photograph Florida manatees throughout their range, process images, identify manatees, and manage an integrated sightings database, known as the Manatee Individual Photo-Identification System (MIPS). The records in MIPS provide insights into manatee movements, site fidelity (i.e., the tendency to return to the same location year after year), adult survival rates, and reproductive parameters such as calving intervals (time between births) and length of calf dependency.

Critical data gaps still exist in Florida manatee population assessments. Three demographic parameters are in need of refinement to better model manatee status and recovery: annual reproductive rates, annual gender-specific movement between the northwest and southwest regions, and gender-specific adult survival rates in the southwest region. These vital statistics can sometimes be difficult to estimate through photo-identification because of unfavorable photographic conditions and limited animal accessibility. Identification of individuals through the analysis of genetic markers, also known as DNA fingerprinting or genotyping, offers a complementary means to analyze life history that could greatly enhance existing manatee monitoring and population assessment studies statewide, particularly in the southwest. Genetic analysis can help in the identification of calves and other individuals with no markings, as well as carcasses in an advanced state of decomposition. Genetic markers can also be used to determine the gender of identified individuals. FWC implemented a genetic identification (ID) program during the last five years through dedicated genetic sampling surveys to collect skin biopsy samples from wild manatees. Staff has included the samples from wild manatees in a genetic-ID database. Once the genetic-ID database includes enough years of sampling, it could be used to estimate population vital rates through statistical analysis. FWC continues to conduct dedicated genetic sampling surveys in southwest Florida during the winter. Additionally, FWC is collaborating with USGS to develop statistical models that integrate population data from photo-identification, genetic-identification surveys, and the carcass recovery program.

FY 2012–2013 highlights

- FWC staff members and interns spent over 110 days conducting land and boat-based photo-ID research during 280+ visits to sites used by manatees in the Tampa Bay area and southwest Florida. Additionally, other FWC volunteers, research partners and field lab staff statewide photo-documented manatees with unique features. More than 16,000 images documenting the unique features of individual manatees were taken and archived.

- Manatee photo-ID data were analyzed and will yield an updated estimate of adult survival rate for southwest Florida.

- Eighty-one manatees meeting specific photo-ID criteria were added to the southwest portion of the MIPS catalog of uniquely identifiable animals.

- Genetic sampling surveys were conducted in southwest Florida. A total of 167 samples were collected from free swimming manatees: fourteen samples at Port of the Islands (Collier County) during one survey day, 60 samples in the Orange River (Lee County) during two survey days, 92 samples during two survey days at the Big Bend Power Plant discharge canal (Hillsborough County), and one sample during photo-ID surveys in Pinellas county.

- The manatee genetic-ID database currently includes 963 unique individuals identified by skin samples collected from live manatees in southwest Florida

Photo showing photo-ID match on animal TB108 most recently sighted at the TECO Big Bend Power Plant (Hillsborough County).

Behavioral Ecology

research activities

Photo of manatee with satellite-linked GPS tag.

Research on manatee use of Florida's coastal and riverine habitats is essential to understanding the resources required to recover and sustain a healthy population. By tracking the movements of individual manatees through their aquatic environment, FWC biologists obtain valuable information about manatee seasonal and daily movements, migratory behavior, site fidelity, diving behavior, and habitat requirements. To track manatees, researchers place a padded belt around a manatee's tail and attach a buoyant radio-tag containing a satellite-linked transmitter to the belt. The Global Positioning System (GPS) locations provide a detailed record of manatee movements over long periods. In the field, biologists locate these study animals by homing in on the tag's unique radio signals in order to obtain data on behavior, group size, habitat, and movements. Processed data are mapped in a Geographic Information System (GIS) and are used in devising strategies for manatee conservation and recovery.

Warm-water habitat is of particular concern because the predicted future loss of both industrial and natural spring sources is deemed a key long-term threat to the manatee population. With the shutdown of four power plants along the east coast over the past four years, one permanently and three for repowering, the warm-water network that manatees have relied on is changing. The focus of multiagency monitoring efforts during FY 2012-2013 was on how manatees respond to a change in primary warm-water habitat associated with the modernization of the Florida Power & Light (FPL) Cape Canaveral power plant in the northern Indian River Lagoon near Titusville. This winter was the third year of a three-year construction period, during which FPL provided a temporary warm-water refuge for manatees. In partnership with the USGS and primarily funded by FPL, FWC conducted a tracking study to characterize manatee movements and use of warm-water sources and foraging habitat in the region. Temperature monitoring of known and potential warm-water sites is also a crucial part of the effort. The Florida Manatee Management Plan provides further information on this issue (see Chapter 10, "Ongoing and Future Research" pp. 102).

Watercraft collision is the single greatest human threat to manatees in Florida. In collaboration with researchers at Florida State University, Duke University, and Woods Hole Oceanographic Institution, FWC conducted a study on interactions between tagged manatees and motorized boats in southwest Florida. The goal of the project is to create a combined picture of manatee behavior, acoustics, and vessel paths to document manatee responses to approaching boats and the acoustic cues that may elicit such responses. The research combined state-of-the-art, manatee-borne electronic tags with boat-based observations and aerial videography. During previous field seasons, 20 tagged manatees carried multi-sensor digital acoustic recording tags (DTAG) and GPS tags. The DTAG provided a continuous record of sound (ambient noise, vocalizations and boat noise) and recorded a suite of behavioral parameters, allowing a three-dimensional reconstruction of movements, depth, and orientation underwater. This project is a key component identified in the Florida Manatee Management Plan (see Chapter 10, "Ongoing and Future Research" p. 107).

FY 2012–2013 highlights

- To investigate winter attendance patterns and foraging movements around the interim warm-water refuge and passive thermal basins in the northern Indian River Lagoon, biologists captured, tagged, and released twelve manatees in the vicinity of the former FPL Canaveral power plant. The manatees carried satellite-linked GPS tags and temperature loggers that provided data on fine-scale movements, habitat use, and water temperatures experienced throughout the winter.

- A team of scientists and veterinarians from FWC, USGS, and the University of Florida assessed the health and body condition of captured and released manatees to further understand the health of the wild population.

- Researchers tracked 12 manatees in Brevard County through late March 2013, when they recovered tagging gear. Five of the tagged manatees migrated out of the county for part of the winter; the combined winter range extended along 357 mi (575 km) of coastline, from Fernandina Beach to Ft. Lauderdale. Drift macro-algae was the principal forage available to manatees in southern Brevard County.

- FWC monitored water temperatures during the FY 2012-2013 winter with data loggers placed at many warm-water and associated ambient sites throughout much of the manatees' winter range. Several passive thermal sites (i.e., non-discharge sites such as canals) are being investigated for their potential to provide sufficient warmth to sustain manatees through cold winter periods.

- FWC and Florida State University staff analyzed a large amount of manatee, boat, and acoustic data collected during the field study to characterize manatee response to approaching vessels. Newly developed analytical tools were used to objectively identify behavioral changes from the DTAG sensor data and to reconstruct manatee movement paths underwater. The various types of manatee, vessel, and habitat data were spatially integrated in a GIS.

- Individual manatee-boat encounters were visualized in relation to underwater features (depth, seagrass) using a dynamic 3-D animation application that simultaneously plays the recorded sounds of passing motorboats and ambient noise. The acoustic and behavioral records are being analyzed to assess manatee response in relation to characteristics of approaching boats and sound levels experienced by the manatee.

Photo shows staff holding drift macro-algae found in the northern Indian River Lagoon.

Right Whales

research activities

Photo of a right whale leaping out of the water.

In addition to manatee recovery efforts, FWC is involved in the recovery of other endangered marine mammals, including the North Atlantic right whale, *Eubalaena glacialis*. Most of this work is supported by grant funding provided by the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration (NOAA Fisheries Service); however, portions of some staff salaries are provided by the Trust Fund (section 379.2431 (4), F.S). FWC is dedicated to assisting NOAA Fisheries Service in its efforts to protect this species as outlined in the North Atlantic Right Whale Recovery Plan (http://www.nmfs.noaa.gov/pr/pdfs/recovery/whale_right_northatlantic.pdf). With a population estimated at fewer than 500 individuals, the North Atlantic right whale is one of the most endangered large whales in the world. Vessel collisions and entanglement in fishing gear are the leading known causes of death in this species. Even one unnatural death per year could have a significant effect on the population; efforts to prevent human-caused mortality are a priority.

In 1994, NOAA Fisheries Service designated portions of Florida and Georgia coastal waters as critical habitat for the right whale, the only known calving area of the North Atlantic right whale. Federal and state efforts to protect right whales in their critical habitat have resulted in the formation of the Southeast U.S. Right Whale Recovery Plan Implementation Team, a multi-agency and citizen advisory group. FWC has been a member of the Southeast U.S. Right Whale Recovery Plan Implementation Team since its 1993 inception and FWC staff has chaired the team for a decade.

Since 1987, FWC has conducted aerial surveys to monitor seasonal presence of right whales, mitigate vessel-whale collisions, and assess population dynamics. An Early Warning System communication network, coordinated by NOAA Fisheries Service with assistance from FWC staff, is designed to protect right whales from vessel collisions by notifying key agencies, ports, and mariners via email, text message, or pager when and where right whales have been sighted. This near real-time information allows ships to take action if necessary to avoid whales. Photographs taken by aerial observers are used to identify individual right whales based on the callosity pattern (a natural growth of rough, cornified skin) on their heads as well as other natural marks and human-related scars. Over time, population demographics, reproductive success, mortality, and trends in health are monitored in part through this photo-identification research. FWC is one of a handful of major contributors to the North Atlantic Right Whale Identification Database—the central repository for archiving and maintaining photographs and sighting data on right whales. FWC has also worked closely with federal, state, and non-governmental organization partners to compile years of aerial survey data into a GIS program. Analysis of these spatial data help scientists and managers to evaluate right whale distribution patterns in the calving grounds in relation to environmental factors, such as sea surface temperatures and water depth, and human activities, such as vessel traffic.

FWC has developed the infrastructure and analytical tools for monitoring commercial vessel traffic in the right whale calving area using the Automatic Identification System. Commercial

vessels are required by U.S. federal regulations to be equipped with an Automatic Identification System transponder and to broadcast their location and speed as determined by GPS. Ongoing analyses characterize vessel traffic patterns and estimate compliance with federal speed regulations. Data on whale distribution, habitat preferences, environmental conditions, and vessel traffic provide a framework for quantifying the risk of vessel strikes and inform and evaluate the effectiveness of proposed management plans.

FY 2012–2013 highlights

- During this year's calving season (Dec.-March), two FWC teams conducted right whale aerial surveys in the central and southern sections of the Early Warning System area. Combined, these two teams regularly surveyed from Crescent Beach, Florida, to Cumberland Island, Georgia, out to approximately 35 nautical miles offshore. FWC teams completed 97 flights totaling 30,861 nautical miles of survey. FWC identified 230 right whales during preliminary photo analysis, of which 35 (excluding calves) were unique individuals. FWC teams also sighted seven different humpback whales.
- In total, 19 cow-calf pairs were documented in the southeastern U.S. during the calving season. One additional cow-calf pair was sighted in the northeast U.S., bringing the total number of calves documented to 20.
- A two year-old male right whale was reported floating dead off Palm Coast, Florida, and was subsequently recovered and necropsied in December 2012. FWC staff assisted with the necropsy which revealed the whale died as a result of chronic entanglement in fixed fishing gear. Preliminary analysis of the gear by NOAA Fisheries Service indicated that it was nearshore fisheries trap/pot gear from the northeast U.S.
- No live entangled whales were sighted in the southeastern U.S. during the calving season.
- FWC documented three injured whales during the calving season. A neonate calf as well as an adult female with a calf were sighted with vessel-related injuries that likely occurred while the mother-calf pairs resided in the southeastern U.S. The third whale, a juvenile female, was sighted with numerous entanglement wounds in various stages of healing.
- Biopsy sampling was conducted in collaboration with NOAA Fisheries Service and the Georgia Department of Natural Resources. During the calving season, 46 right whale biopsy sampling trips were conducted, resulting in samples from 17 calves, one juvenile and two adult females. The skin samples will be used for individual identification and gender determination, as well as information on kinship, stock identity, and genetic variability within the population. One of the adult females sampled is an individual of unknown age that has given birth to nine calves (the most documented in the population to date); researchers have sighted this whale only during years she has given birth and rarely outside the southeast U.S.

Research Publications and Reports

research activities

Photo of the journal
"Marine Mammal Science"

FY 2012-2013

Title: Behavioral impacts of disentanglement of a right whale under sedation and the energetic cost of entanglement
Authors: van der Hoop, J.; Moore, M.; Fahlman, A.; Boconcelli, A.; George, C.; **Jackson, K.**; Miller, C.; Morin, D.; **Pitchford, T.**; Rowles, T.; Smith, J.; Zoodsma, B.
Year: 2013
Source: Marine Mammal Science, 26 pp. doi: 10.1111/mms.12042

Title: Echocardiographic evaluation of clinically healthy Florida manatees (Trichechus manatus latirostris)
Authors: Gerlach, T.J.; Estrada, A.H.; Sosa, I.S.; Powell, M.; Maisenbacher, H.W.; **de Wit, M.**; Ball, R.L.; Walsh, M.T.
Year: 2013
Source: Journal of Zoo and Wildlife Medicine 44(2):295-301

Title: An index of risk of co-occurrence between marine mammals and watercraft: Example of the Florida manatee
Authors: Bauduin, S.; **Martin, J.**; **Edwards, H.E.**; Gimenez, O.; **Koslovsky, S.M.**; **Fagan, D.E.**
Year: 2013
Source: Biological Conservation 159:127-136

Title: Biomedical health assessments of the Florida manatee in Crystal River - providing opportunities for training during the capture, handling, and processing of this endangered aquatic mammal
Authors: Bonde, R.K.; **Garrett, A.;** Belanger, M.; Askin, N.
Year: 2012
Source: Journal of Marine Animals and Their Ecology 5(2): 17-28

Title: Passive thermal refugia provided warm water for Florida manatees during the severe winter of 2009–2010
Authors: Stith, B.M.; Slone, D.H.; **de Wit, M.**; **Edwards, H.H.**; Langtimm, C.A.; Swain, E.D.; Soderqvist, L.E.; Reid, J.P.
Year: 2012
Source: Marine Ecology Progress Series 462:287-301.

Title: Manatee response to the conversion of the FPL Cape Canaveral power plant: Movements, warm-water habitat use, and thermal regime of satellite-tagged manatees during winter 2011-2012.
Authors: Deutsch, C. J. and Barlas, M.E.
Year: 2012
Source: Annual Report to Florida Power & Light Company. FWC/FWRI file F2864-10-A2. 69 pp.

*FWC authors in **bold typeface**.*

Mote Marine Laboratory
Manatee Research Projects

research activities

The Legislature annually appropriates $325,000 from the Save the Manatee Trust Fund for the Manatee Research Program at Mote Marine Laboratory (Mote), in Sarasota, Florida. The following projects were funded in FY 2012-2013:

- Photo-Identification and Genetic Sampling Studies of Manatees in Southwest Florida — The objectives of this project were to: 1) ensure that Mote's photographic catalog and data are thoroughly checked for quality and completeness and are shared with partner organizations FWC and USGS; 2) continue field work to perpetuate the long-term photo-identification and other data collection efforts in southwest Florida; and 3) contribute to genetic sampling of wild manatees.

- Manatee Rescue and Verification—Mote is a federally-registered partner in the manatee carcass salvage and rescue program. Mote researchers are permitted to verify carcasses and assist in rescues of injured or trapped manatees, primarily in Manatee and Sarasota counties.

- Effects of Cold Stress on Manatees and Conservation Applications of Biomarkers— Mote. continued using selected biomarkers to assess effects of cold stress in manatees; assess rehabilitation time requirements for cold-stressed manatees; and to shed light on impacts of cold stress on exposed manatee populations.

- Evaluation of a natural spring regarding potential manatee winter habitat.

- Program Oversight—The program leader is responsible for periodic reports, coordination with state scientists and managers for activities associated with manatee recovery planning, and oversight of manatee research projects conducted by Mote.

Manatee Forum

management activities

In 2004, FWC and the USFWS established the Manatee Forum, a diverse stakeholder group with the goal of reducing litigation by establishing areas of common ground, identifying problems or conflicts, developing potential solutions, and accepting differences through increased communication. During FY 2012-2013, the Manatee Forum met twice, once in October and once in May. During the October meeting, presentations on the algal blooms in the Indian River Lagoon and a manatee tracking study under way in Brevard County were provided. The May meeting included updates on the manatee population model, adult survival rates and state and federal agency actions. FWC believes in the importance of having a stakeholder group focused on manatee issues. The opportunity for information exchange and the discussion of ideas is very valuable to all parties.

Photo shows a group of manatees at Homosassa Springs Wildlife State Park (Citrus County).

Manatee Protection Plans and Permit Reviews

management activities

FWC reviews proposed development projects and provides biological opinions to State regulatory agencies for Environmental Resource Permits, Sovereign Submerged Land leases, State Clearinghouse projects, and Developments of Regional Impact. FWC is also heavily involved in the development and implementation of county-specific Manatee Protection Plans (MPPs), and provides comments concerning manatees for various types of planning documents such as county Comprehensive Plans. See Chapter 7 "Management Actions" in the Manatee Management Plan for further details about these programs (p.45 for Permit Review and p. 49 for MPPs).

FY 2012 – 2013 highlights

- FWC reviewed and provided opinions on 340 requests for comments regarding potential adverse impacts to manatees for the Department of Environmental Protection (DEP), the Water Management Districts (WMDs), the State Clearinghouse, the Department of Economic Opportunity (DEO), the Florida Department of Transportation, Florida ports, the Army Corps of Engineers, and the USFWS.

- Fifteen boat facilities coordinated with FWC for manatee education materials or manatee informational signs. Manatee watch plans were reviewed and approved by FWC for eight projects with in-water work in manatee habitat.

- In July 2012, four manatees became trapped inside of a storm water management lake on Pine Island/Merritt Island in Brevard County. A newly installed weir would periodically allow several inches of water to flow over it, allowing the manatees to climb into the lake. When the water would recede, the manatees would become trapped. Brevard County, with FWC, Army Corps of Engineers, the St. Johns Water Management District, and the USFWS developed a plan to prohibit manatee access with a fence over the weir, requiring monitoring of the lake to make sure no animals were trapped behind the weir. The fence was successfully installed in 2013, and no more incidents of entrapment have been reported.

- Two incidences of manatees becoming trapped in culverts or pipes occurred in 2013, one in Citrus County and one in Lee County. FWC staff, the USFWS and people onsite at these locations have worked to install grating or fencing to prohibit future manatee access into the culvert/pipes.

- A brochure called *A Boater's Guide to Living with Florida Manatees*, specifically designed for boaters, was developed and is available for marina educational plans.

- FWC took the lead in a multi-agency effort to assist the U.S. Coast Guard in the implementation of a procedural change for regulating marine events. FWC edited the draft environmental plans, guidance, and permit templates to address potential adverse impacts to protected marine species. Staff then coordinated and combined multi-agency comments from DEP, USFWS (Jacksonville and Vero Beach), NMFS (Miami and St. Petersburg) and the Army Corps of Engineers into these documents.

- **Charlotte County MPP:** Charlotte County, the USFWS, and FWC continue working to develop an MPP for Charlotte County. A complete draft will be available for public comment in late October or early November 2013.

- **Duval County MPP:** All portions of the MPP have been revised and are under review by the County, the USFWS, and FWC. It is anticipated that a complete draft will be available for public comment by fall 2013.

Florida Port Activities

FWC provided opinions on how to offset expected impacts to manatees for proposed port projects, including Port Everglades (Maintenance Dredging 2013 Modification, Wetland Enhancement), Tampa Port Authority (Berth 227 North, Berth 1 Deepening, and Berth 222 Improvements), St. Petersburg Port (Bulkhead Stabilization), Port of Miami (Port Rail Road Bridge Subaqueous Cable), Port of Palm Beach (Lake Worth Inlet Feasibility Report and Environmental Impact Statement), Jacksonville Port Authority (Harbor Berth Deepening and Maintenance Dredging, Mile Point Training Wall Reconfiguration), and Port Canaveral (Deepening and Widening and West Turning Basin modifications).

Manatee Protection Zones

management activities

FWC establishes manatee protection rules, including boat speed zones and restricted access areas, and administers activities related to these rules. Staff evaluates data and develops proposed rules for consideration by the FWC Commission and also reviews and comments on local manatee protection ordinances developed by city and county governments. (See Chapter 7, "Management Actions," p. 36, Manatee Management Plan)

FY 2012–2013 highlights

- **Flagler County and St. Johns County** (68C-22.028, FAC) – The Florida Manatee Management Plan identifies coastal Flagler County and coastal St. Johns County for consideration of new manatee protection zones and a review was performed prior to FY 2012-2013. No new zones were proposed for St. Johns County. A rule for Flagler County was adopted in May 2012, and sign posting work was completed in March 2013.

- **Pinellas County** (68C-22.016, FAC) — The Florida Manatee Management Plan identifies the western portion of the County for consideration of new manatee protection zones. FWC began reviewing data and other information in late 2010. FWC staff met with County staff and held several informal meetings with local stakeholders and interested parties between December 2012 and February 2013. Identification and evaluation of areas that may warrant consideration for potential zones is ongoing.

- **Regulated Areas** - FWC staff continued work to develop county specific maps that combine FWC manatee protection zones, boating safety zones and USFWS manatee protection zones. This also allows the calculation of acres of regulated water for each county completed. Work was completed for Martin and Miami-Dade counties and the upper St. Johns River (Volusia County and the adjacent counties of Lake and Seminole).

- **Variances and Waivers** – The variance and waiver process is governed by section 120.542, F.S., and Chapter 28-104, FAC. FWC received one request for a variance from manatee protection rules during the fiscal year.

    - In November 2012, FWC received a request from the Sarasota Ski-A-Rees to renew its variance allowing higher speed boat operation for ski-show training and shows. A Notice of Receipt was published in the Florida Administrative Register in December and a new variance was granted in January 2013.

- **Permits** – Rule 68C-22.003, FAC, allows FWC to issue a number of different types of permits for activities that would otherwise be prohibited by the manatee protection rules. Most of these permits are for commercial fishing or professional fishing guide activities. There are typically 150 – 200 of these permits in effect at any given time. FWC worked on six new requests for other types of permits during FY 2012-2013, and completed handling on one more that was submitted the previous fiscal year.

- FWC issued a permit in July 2012, to the Chappell Group for access to the year-round safe haven zone at the Port Everglades power plant in Broward County. The permit allows pre-project monitoring for a planned mangrove mitigation area associated with port expansion.

- In July 2012, Mote Marine Laboratory submitted a request to renew its existing permit for access to the year-round safe haven zone in Pansy Bayou in Sarasota County. A new permit was issued in October, which allows manatee and habitat research.

- In August 2012, Florida Power & Light requested a modification to its existing permit covering maintenance and monitoring access to the year-round safe haven zone at the Port Everglades power plant in Broward County. The change was needed to account for the zone revision that was made to the Broward rule in 2011. A modified permit was issued later the same month.

- In December 2012, Sea to Shore Alliance requested a permit to access the year-round safe haven zone at the Port Everglades power plant in Broward County in order to tag and monitor manatees in association with the repowering of the power plant. A permit was issued in January 2013.

- In January 2013, Dock and Marine Construction submitted a request for a permit to access the seasonal safe haven zone in the Coral Gables Waterway in Miami-Dade County in order to perform dock demolition and construction. After requesting and receiving additional information and discussing the request with the applicant, the applicant withdrew the request in March because the work could wait until the seasonal safe haven zone was not in effect.

- In February 2013, Sarasota County submitted a request to renew its existing permit for access to the year-round safe haven zone in Pansy Bayou in order to conduct seagrass monitoring and research. After requesting and receiving additional information, a new permit was issued in April, 2013.

- In March 2013, the Vero Beach Municipal Power Plant submitted a request to renew its existing permit for access to the seasonal safe haven zone at the power plant in order to conduct maintenance and monitoring. After requesting and receiving additional information, a new permit was issued in June 2013.

Habitat Characterization, Assessment and Protection

management activities

The long-term conservation of manatees relies on having enough healthy, suitable habitat available throughout their range in Florida. Human-related activities over time have resulted in habitat degradation, reduced water quality, and decreased spring flows. These activities have caused loss of seagrasses – the manatee's primary food. Reductions in the flow of warm spring waters threaten significant natural warm-water refuges. Anticipated operational changes at power plants and future power plant retirements also pose threats to established artificial warm-water refuges. Understanding the manatee's habitat needs and habitat carrying capacity and assuring habitat health and stability is a primary focus of habitat protection programs. (See Chapter 7, "Management Actions," p. 55 Florida Manatee Management Plan)

FY 2012–2013 highlights

- FWC worked with FPL to ensure that the interim warm-water refuges that are being used during the conversions of their Cape Canaveral, Riviera Beach, and Port Everglades power plants provided the necessary refuge to manatees. This was the third winter of a three winter conversion process at the FPL Cape Canaveral Energy Center. The conversion of the Cape Canaveral plant is complete and it is now generating electricity. During the 2013-2014 winter, manatee use of the power plant's discharge and water temperatures in the warm-water refuge will be monitored to document any changes in the warm-water refuge and manatee behavior at this location. At the FPL Riviera Energy Center the conversion is entering its last winter in 2013-2014, and at the Port Everglades plant this will be the first full winter with an interim heating system. At each of these plants manatee distribution data will be collected via aerial surveys, and manatee movement data will be collected from satellite tagged manatees at Cape Canaveral and Port Everglades. These data will provide information regarding how manatees responded to the changes in warm water availability in southeast Florida during the winter season.

- FWC is working with the WMDs in the development of Minimum Flows and Levels (MFLs) for spring systems that provide warm-water habitat for manatees. MFLs for Volusia Blue Spring, Manatee Springs (Levy County), Fanning Springs (Gilchrist and Levy counties), and the Weeki Wachee Spring system (Hernando County) have all been developed using criteria to protect winter warm-water manatee use. MFLs for the Homosassa River (Citrus County) and the Chassahowitzka River (Citrus County) were reviewed by FWC and are still being finalized. FWC is working with The Nature Conservancy and the USFWS to identify and complete restoration and enhancement projects for Florida springs systems that will improve manatee access

to natural warm-water habitat at Salt Creek/Warm Mineral Springs (Sarasota County) and Three Sisters Springs (Citrus County). FWC worked with Mote Marine Laboratory to conduct an assessment of manatee warm-water habitat at Lithia Spring (Hillsborough County) and a final report on that investigation was completed in 2013.

- FWC worked with staff from the St. John's River WMD and the University of Florida to monitor the effects of a prolonged algal bloom in the Indian River Lagoon, Mosquito Lagoon, and Banana River systems caused in part by persistent high salinity conditions. The bloom continues to reduce the available seagrass forage for manatees in the affected systems, and manatees responded by moving to areas where the effects of the bloom were less pronounced. Monitoring of these systems for recurrent blooms will continue.

- FWC continued working to address the protection of Florida's seagrass resources. These efforts have provided seagrass protection protocols and recommendations for coastal construction permits as well as initiating restoration and monitoring projects.

- FWC works to control invasive, nonnative aquatic plants and encourage the establishment of native species, particularly in springs systems used by manatees. This is achieved by participation on various aquatic plant working groups. The Blue Spring Aquatic Plant Working Group is one such group that works to implement an invasive aquatic plant management plan, and address warm and cold season treatment activities and other protection measures for manatees.

- FWC participated in interagency coordination through the Kings Bay Working Group with efforts aimed at the continued conservation and restoration of submerged aquatic and emergent vegetation in Kings Bay (Citrus County).

- Manatees can be killed in water control structures and navigation locks. FWC works with agencies responsible for these structures to eliminate these types of deaths. Ten manatees died in 2012 as a result of interactions with a water control structure. These deaths increased the overall total of water control structure–related deaths to 210 since 1974. The average annual number of structure-related deaths before retro-fitting structures with manatee protection devices was 6.2 manatees per year from 1974-2000. That number has decreased to a post-retrofitting average of 3.7 manatees per year (2001-2012). A milestone was reached this year when the Moore Haven Lock (Glades County) was retrofitted with a manatee protection device, completing the retrofitting of all known state or federal water control structures that have caused manatee mortalities.

- Overall, coordinated efforts have had a significant influence on reducing structure-caused mortality at retrofitted structures. This past year was the first year with an inflated number of structure related deaths since 2000. The increase of deaths during the past year resulted from actions at one water control structure during large water releases from Lake Okeechobee into the Caloosahatchee River. An independent root cause analysis of the manatee protection system, funded by the Army Corps of Engineers, found operator error, conflicting operating procedures,

and damaged manatee protection equipment resulted in multiple deaths at one water control structure. FWC, USFWS, and the Army Corps of Engineers have reviewed and modified the protocols for the operation of water control structures to address the events of 2012. The damaged equipment at the gates was fixed by April 2013.

- FWC coordinates with the Army Corps of Engineers, the South Florida WMD and the Southwest Florida WMD to address central and south Florida water control structure-related manatee mortality issues through the Interagency Task Force for Water Control Structures. The Task Force meets annually.

Debris removal in Salt Creek to improve manatee access.

Public Outreach

management activities

FY 2012-2013 highlights

Public outreach regarding manatee conservation programs is important so that the public is well informed about manatees and understands the reasons for the various manatee protection activities. Knowledge of manatee habitat requirements, behavior and general biology can help the public and waterway users understand ways they can reduce human related risks to manatees such as harassment, entanglement in discarded monofilament line, obeying posted speed zones to reduce injury and death from boat collisions. Two events involving manatee harassment were prominent in the media this year—both related to riding or sitting on manatees. While the events were unfortunate, the publicity drew more attention to the harassment issue and support for manatee awareness.

Routine updates and reprinting of materials is an ongoing task for FWC. Staff reprinted the manatee activity booklet and the "Florida manatee—A Florida Treasure" brochure for distribution through the county tax collector offices and other appropriate educational outlets, and assisted with the completion of a new marina brochure titled: "A boater's guide to living with Florida manatees." The agency's Ask FWC on-line service generated approximately 6,500 hits for manatee related commonly asked questions. FWC staff responded directly to 71 online requests and fulfilled 143 requests for printed materials for schools, eco-tour businesses, and visitor centers. In keeping up with today's social networks, staff worked with the agency's Community Relations Office to conduct a month-long social media manatee awareness campaign during Manatee Awareness Month (November). The campaign included a photo share promotion that encouraged the public to submit personal manatee images to the agency along with permission to use the images for educational purposes as needed.

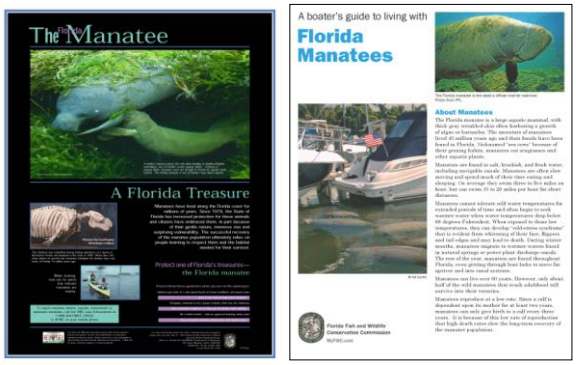


Photo shows the front page of two manatee brochures

Appendix

Appendix A: Acronyms and Abbreviations
Appendix B: Boat Speed Definitions
Manatee License Plate and Decal Program

Appendix A:
Acronyms and Abbreviations

°C — degrees Celsius
cm — centimeters
Commission, Commissioners — members of the FWC Commission
DEP—Florida Department of Environmental Protection
DTAG — Digital Acoustic Recording Tag
°F — degrees Fahrenheit
FAC — Florida Administrative Code
FPL – Florida Power and Light Company
F.S. — Florida Statutes
FWC — Florida Fish and Wildlife Conservation Commission
FY — Fiscal Year
GIS — Geographic Information System
GPS — Global Positioning System
kg — kilogram
m – meter
MFL — Minimum Flows and Levels
MIPS — Manatee Individual PhotoIdentification System
MMPL — Marine Mammal Pathobiology Laboratory
Mote — Mote Marine Laboratory
MPP — Manatee Protection Plan
NOAA Fisheries Service — National Oceanic and Atmospheric Administration, National Marine Fisheries Service
Plan — Florida Manatee Management Plan
Trust Fund — Save the Manatee Trust Fund
UF – University of Florida
USFWS — U.S. Fish and Wildlife Service
USGS — U.S. Geological Survey
WMD— Water Management District

Appendix B:
Boat Speed Definitions

All boat operators must comply with posted signs

S = Spanish - Español
F = French - Français
G = German

Lowest speed needed to maintain steerage and forward motion. (Speed ~2-3 mph/3-5 kph*)

S: La velocidad más lenta que se necesita para mantener gobierno.
F: Vitesse la plus basse nécessaire pour maintenir le steerage et le mouvement avant.
G: Die niedrigste Geschwindigkeit, um das Boot auf Kurs zu halten und vorwärts Bewegung zu machen.

Little or no wake. Vessel must be completely settled in the water. (Speed ~5-7 mph/8-11 kph*)

S: Asentado en el agua, sin surcar, estela mínima que no ponga en peligro a otras embarcaciones.
F: Peu ou pas de sillage. Le bateau doit être complètement arrangé dans l'eau.
G: Das Boot ganz im Wasser mit Kielwasser das nicht andere Fahrzeugen oder Wasser Strasse Benutzeren gefährden.

Resume normal safe speed according to current water traffic conditions.

S: Reanude velocidad normal.
F: Reprenez une vitesse sûre selon des états de transport par voie navigable.
G: Fangen Sie eine sichere geschwindigkeit an.

***Note: The specific speed may vary with the size and hull design of the vessel.**

Florida Fish and Wildlife Conservation Commission
MyFWC.com

In an emergency:
Wildlife Alert: 1-888-404-FWCC (3922)
Mobile: #FWC, *FWC VHF Radio: Channel 16

Manatee License Plate and Decal Program

Manatee License Plate

The manatee license plate was created in 1990 as per section 320.08058(1)(c), and section 379.2431(4)(d), F.S., to raise funds for manatee research and protection. The manatee license plate generated $1,306,772 in FY 2012-2013. These revenues are deposited in full into the Save the Manatee Trust Fund.

Manatee Decal

Section 328.72, F.S., provides that a sticker or decal can be given to citizens who donate $5 or more to the Save the Manatee Trust Fund. Each year tax collectors participate by selling decals at their offices. Revenues from the decals support manatee protection efforts such as rescue, rehabilitation, research, and outreach. During FY 2012-2013, 4,784 manatee decals were sold and raised approximately $23,920 for manatee conservation. This year's decal was designed by FWC staff.