



SAVE THE MANATEE TRUST FUND

2008–2009 ANNUAL REPORT



Florida Fish and Wildlife
Conservation Commission

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Kenneth D. Haddad, Executive Director

Gil McRae, Director
Fish and Wildlife Research Institute

Leslie Ward-Geiger, Section Leader
Marine Mammal Research, Fish and Wildlife Research Institute

Tim Breault, Director
Division of Habitat and Species Conservation

Kipp Frohlich, Section Leader
Imperiled Species Management, Division of Habitat and Species Conservation

REPORT CONTRIBUTORS

Editing and Coordination Andrea Mosier and Dr. Tom Reinert

Review Jackie Fauls, Kipp Frohlich, Carol Knox, Leslie Ward-Geiger

Content Bonnie Abellera, Scott Calleson, Terri Calleson, Dr. Chip Deutsch, Dr. Martine deWit, Mary Duncan, Dr. Holly Edwards, Kipp Frohlich, Katalin Jacob, Katie Jackson, Carol Knox, Ron Mezich, Dr. Joel Ortega-Ortiz, Tom Pitchford, Kari Rood, Kent Smith, Donna Szemer, Leslie Ward-Geiger, Hope White

Layout Jessica Pernell

Photographs Courtesy of FWC, unless otherwise noted

SAVE THE MANATEE TRUST FUND

Annual Report
2008-2009



Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, FL 32399-1600

<http://MyFWC.com>

SUBMITTED BY

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Fish and Wildlife Research Institute

and

Division of Habitat and Species Conservation

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). The report covers the period from July 1, 2008 through June 30, 2009. As required by Florida law, §379.2431(4)(b), Florida Statutes (F.S.), 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. The Trust Fund receives money from sales of manatee license plates and decals, boat registration fees, and voluntary donations. It is the primary source of funding for the State's manatee-related research and conservation activities. Revenues for Fiscal Year (FY) 2008–2009 totaled \$3,868,422. Appropriations from the Trust Fund for the same period were \$4,021,122.

In FY 2008-2009, the Division of Habitat and Species Conservation expended \$1,019,526 for management and conservation activities and the Fish and Wildlife Research Institute expended \$1,789,220 on research and monitoring. In the pages that follow, details of these expenditures and highlights of specific accomplishments and updates are provided.

The Florida manatee is native to the rivers and coastal waters of the State. First protected legislatively in Florida in 1892, today it is protected by the Florida Manatee Sanctuary Act (§379.2431(2), F.S.) and federally by both the Marine Mammal Protection Act and the Endangered Species Act. On the federal level there has been a Manatee Recovery Plan since 1980. As of 2007, FWC approved a Manatee Management Plan (Plan) to guide State conservation efforts. The goal of the Plan is to effectively manage the manatee

population in perpetuity by protecting habitat and minimizing threats.

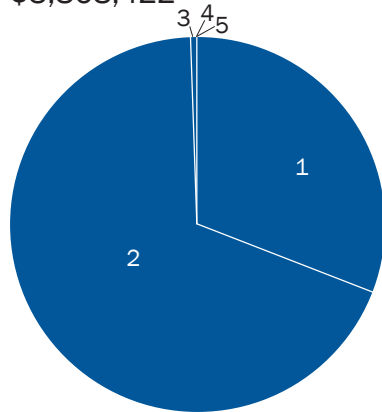
In FY 2008–2009, FWC and its partners made significant strides to advance the long term goals and objectives of the Plan. During the annual synoptic count, a record high number of manatees (over 3,800) was observed. This is tempered by the record high number of deaths also recorded during the Fiscal Year (a total of 418). In addition, innovative research in understanding how manatees perceive and respond to boats was conducted and new advances in genetic sampling were made. Measures were taken to evaluate natural springs to determine flow quality and manatee access and how these attributes may be protected and even enhanced. Intergovernmental partnerships resulted in a streamlined process for permit applications and reviews.

These efforts are but a few of the many programs, studies, and partnerships that are part of the Plan. Through an integrated conservation framework of research, management, law enforcement, and outreach, FWC is working to better understand the threats manatees face, ensure adequate habitat for the present as well as the future, employ necessary and appropriate protections, and create effective and long-lasting partnerships aimed at the conservation and protection of this unique and iconic creature. Provided that the Save the Manatee Trust Fund revenues are secure and remain dedicated to the implementation of the Manatee Management Plan, the FWC can continue working toward a brighter future for the Florida manatee.

Trust Fund 2008–2009 Revenues and Expenditures

REVENUES

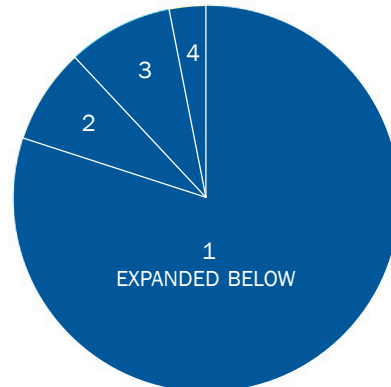
\$3,868,422



- (1) Save the Manatee License Plate (\$1,190,974)
- (2) Vessel Registration (\$2,654,136)
- (3) Interest (\$20,613)
- (4) Decals and Donations (\$2,697)
- (5) Miscellaneous (\$2)

APPROPRIATIONS

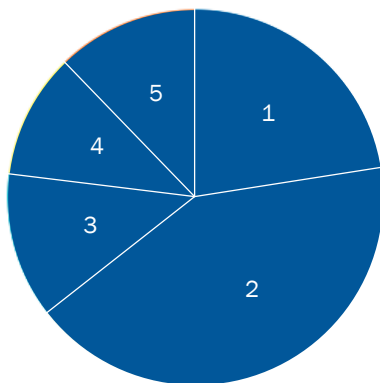
\$4,021,122



- (1) FWC Manatee Program (\$3,215,210)
- (2) Mote Marine Laboratory (\$325,000)
- (3) Administrative Overhead (\$352,502)
- (4) Service Charge to General Revenue (\$128,410)

FWC MANATEE PROGRAM CONSERVATION MANAGEMENT EXPENDITURES

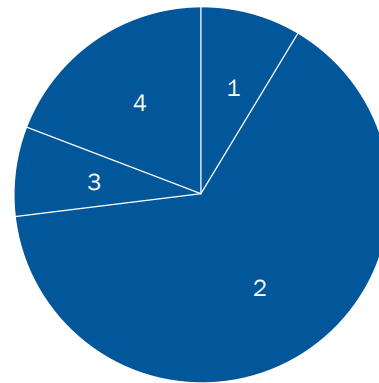
\$1,019,526



- (1) Rule Development (\$230,284)
- (2) Planning and Permitting (\$427,942)
- (3) Habitat Protection (\$125,501)
- (4) Data Distribution (\$109,213)
- (5) Education and Information (\$126,585)

FWC MANATEE PROGRAM RESEARCH EXPENDITURES

\$1,789,220



- (1) Behavioral Ecology (\$155,767)
- (2) Mortality and Rescue (\$1,152,309)
- (3) Photo Identification (Life History) (\$139,131)
- (4) Population Assessment and Monitoring (\$342,013)

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Manatee Basics

COMMON NAME Florida manatee

SCIENTIFIC NAME *Trichechus manatus latirostris*

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 3,802 in 2008–2009

HISTORY A native species found in the 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

UNUSUAL FACT Manatees will eat up to 10% of their body weight in aquatic vegetation every day

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 aggregate, or 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 or degradation, including future changes in artificial warm-water refuges and reductions in natural spring flows, is also of concern.

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 ”

FWC Manatee Management Plan, December 2007

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 and the transfer of those data into information and knowledge in order 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 of the Plan can be downloaded from the Commission Web site:

http://www.myfwc.com/docs/WildlifeHabitats/Manatee_Mgmt_Plan.pdf

Research Activities

Mortality and Rescue
Population Monitoring and Assessment
Behavioral Ecology
Right Whales
Research Publications and Reports
Mote Marine Laboratory Manatee Research Projects

Mortality and Rescue

research activities



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 rescue program was transferred to the State of Florida by the U.S. Fish and Wildlife Service (USFWS) and therefore now rests largely with the Florida Fish and Wildlife Conservation Commission (FWC)'s Fish and Wildlife Research Institute (FWRI).

FWRI staff members from five coastal field stations retrieve all reported carcasses, a key monitoring activity described in the Manatee Management Plan (see Chapter 9, "Monitoring Activities" p.90). 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 FWRI'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. Through this work, FWRI contributes significantly to the evaluation of threats facing Florida manatees and provides crucial information to resource managers and partner agencies. MMPL maintains a database that contains mortality information and provides timely information made available on the FWRI website (http://research.myfwc.com/features/category_main.asp?id=1578).

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.

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.

2008–2009 highlights

Carcass Salvage

- Statewide, there were 418 manatee carcasses documented in Florida (additionally, one carcass was documented in South Carolina, six in Georgia, one in North Carolina, one in Massachusetts, two in Alabama, and one carcass was found in Pennsylvania) during FY 2008–2009. All but 10 were recovered and examined. (see figure 1)
- Researchers collected tissue samples for genetic analysis from 410 carcasses. Other tissues were collected for toxicology, histology, aging and for external researchers.
- No Unusual Mortality Events were declared during FY 2008–2009. However, a relatively high number of manatees (62; the 5-year average is 30) succumbed to disease from exposure to cold water temperatures this winter.
- MMPL staff members conducted several necropsy training workshops and classes for the following groups:
 - Veterinarians and students from the Envirovet Program (<http://www.cvm.uiuc.edu/envirovet>)
 - Veterinary students from the Seavet Clinical Training Program (<http://conference.ifas.ufl.edu/seavet/index.html>)
 - Veterinary students from the University of Florida (senior clerkship course VEM 5810)
 - National Oceanic and Atmospheric Administration (NOAA) Fisheries Service Prescott Stranding Program; workshop designed to train stranding network volunteers to respond to dolphin strandings and perform necropsies
 - 2009 Alaska Stranding Network Meeting, Alaska SeaLife Center

Rescue and Rehabilitation

- Eighty-one rescues were performed statewide during FY 2008–2009. As of June 2009, 35 of these rescued manatees were released back into the wild, 28 died, and the remaining 18 animals were still being rehabilitated in facilities around the State. (see figure 2)

Manatee Mortality FY 2008–2009	
Cause of Death	Number of Deaths
Human – flood gate or canal lock	7
Human – other (entanglements, etc.)	5
Human – watercraft related	91
Natural – cold stress	62
Natural – other (includes red tide)	28
Perinatal (total body length less than 150 cm or about 5 feet)	116
Undetermined (decomposed or other)	99
Carcasses Verified, Not Recovered	10
Total Carcasses July 1, 2008 – June 30, 2009	418

Figure 1

Manatee Rescues FY 2008–2009	
Type of Rescue	Number of Rescues
Calf–Alone	9
Calf–With Rescued Mother	1
Human–Entanglement	11
Human–Entrapment*	10
Human–Watercraft-Related	19
Human–Other	1
Natural–Includes Red Tide	29
Undetermined	1
Total	81
* includes power plant intake canals, irrigation canals, weirs, culverts, man-made canals, man-made lakes, etc.	

Figure 2

Population Monitoring and Assessment

research activities

FWRI scientists use a variety of methods to assess and monitor the current and future status of the Florida manatee population. Population assessments currently include conducting manatee counts at winter aggregation sites, aerial surveys to determine regional distribution of manatees and to assess habitat use, and estimating survival, population growth, and reproductive rates through photo-identification and the potential application of 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 pursuant to §379.2431(4) (a), F.S., requiring an “impartial scientific benchmark census of the manatee population in the State.” The counts, conducted 25 times since 1991, are flown after cold fronts, under specific weather conditions, when animals aggregate at natural springs and thermal discharges from power plants. The traditional synoptic survey design yields minimum counts of the number of manatees using these warm-water sites. 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 population size are not possible from these surveys. During the week of January 19, 2009, a team of 21 observers from nine organizations counted 2,148 manatees on Florida’s east coast and 1,654 on the west coast for an all-time-high total of 3,802 manatees statewide.

The second type of survey is flown on a regional basis, and FWC uses these distributional surveys to determine the seasonal distribution and habitat use of manatees. These surveys usually are flown twice monthly in a specified county (or counties) for a period of two years. The location of the survey (or surveys) is determined based on management needs.

Currently, FWRI 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. The new methods have been tested previously during distributional surveys in Collier County; in FY 2008-2009, distributional surveys incorporating the new survey methods were conducted in Pinellas County and will be conducted twice monthly until August of 2010. Traditional data were collected as well and the results from the new methods currently are being analyzed.

A separate pilot study to test new methods

for the statewide synoptic survey was flown in the winters 2008 and 2009 in southwest Florida. The new methods are not as dependent on cold weather as the traditional methods. Data are being evaluated and results will be used to refine the design for an improved statewide synoptic survey. Details are described in the Manatee Management Plan (see Chapter 9, “Monitoring Activities” p. 86 and Chapter 10, “Ongoing and Future Research” p. 114, Manatee Management Plan).

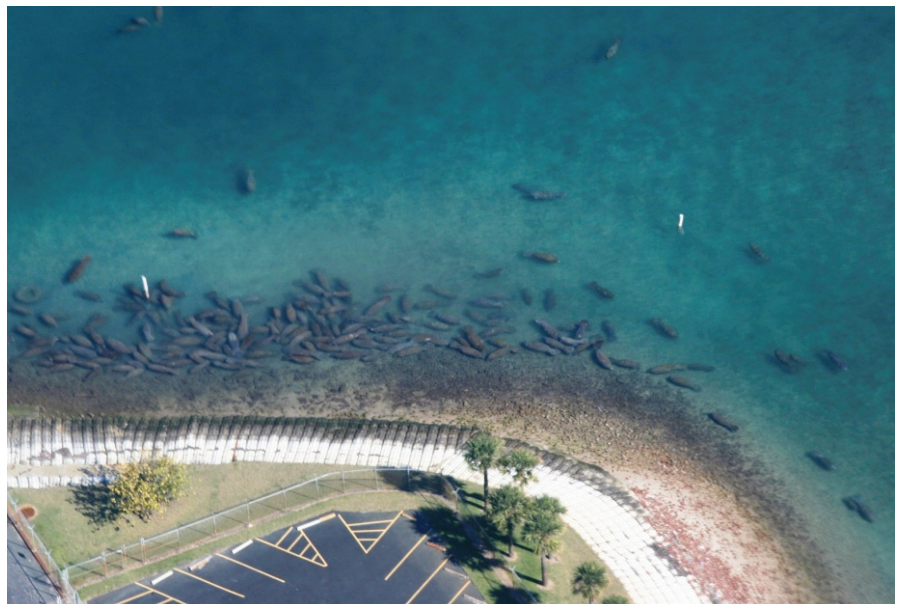
Information on manatee life history is essential for assessing manatee population dynamics and recovery. Specifically, long-term data on growth and survival of individuals, reproductive performance of mature females, and health of manatees are important to the development of reliable population models. 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 be caused by entanglement in fishing gear and by infections. This research is conducted through a partnership between FWRI, 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 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. In the southwest region, these vital statistics have been difficult to estimate through photo-identification because of poor photographic conditions, limited animal accessibility, and other extrinsic factors. Identification of individuals through the analysis of genetic markers, also known as DNA fingerprinting, offers a complementary means to analyze life history that could greatly enhance existing manatee monitoring and population assessment studies statewide, but particularly in the southwest. Genetic analysis can help in the identification of calves and other individuals with no markings, as well as carcasses in advanced state of decomposition. Genetic markers can also be used to determine the gender of identified individuals. The Manatee Management Plan identified the need for improved genetic tissue-sampling from free-swimming manatees in order to implement a genetic identification program (see Chapter 10, “Ongoing and Future Research” p.115, Manatee Management Plan). FWC successfully tested a new method to collect skin samples from free-swimming manatees in winter 2008. During the winter 2009, FWC conducted genetic sampling surveys employing this new methodology. These prospective surveys provided an adequate sample size for testing and the results (currently being analyzed) will help design future genetic sampling surveys. 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.

2008–2009 highlights

- During the annual statewide manatee synoptic survey, 3,802 manatees were counted – a record high.
- A pilot aerial survey to test new methods for the statewide synoptic survey was conducted in February 2009. Six counties in southwest Florida (from Tampa Bay to Monroe County) were flown and data were compiled and currently are being analyzed.
- Beginning in September 2008, twice-monthly distribution surveys in the western part of Pinellas County were conducted.
- In September 2008, FWRI held an aerial survey safety workshop to improve the safety of FWC aerial observers.
- FWRI-St. Petersburg staff members and interns spent over 130 days conducting land- and boat-based photo-identification research during 400+ visits to sites used by manatees in the Tampa Bay area and southwest Florida. Additionally, other FWC volunteers, outside organizations, and field lab staff statewide photo-documented manatees with unique features. More than 15,000 images documenting the unique features of individual manatees were taken and archived.
- FWC and Mote manatee photo-identification data through the 2003-2004 winter season were integrated and extensively reviewed for quality assurance and quality control. These data currently are being analyzed and will yield an updated estimate of adult survival rate for southwest Florida.
- Forty-six manatees meeting specific photo-documentation criteria were added to the southwest portion of the MIPS catalog of uniquely identifiable animals.
- Thanks to the completion of the scanning of all manatee carcass slides in FY 2008-2009, 51 manatee carcasses were identified as previously known southwest MIPS animals.
- Manatee skin biopsy surveys were conducted in southwest Florida. A total of 93 samples were collected at Port of the Islands (Collier County) during two survey days and 107 biopsies were collected in the Orange River (Lee County) during four survey days. Genetic analysis of those biopsies resulted in the identification of 83 individuals in Port of the Islands and 101 individuals in the Orange River.



*Aerial view of manatees
at Riviera Power Plant*

Behavioral Ecology

research activities

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 in fresh, brackish, and saltwater habitats, 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 floating radio-tag containing a satellite-linked transmitter to the belt. The satellite-derived 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 and ultrasonic 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 made available to managers for use in devising strategies for manatee conservation and recovery, developing regulations, and evaluating permits.

In FY 2008-2009, in collaboration with researchers at Florida State University (FSU), Duke University, and Woods Hole Oceanographic Institution, FWC completed field research on interactions between tagged manatees and motorized watercraft in southwest Florida. The goal of the project is to create a combined picture of manatee behavior, acoustics, and vessel trajectories to better understand the responses displayed by manatees when approached by boats and the acoustic cues that may elicit such responses.

FWRI researchers release a manatee with a satellite-linked GPS tag and a digital acoustic tag (DTAG) in Gasparilla Sound

The research combined state-of-the-art manatee-borne electronic tags with boat-based observations and aerial videography. In addition to the Trust Fund, this project was funded by the FWC Florida Manatee Avoidance Technology Program and the Disney Worldwide Conservation Fund, and is a key component outlined in the Manatee Management Plan (see Chapter 10, "Ongoing and Future Research" p. 107, Manatee Management Plan).

Habitat is a key factor influencing manatee population dynamics. Warm-water habitat is of particular interest to FWC and its partners because the predicted future loss of this habitat is deemed a key long-term threat to the manatee population. Although warm-water carrying capacity (i.e., how many manatees can be supported, given the amount of available warm-water winter habitat) is an important parameter in population viability models, current estimates of carrying capacity are based solely on expert opinion. A conceptual framework of studies to determine carrying capacity is needed. Such a framework will help to identify the highest-priority research needs and ensure that limited resources are properly directed. The aim is to place warm-water research in the context of over-arching management needs and to provide a common vision for the future on this important issue (see Chapter 10, "Ongoing and Future Research" p. 101, Manatee Management Plan).



2008–2009 highlights

- *Manatee-boat Interactions:* FWRI and FSU staff and students concluded the field component of a study to characterize manatee response to moving vessels and to quantify the frequency of manatee interactions with motorized watercraft in Charlotte and Sarasota counties.
 - During the spring and summer of 2008, 10 wild manatees were captured and tagged with multi-sensor digital acoustic recording tags (DTAG) and Global Positioning System (GPS) tags linked through the Argos satellite system.
 - GPS tags provided a detailed record of manatee locations, movements, and habitat use at five-minute intervals for periods up to two months. The DTAG provided a continuous 36-48 hour record of sound (ambient noise, vocalizations, and boat noise), and also recorded a suite of behavioral parameters providing a detailed three-dimensional reconstruction of the manatee's movements, behavior, depth, and orientation underwater.
 - The large volumes of data collected are being entered, verified, and processed using relational databases and GIS; the acoustic records are being analyzed in relation to manatee behavior and passing vessels.
- *Warm-water Habitat Research Strategic Planning:* FWC worked with its partners to develop research plans that address key management issues regarding warm-water habitat.
 - FWRI scientists and Imperiled Species Management Section staff, along with partners at U.S. Fish and Wildlife Service (USFWS) and USGS, have drafted a conceptual framework for research on carrying capacity and participated in an interagency workshop on the topic. Prioritized research will yield more robust habitat carrying capacity estimates for regional manatee populations based on winter warm-water refuge sites and surrounding foraging habitat.
- The same interagency group has also been formulating plans to monitor how manatees will respond to a major change at traditionally used warm-water sites – two power plants along the east coast that are scheduled to be deconstructed and rebuilt in the next few years. This provides a unique opportunity to test the efficacy of proposed management actions to reduce manatee dependence on industrial thermal discharges over the long term.
- FWRI continued to monitor water temperature during winter with continuous data loggers placed at 47 warm-water and ambient, or unheated, sites throughout much of the manatee's winter range. Several 'passive' thermal sites (non-discharge sites; e.g. boat basins, canals) are being investigated for their potential to provide sufficient warmth to sustain manatees through cold winter periods.
- *Post-release Monitoring of Rehabilitated Manatees:* FWRI participated as a contributing organization to the multi-agency Manatee Rehabilitation Partnership (<http://www.wildtracks.org>), consisting of representatives from federal (USFWS, USGS), state (FWC), academic (University of Florida), NGOs (Caribbean Stranding Network, Hubbs-SeaWorld Research Institute, Save the Manatee Club, Sea2Shore Alliance, Wildlife Trust), and private oceanaria (Cincinnati Zoo, Columbus Zoo, Lowry Park Zoo, Miami Seaquarium, The Seas at Epcot, SeaWorld Orlando). As part of that partnership, FWRI assisted in the release of several rehabilitated manatees.

Right Whales

research activities



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 NOAA Fisheries Service; however, portions of some salaries are provided by the Trust Fund. FWC is dedicated to assisting NOAA in its efforts to protect this species as outlined in the North Atlantic Right Whale Recovery Plan. With a population estimated at fewer than 400 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 and efforts to prevent human-caused mortality are a priority.

In 1994, NOAA designated portions of Florida and Georgia coastal waters as critical habitat for the right whale. This region is 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 (SEIT), a multi-agency and citizen advisory group. The team develops management and research recommendations and assists in implementing the recovery plan. FWC has been a member of the SEIT since its 1993 inception and FWRI staff has chaired the team for the past seven years.

NOAA and the U.S. Coast Guard (Coast Guard) implemented the Mandatory Ship Reporting System in July 1999. Under this

system, all commercial ships greater than 300 gross tons are required to report position, speed, and destination when entering the area surrounding the designated critical habitat during the calving season (between November 15 and April 15) and, in turn, are provided information about recent right whale locations and related advisories. The Early Warning System communication network, coordinated by FWRI 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. In the continued effort to reduce right whale deaths and serious injury cases resulting from vessel collisions, NOAA implemented the Right Whale Ship Strike Reduction Rule on December 9, 2008. This rule established a seasonal speed restriction of 10 knots for all vessels 65 feet in length or greater traveling in designated management areas and is in effect from November 15 through April 15.

Since 1987, FWRI has conducted aerial surveys to monitor seasonal presence of right whales, mitigate vessel-whale collisions, and assess population dynamics. 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 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. FWRI is one of a handful of major contributors to the North

Atlantic Right Whale Catalog – the central repository for archiving and maintaining photographs and sighting data on right whales. FWRI has also worked closely with federal, state, and NGO partners to compile years of aerial-survey data into a GIS. Analyses 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.

FWRI has developed the infrastructure and analytical tools for monitoring commercial vessel traffic in the right whale calving area. Commercial vessels are required by U.S. Federal Regulations to be equipped with a tracking transponder and to broadcast

their location and speed as determined by a global navigation satellite system. FWRI has established ship transponder receiving stations that provide coverage of important right whale habitat and has standardized processing methods to convert the raw transmissions into GIS data. On-going analyses characterize vessel traffic patterns and estimate compliance with Federal speed regulations. Recommendations are made on the best shipping lanes to use during approach into port.

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.

2008–2009 highlights

- A record-breaking 39 mother/calf pairs were documented during the 2008-2009 North Atlantic right whale calving season (the previous record was 31, set in 2001). FWRI conducted 61 right whale aerial surveys totaling 14,176 nautical miles between December 1, 2008 and March 31, 2009. The FWRI team documented 384 right whales (including re-sightings) from 169 sighting events (average of 2.3 whales per sighting). Of these, 74 were mother/calf pairs, 39 were single adults (including pregnant females) or juveniles, 26 were pairs, and 30 were groups of three or more whales. Preliminary photo analysis indicates FWRI documented 119 individual right whales (excluding calves). This is the highest number of individual right whales documented by FWRI during a single calving season in the last six years.

In addition, the FWRI team documented 47 endangered leatherback sea turtles and one right whale calf carcass.

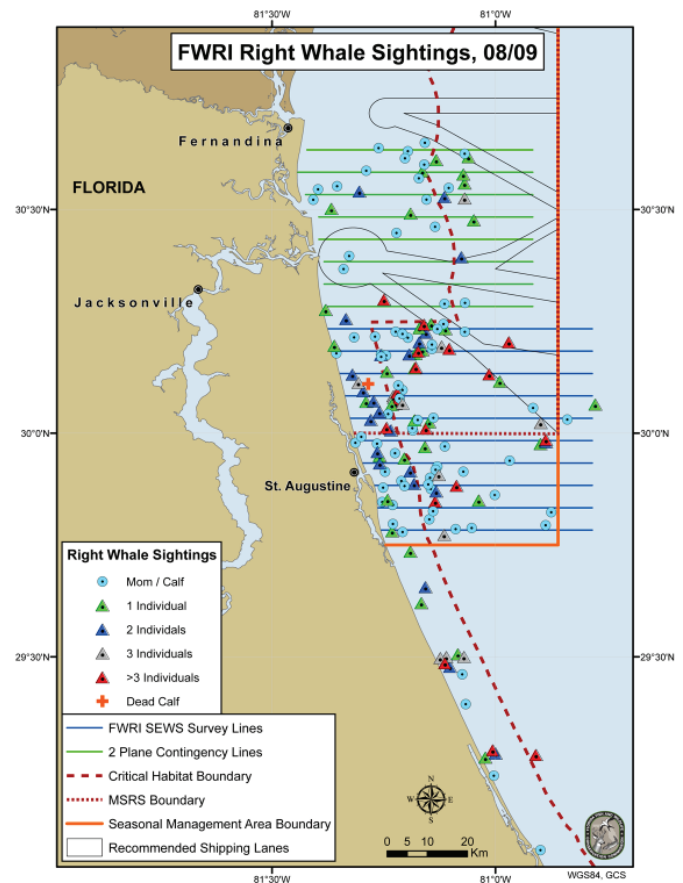
- An unprecedented five new right whale entanglement cases and one chronic entanglement case were documented in the southeastern U.S. during the 2008-2009 calving season. FWRI as well as the Georgia Department of Natural Resources, New England Aquarium, NOAA, Wildlife Trust and many others participated in the documentation and disentanglement responses.

A disentanglement team from FWC and Georgia DNR work to cut fishing rope stuck between baleen plates in the mouth of a free-swimming two-year-old North Atlantic right whale.



2008–2009 highlights, continued

- FWRI worked in collaboration with the Marine Resource Council and Marineland Right Whale Project to verify and document seven public right whale sightings from land. These sighting verifications consisted of six mother/calf pairs and a single individual and generally occurred on days when weather conditions prohibited aerial survey efforts. Responding to land-based sightings gave FWRI a valuable opportunity to interact with and conduct outreach with home owners and beachgoers from Ponte Vedra to St. Augustine Beach. In February 2009, FWRI responded to the St. Augustine Pier, where a crowd of 50-100 people had gathered to watch whales in close proximity to the pier (whale #2611 and calf on February 22, 2009 and whale #1611 and calf on February 27, 2009). Upon arrival, FWRI was informed by several bystanders that paddle-boarders and surfers had approached the whales several times and on both occasions FWRI observed paddle-boarders approaching the whales. These interactions led to an FWC law enforcement officer issuing a warning for violation of the federal 500 yard rule [50 CFR 224.103(c)] to a paddle-boarder on February 27th.
- FWRI, in collaboration with NOAA and Georgia Department of Natural Resources, conducted 20 right whale biopsy sampling trips, resulting in 37 biopsy samples. The skin samples will be used to generate information on kinship, individual identification and gender, stock identity, and genetic variability within the population. The blubber portion of the samples will be used to determine contaminant levels and to gain information about feeding ecology and nutritional condition.
- FWRI recovered a dead North Atlantic right whale calf (mortality field ID# EgNEFL0904) off South Ponte Vedra Beach, and participated in the subsequent necropsy in February 2009.
- FWRI worked with partners on assessing relative risk of ship collisions by statistical modeling of data from Early Warning System aerial surveys and the Mandatory Ship Reporting System. Risk analyses help support decision-making aimed to mitigate the impacts of vessel traffic on right whale populations.
- FWRI analyzed ship tracking data to assist the NOAA Office for Law Enforcement monitoring compliance with new local vessel speed regulations that went into effect on December 9, 2008.



Research Publications and Reports

research activities

2007

*(inadvertently omitted from the
FY2007-2008 report)*

C. S. Calleson and R. K. Frohlich. 2007. Slower boat speeds reduce risks to manatees. *Endangered Species Research* 3:295-304.

2008

Deutsch, C. J. 2008. Manatee response to boats. Final Report to the Disney Wildlife Conservation Fund, through the Wildlife Foundation of Florida. Grant No. WFF-07-01 (FWRI Grant No. 2684). 13 pp.

Fonnesbeck, C.J., L. P. Garrison, L. I. Ward-Geiger, R. D. Baumstark. 2008. Bayesian hierarchical model for evaluating the risk of vessel strikes on North Atlantic right whales in the SE United States. *Endangered Species Research* 6:87-94.

2009

Deutsch, C. J., A. Rycyk, M. E. Barlas, D. P. Nowacek, S. M. Koslovsky, and K. Frisch. 2009. Response of manatees to vessel traffic: Simultaneous measurements of behavioral responses and the acoustic environment. Final Progress Report to Florida Fish and Wildlife Conservation Commission. Project Contract No. 021426 to Florida State University. 111 pp.

Fonnesbeck, C. J., H. Edwards, and J. E. Reynolds III. 2009. A hierarchical covariate model for detection, availability and abundance of Florida manatees at a warm water aggregation site. Pp. 563-578 in: D.L. Thomson et al. (eds.), *Modeling Demographic Processes in Marked Populations*, *Environmental and Ecological Statistics* 3, DOI 10.1007/978-0-387-78151-8 24.

Mote Marine Laboratory Manatee Research Projects

research activities

The Legislature annually appropriates \$325,000 from the Trust Fund for the Manatee Research Program at Mote Marine Laboratory. The following projects were funded in FY 2008–2009:

- Photo-Identification 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 (FWRI and USGS); and 2) continue field work to perpetuate the long-term photo-identification and other data collection efforts in southwest Florida.
- Manatee Rescue and Verification—Mote acts as 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.
- Recreational Boating Studies—An aerial survey study of recreational boat traffic in northeastern Florida was completed. Traffic information was compiled and a summary report was completed. Boat traffic data collected in southeastern Florida was entered into a digital map format (GIS) and provided to managers. Aerial surveys of recreational boat traffic in west-central Florida were initiated. Flights will be completed in 2009 and data will be compiled and interpreted in a summary report.
- Program Oversight—Programmatic oversight includes salary and operational support for the program leader who 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.

Management Activities

Management Activities

Plan and Permit Review

Rule Administration

Data Distribution and Technical Support

Habitat Characterization, Assessment and Protection

Outreach and Information

Management Activities

management activities

Manatee Forum

In 2004, FWC and the U.S. Fish and Wildlife Service (USFWS) convened the Manatee Forum, a diverse stakeholder group with the goals of establishing areas of common ground, identifying problems or conflict, and developing potential solutions. During this fiscal year, the Manatee Forum met once in August to discuss the future direction of the Forum and to identify possible efforts that could be cooperatively undertaken. The major focus of discussion concerned the potential loss of law enforcement positions due to state budget cuts. All Forum members expressed support for maintaining law enforcement positions. Forum members were provided copies of new publications related to manatees and notices of relevant information during the year. In March 2009, a statewide Manatee Update Meeting was held and included Forum members, various local governments, and other interested parties. This meeting presented an overview of both research and management activities accomplished during the last year. FWC continues to believe in the importance of having a stakeholder group focused on manatee issues. The benefit provided by the interactions among the members and with agency staff has been immeasurable and will continue in the future.



Terri Calleson

Manatee Human Interactions

FWC coordinated with USFWS to investigate manatee-human interactions in the Kings Bay/Crystal River and the greater Citrus County area. In general, FWC met to discuss concerns raised by the public and evaluate what actions might be needed, including whether rule changes may be needed to address harassment issues in this area as well as other areas of the State. Other approaches might include expanding the federal sanctuaries at the Crystal River National Wildlife Refuge, modifications to the special use permits, and changes to educational approaches that are currently used. FWC and USFWS held a listening session in Crystal River in June 2009 to gather public input and recommendations on actions that may need to be taken. FWC Commissioners advised staff at their June 2009 Commission meeting to continue evaluating and working on the issue.

Plan and Permit Review

management activities

The Imperiled Species Management Section (ISM) reviews environmental resource permits, submerged lands leases, State Clearinghouse projects, Manatee Protection Plans (MPPs) and various types of planning documents such as county Comprehensive Plans. These efforts are coordinated closely with the USFWS and county governments as appropriate. The USFWS participates in the federal permitting process and the development and approval of county MPPs.

Manatee Protection Plans

County-specific, comprehensive MPPs include data analysis of manatee use in the county, boat facility siting strategies, habitat protection and enhancement, manatee-specific education programs and law enforcement strategies. These plans provide predictable outcomes for applicants since they are implemented by both FWC and USFWS during the State and federal permitting processes. MPPs are also implemented by individual counties when they have their own permitting programs. The use of approved plans expedites

the permitting process, while providing protection for manatees that meets the requirements for all three levels of government (local, state, and federal).

Under §379.2431(2)(t), F.S., 13 specific counties were required to develop county-wide manatee protection plans, all of which were completed by the end of 2007. Because of the benefits provided by MPPs in the various permitting processes, counties beyond the designated 13 counties may voluntarily develop MPPs. Currently one county (Clay) has voluntarily completed a MPP, which received state approval in 2006.

As discussed in the statewide Manatee Management Plan, county MPPs need periodic reassessment, updates and revisions for a variety of reasons such as the age of the data that the initial plan was based on, significant changes in conditions in the county, problems with consistent interpretation of MPP language, and concerns that the plan may have deficiencies not anticipated when initially developed.

2008–2009 highlights

Manatee Management Plan tasks with specific Planning deadlines (see MMP Chapter 7 “Management Actions” p.49, Manatee Management Plan)

- Duval County MPP Revision Update: FWC is working on analyzing all the manatee-related data in Duval County to assist with upcoming revisions. FWC is also creating a database of boat facilities that includes locations of permits reviewed by FWC in the past and verified by property appraiser information to assist

in updating the inventory of boat facilities in the county. A recreational boat traffic study is currently being conducted by the County with grant funding from FWC. A final report is expected by late 2009. The County anticipates having a draft of the MPP revisions completed by the spring of 2010. In 2008, there were 11 watercraft-related deaths in Duval County, six of which had definitive large-vessel signatures. In fall of 2008, FWC attended an interagency meeting with the County to discuss the high mortality situation and identify

2008–2009 highlights, continued

possible manatee protection strategies. The watercraft deaths continued in 2009 and FWC met twice with the Jacksonville Marine Transport Exchange to discuss and implement protective actions to address large-vessel mortalities. The County has increased its public outreach through the media and provides more real-time information to the public from their manatee aerial surveys. The Port-related entities have committed to a number of manatee outreach initiatives including the development of written materials for the Coast Pilot insert, Coast Guard broadcasts, website updates, increased manatee observation procedures during boat docking, manatee placards containing educational information, and meeting regularly with the Harbor Safety Committee.

- Collier County MPP revision update: Collier County has developed a schedule for completing revisions to their MPP. FWC began working on analysis of manatee data to assist with the upcoming revisions. A recreational boat traffic study is being conducted and a final report is expected in early 2010. A database incorporating aerial images of the county, information on boat facilities reviewed by FWC for state permits, and boat facility information from the county property appraiser was compiled and provided to the County by FWC in April 2009. This information will assist county staff with updating the boat facility inventory for the MPP revisions. An analysis of law enforcement activity is scheduled to begin in the fall of 2009. Collier County anticipates that the Board of County Commissioners will approve a schedule for drafting revisions to the MPP by late fall of 2009.

- Two tasks due at the end of 2009 are under development by FWC. The first is the development of a template of how MPPs should be organized and to identify what information should be analyzed and available in the plans. The second is developing a relative risk assessment of counties based on review and analysis of manatee data.
- FWC is assisting Sarasota County as they review their MPP for minor revisions focused on improving consistent implementation of their plan.
- FWC has also assisted Miami-Dade County, as requested, with information needed for an MPP review committee that was formed in late 2008 by their Board of County Commissioners.

Ongoing Manatee Management Plan Planning tasks

- Comprehensive Plan amendments for Broward County were submitted by the County, and reviewed and approved by FWC and DCA. These amendments incorporated Broward's Manatee Protection Plan into the County's Comprehensive Plan.
- Comprehensive Plan amendments for Duval County and Brevard County were also reviewed.



Jay Gorzelaney

Permit Reviews

The Department of Environmental Protection (DEP) and the Water Management Districts (WMD) are responsible for regulating activities in Florida's coastal and wetland areas under the Environmental Resource Permit Program, the Internal Improvement Trust Fund, and Florida Coastal Zone Management Program. Since these state authorizations require that any adverse effects to fish and wildlife species be evaluated and addressed, these agencies request assistance from FWC in reviewing proposed activities and providing recommendations to reduce, if possible, potential adverse effects to manatees and their habitat from proposed projects.

Projects Reviewed FY 2007-2008 333 projects received ¹	
Type of Project	Number of Reviews
Requests for Additional Information	270
Standard Comments	287
Projects with significant comments	32
Pre-application reviews	8
Unable to comment, permit issued before comments could be made	31

¹The number of projects received may not be the same as the number of projects reviewed in 2008-2009, since projects received during the FY 2007-2008 may not have been finalized until FY 2008-2009.

2008–2009 highlights

Manatee Management Plan Tasks with specific Permit Review deadlines (see Chapter 7 “Management Actions” p.45, Manatee Management Plan)

- A “Manatee Key” specific to dredging activities has been drafted and is in the process of being converted to a GIS format for use by state permit processors. This effort seeks to parallel the Federal “Manatee Key” revised last year in cooperation with the USFWS and the U.S. Army Corps of Engineers (the Corps).
- FWC permit conditions for projects that require blasting as a method for construction have been developed.

Ongoing Management Plan Permit Review tasks

The following accomplishments were related to the ongoing task of refining and improving efficiencies in coordination with USFWS, DEP, WMDs, and the Corps.

- FWC drafted a document that outlined the types of permit applications that FWC would review and provide comments on for the Northwest District of DEP.

- ISM gave a presentation at the Submerged Lands and Environmental Resource Permitting Program’s workshop to DEP and WMD permitting staff concerning coordination on manatee reviews of state authorizations (e.g., permits, easements, leases).
- ISM assisted the Corps in revising their Manatee Key that is used in the Federal permitting process. This was an effort that included the participation of the regulatory branch of the Corps and the USFWS.

The following accomplishments were related to the ongoing task of reviewing and commenting on potential state permitting actions:

- ISM testified at an administrative hearing in Fort Myers in February 2009 regarding the Hancock Bridge Marina permit application. This proposal for 200+ slips in Lee County was determined by FWC to adversely affect manatees, and the denial by DEP was petitioned by the applicant. The administrative law judge’s final order recommended that the DEP deny the application.

2008–2009 highlights, continued

- Multiple interagency coordination meetings occurred between ISM and the civil works (planning) branch of the Corps, concerning recommended manatee conditions for Port Canaveral and Jacksonville Port Authority. The Corps has voiced concerns about several manatee conditions recommended by FWC and USFWS for these projects. Efforts were ongoing to reach mutual agreement on possible conditions for the permits.
- ISM gave a brief presentation and participated in a permitting workshop organized by the Florida Marine Contractors Association.
- A device called a “Coherent Water Resonator” proposed to be installed in Citrus County was reviewed, and monitoring conditions were included in the permit.
- FWC comments concerning the reconfiguration and renovation of the Leeward Yacht Club in Lee County were presented to the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund. The project was approved and included the recommendations made by FWC.
- Several project reviews required substantial review time to determine final recommendations because of the research needed to determine the existing number of slips at each project: TRG Oasis (Lee County), Doctor’s Lake Marina (Clay County), and Dry Stack International (Lee County).
- Several project reviews required substantial review time due to the complexity of the project or the high level of manatee use in the area: Bay Pines (Pinellas County), Progress Energy Levy (Levy County), Harbor Club (Charlotte County), Three Sisters Spring Development (Citrus County), Manatee Pocket Dredge (Martin County), Magnolia Cove (Clay County), Canaveral Port Authority Dredging, and Jacksonville Harbor Dredging.

- Several blasting projects were reviewed: Bellair Bridge (Pinellas), Beach Boulevard Bridge (Duval County), Blount Island Sill Removal (Duval County), USS Vandenberg ship sinking for artificial reef (Monroe County), Pinellas Bayway Bridge, Port Everglades Inlet Bypass and Port Sutton Dredging (Hillsborough County).

In addition to regular duties, Planning and Permit Review staff also:

- Revised manatee outreach materials, specifically updating the permanent manatee sign required at boat facilities by permit or lease conditions. The manatee awareness signs required by the standard manatee construction conditions were also redesigned (see Chapter 7 “Management Actions” p.69, Manatee Management Plan)
- Provided input to DEP’s proposed rulemaking for Boat Ramps and West Coast Inland Navigation District dredging projects.



Chris Boland

Rule Administration

management activities

ISM oversees promulgation of 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 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).

2008–2009 highlights

Brevard County (68C-22.006, FAC) – ISM and FWRI continued to coordinate with a local boating group requesting changes to some of the existing zones. In July 2008, FWC provided the group with a description of the analytical approach being used (which focuses on an evaluation of the spatial coincidence of manatees and boats) and a discussion of the preliminary results. The group stated it wanted to consider FWC methodology and potentially make suggestions on alternative evaluation methods. FWC plans to continue working with the group after it provides additional comments or suggestions.

Hillsborough County – In mid-2007, Hillsborough County formed a task force to consider a possible “pole and troll” zone in the Little Cockroach Bay area (between Cockroach Bay and the Little Manatee River) as a part of County efforts to develop a seagrass management plan. ISM participated



Jay Gorzelaney

in several task force meetings and in March 2009 provided written comments on various alternatives the task force identified. County staff is still working with the task force and eventually plans to present recommendations to the Hillsborough County Environmental Protection Commission. The County has not taken any action to date proposing local zones or requesting FWC to consider rule action.

Lee County (68C-22.005, FAC) – A boater was issued a citation in January 2008 for violating one of the manatee speed zones and he contested the citation in county court. A hearing was held in August 2008, and in October 2008, the court upheld the citation and assessed a \$178 fine. The boater appealed the ruling. In May 2009, the circuit court affirmed the ruling; however, the boater appealed this ruling to the District Court of Appeals as well, so the case was still active as of the end of June 2009.

2008–2009 highlights, continued

Permit Rule for Commercial Fishing and Professional Guiding Activities (68C-22.003, FAC) – The Manatee Management Plan identifies this rule for review and recommends that available permits be scaled back so that permits are only available to commercial fishers while actively setting nets. In early 2009, FWC discussed potential changes to the permits and alternatives for implementing the changes. In June 2009, ISM updated FWC Commissioners of the upcoming rule modification proposal. The next steps will be meetings with selected stakeholders and current permit holders, and coordinating with affected counties. (See Chapter 6, “Permitting Framework” p. 33, Manatee Management Plan).

Sarasota County (68C-22.026, FAC) – The Manatee Management Plan identifies this rule for review. During late 2008 and early 2009, ISM reviewed new and old data and determined areas that needed further review for possible changes to the existing manatee speed zones. FWC coordinated with local law enforcement as well as county staff before notifying the Sarasota County Commission in April 2009 that the County needed to form a Local Rule Review Committee (LRRC) to provide input on any potential rule changes, pursuant to §379.2431(2)(f) F.S. The County appointed the LRRC members in May 2009, and the LRRC met seven times in May and June 2009. FWC attended all of the LRRC meetings to provide assistance and answer questions. The LRRC is expected to submit its report in July 2009.

Variances and Waivers

The variance and waiver process is governed by §120.542, F.S., and Rule 28-104, FAC. FWC worked on two requests for variances from manatee protection rules during the fiscal year:

- In September 2008, FWC received a petition from a feature filmmaker for a variance from a portion of the Miami-Dade County manatee speed zone rule to allow higher speeds during filming of a scene for a movie. A Notice of Receipt of the petition was published in the Florida Administrative Weekly in October 2008 and FWC issued an order granting the request later in the month.
- In April 2009, FWC received a request from an airboat tour operator for a variance allowing higher speeds while conducting tours in the Goodland Bay area of Collier County. A Notice of Receipt of the request was published in May 2009. ISM coordinated with various law enforcement and other interested parties and also requested additional information from the applicant. Review of this request was ongoing as of the end of June 2009.

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. The most numerous of these permits are those that are handled by the Division of Law Enforcement for commercial fishing or professional fishing guide activities. There are typically 150 – 200 of these permits in effect at any given time. Besides these permits, staff worked on four requests for other types of permits during the fiscal year:

- In July 2008, FWC received a request from the city of Vero Beach for renewal of a permit allowing access to the No Entry Zone adjacent to the power plant in Indian River County for maintenance activities. The FWC issued a new permit in September 2008.
- In November 2008, FWC received a request from FWRI for a permit to allow access to several of the No Entry zones in southwest Florida in order to conduct research. FWC issued a permit later in the month.
- In December 2008, FWC received a request from a consultant for a permit to allow access to a portion of the No Entry Zone adjacent to the Port Everglades power plant in Broward County for work related to constructing a bridge over the discharge canal. After requesting and receiving additional information, FWC issued a permit in January 2009.
- In January 2009, FWC received a request from the U.S. Geological Survey for a permit to allow access to No Entry zones near the power plants in Brevard County in order to conduct research. FWC issued a permit later in the month.

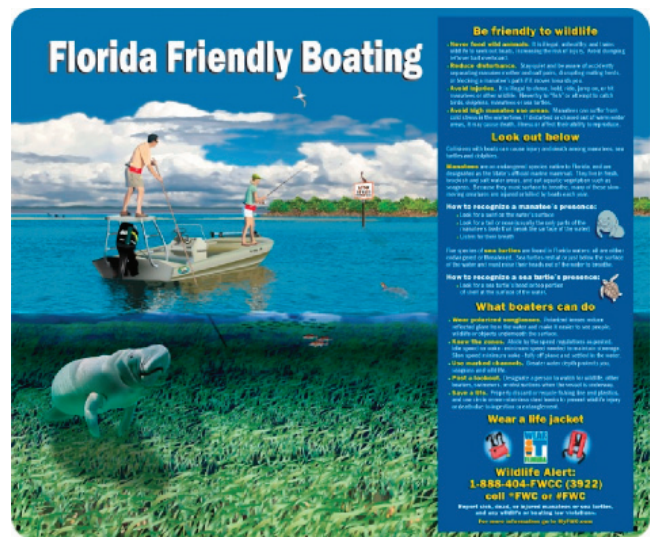


Jay Gorzelaney

Data Distribution and Technical Support

management activities

ISM staff provides manatee-related data and analysis for both internal and external use that can be viewed using geographic computer programs so information can be displayed on maps. Internal users are staff who work on manatee rule promulgation, permit reviews, manatee protection plan development, and habitat protection. External customers include environmental consultants, state and federal agencies, local governments, stakeholders and interested members of the public. Many of these data are made available via the FWC website as well.



2008–2009 highlights

- Assisted in the creation of new manatee educational signs – ‘Florida Friendly Boating’, ‘Caution Boaters’, and ‘Caution: Manatee Habitat’ – and the corresponding brochure.
- Prepared data for the Sarasota County rule review.
- Aided with data analysis and mapping in preparation for upcoming revisions to the Duval and Collier counties MPPs.
- Finalized the Manatee Key statewide maps used for permit review. These are also used by the Corps and USFWS for their permit reviews.



- Began preparations for implementing the federal Manatee Key via a GIS format for use by state permitting agencies. This effort should improve permitting efficiencies and eliminate the need for review by FWC for some types of projects of a certain size.
- Mapping as required to assist with evaluating the high manatee mortality criteria in the Duval County MPP.
- Continued a joint FWC/USFWS boat facilities mapping project. To date, five counties are complete.
- Provided data and exhibits for an administrative hearing regarding the Hancock Bridge Marina where FWC staff served as expert witnesses.

Habitat Characterization, Assessment and Protection

management activities

The recovery of the manatee population in Florida cannot occur without suitable 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 spring waters, due to consumptive human uses, threaten significant natural warm-

water refuges in the northern half of the state. Looming operational changes and future power plant retirements also pose possible threats to established artificial warm-water refuges. Understanding the manatee’s habitat needs, habitat carrying capacity and assessing habitat health and stability is a primary focus of habitat protection programs. (See Chapter 7 “Management Actions” p.55, Manatee Management Plan).

2008–2009 highlights

- **Structure Related Manatee Deaths-**
A total of 192 manatees have died as a result of interactions with the numerous water control structures located on the State’s waterways. The annual average structure related deaths pre-retrofitting has decreased from an average of 6.5 manatees/year (1974-1999) to a post-retrofitting average of 3.5 manatees/year (2000 to 2008). Provided continued funding, the few remaining water control structures requiring manatee protection should be retrofitted over the course of the next two years. Overall, coordinated efforts are having a significant influence on reducing structure-caused mortality at retrofitted structures (see Chapter 7 “Management Actions” p.63, Manatee Management Plan).
 - FWC coordinates with the Corps, the South Florida Water Management District and the Southwest Florida

Water Management District 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 held their annual meeting in May 2009.



2008–2009 highlights, continued

- An example of coordination was assisting the Corps and the USFWS in expediting the maintenance of the manatee protection devices on the Canaveral Locks. The manatee protection devices failed in the winter of 2008 and by spring of 2009 there were three manatee deaths attributed to the Canaveral Locks. Heightened agency concern led to contractors initiating repairs sooner than was thought possible. In addition, the Corps is reworking the maintenance contract of the manatee protection devices to provide for an efficient response when these devices fail or require maintenance in the future.
- **Manatee Warm Water Habitat** – A major focus of the Manatee Management Plan is addressing the long-term availability of warm-water habitat, as this type of habitat is necessary for the long term viability of the manatee population in Florida waters. Generally, warm-water habitat consists of natural springs and the warm-water effluent produced by power plants. (See Chapter 7 “Management Actions” p.56, Manatee Management Plan).

Springs

- 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 and Fanning Springs, and the Weeki Wachee Spring system have all been developed using criteria to protect winter warm-water manatee use.
- 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 warm-water habitat. To date, representatives from multiple

agencies have begun evaluations of the Weeki Wachee Spring system, Manatee Springs, Fanning Springs, Warm Mineral Springs, springs in Werner Boyce State Park, Alafia Springs and Sulphur Springs. (See Chapter 7 “Management Actions” p.60, Manatee Management Plan).

Power Plants

- FWC initiated negotiations with Florida Power and Light (FPL) regarding the necessary short- and long-term protection measures that are needed for manatees dependent on the Cape Canaveral and Riviera Beach power plant thermal discharges that will be temporarily discontinued while these plants undergo repowering conversions over the next five years.
- FWC coordinated with power companies to identify timelines, methods and procedures for reducing the risk to manatees in the event of a change in plant operations that affect existing warm-water habitat. Specifically this was carried out as FWC reviewed the conversion permits for two FPL plants on the east coast in Brevard and Palm Beach Counties. This was done in coordination with the USFWS. (See Chapter 7 “Management Actions” p.56, Manatee Management Plan).





Terri Calleson

■ **Seagrass Protection** – seagrasses provide important forage for manatees.

- 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. (See Chapter 7 “Management Actions” p.62, Manatee Management Plan)
- FWC assisted in conducting seagrass surveys throughout the Big Bend region of Florida, specifically in St. George Sound (Franklin County), St. Andrews Bay (Bay County) and the Indian River Lagoon (St. Lucie County).
- During the 2009 Session of the Florida Legislature, FWC proposed legislation protecting seagrasses from scarring in saltwater aquatic preserves. HB1423 passed and was signed into law (Chapter 2009-86, Laws of Florida), effective October 1, 2009.

■ **Aquatic Plant Management**

- Staff worked to control invasive non-native aquatic plants and encourage the establishment of native species, particularly in springs systems used by manatees. (See Chapter 7 “Management Actions” p.66, Manatee Management Plan).
- FWC maintained representation on various working groups including the Blue Spring Aquatic Plant Management Working Group and the Crystal River Aquatic Plant Management Working Group.

- Interagency coordination continued with the conservation and restoration of submerged aquatic vegetation in Kings Bay (Citrus County).
- Staff assessed and mapped freshwater aquatic plant resources statewide near manatee warm-water habitat.

Wakulla Springs

During the last two winters, FWC staff in Tallahassee has been working closely with DEP staff at Wakulla Springs State Park monitoring recent trends of higher manatee use of park waters and more specifically manatee over-wintering at the park. While manatees have been known to use the St. Marks/Wakulla Springs system in the warmer summer months, until recently, manatees staying throughout the winter have not been previously documented. DEP park staff has been collecting photos of manatees that visit Wakulla Springs and maintain a log of the numbers seen each day. Because this spring is farther north than the springs manatees typically use in the winter, there have been concerns that these animals would be at greater risk for cold-related complications. The park staff has contacted FWC a number of times with concerns for the health status of some of the animals. ISM assisted FWRI’s Marine Mammal Pathobiology Laboratory with health assessments, cold-stress evaluations, injured manatee reports, and a manatee rescue at the park. In addition, ISM gave two presentations in February 2009 to park rangers, tour boat operators and other park staff that included basic manatee biology, the characteristics of cold stress symptoms, and discussions of other possible management concerns. To minimize the impacts of the tour boat traffic on manatees at the spring, park staff developed manatee protection procedures for boat tours including posting a lookout on the front of each tour boat to assist the tour boat operator with sighting and avoiding manatees on the tour boat route. Various manatee educational brochures were provided to the park to distribute to park visitors.

Outreach and Information

management activities

Public outreach regarding manatee conservation programs is important so the public is well informed and understands the challenges of these efforts. 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. FWC staff who focus on outreach and information provide a wide array of materials to a variety of audiences. The goal is to provide factual, timely information appropriate to the targeted user groups. (See Chapter 7 “Management Actions” p.67, Manatee Management Plan).

2008–2009 highlights

Publication Updates and Graphics Requests

- Coordinated the translation of the “Manatee Treasure” brochure into Spanish. Received additional outside funding so that 30,000 copies of the brochure could be printed.
- Printed 10,000 copies of the Manatee Treasure brochure (English).
- Completed an update of the manatee coloring/activity book and printed 30,000 copies.
- Worked with Lee County Recreation Department on their grant to print various manatee related materials.
- Responded to 150 requests for printed materials and of those, 85 were for bulk orders.

Manatee Decals

- Developed a process for the distribution of surplus decals to educational facilities.
- Determined winner for the Voluntary Contribution Campaign held in July by county tax collector offices statewide. Alachua County was the winner. Presented awards at the annual Tax Collector’s Conference.

- Updated list of schools and coordinated the manatee decal contest with middle and high school students for design of the 2009-2010 manatee decal.
- Coordinated the manatee decal art contest and planned a press event for presentations to the winning entrant. Selected design in February and printed decals for distribution in June.

Miscellaneous Outreach

- Assisted with the creation of a draft manatee awareness/boating safety sign.
- Coordinated an extensive manatee program for the Brevard County libraries. Scheduled 23 manatee programs, displays or presentations during the year.
- Participated with FWC display at Earth Day at the State Capitol.
- Set up display at FSU Coastal Marine Lab Open House.
- Coordinated responses to “Ask FWC” questions from the FWC website for manatees.

Appendix

Appendix A: Acronyms and Abbreviations

Appendix B: Definitions

Manatee License Plate and Decal Program

Appendix A: Acronyms and Abbreviations

°C — degrees Celsius

cm — centimeters

Commission, Commissioners — refers to the Governor-appointed body and/or members of the FWC Commission

the Corps — U.S. Army Corps of Engineers

DTAG — Digital Acoustic Recording Tag

°F — degrees Fahrenheit

FAC — Florida Administrative Code

Forum — the Manatee Forum, a group of 22 stakeholder organizations organized by FWC and USFWS to address manatee issues

FPL — Florida Power and Light Company

F.S. — Florida Statutes

FSU — Florida State University

FWRI — FWC's Fish and Wildlife Research Institute

FWC — Florida Fish and Wildlife Conservation Commission

FY — Fiscal Year

GIS — Geographic Information System

GPS — Global Positioning System

ISM — FWC's Imperiled Species Management Section

kg — kilogram

m — meter

MFL — Minimum Flows and Levels

MIPS — Manatee Individual Photo-Identification System

MMPL — Marine Mammal Pathobiology Laboratory

Mote — Mote Marine Laboratory

MPP — Manatee Protection Plan

NGO — Non-Governmental Organization

NOAA — National Oceanic and Atmospheric Administration

SEIT — Southeast U.S. Right Whale Recovery Plan Implementation Team

Trust Fund — Save the Manatee Trust Fund

USFWS — U.S. Fish and Wildlife Service

USGS — U.S. Geological Survey

WMD — Water Management District

Appendix B: Definitions

Boating Speeds

Idle Speed

Minimum speed necessary to make headway and be able to maintain control of the vessel. See 68C-22.002(1), F.A.C., for the complete definition.

No Entry Zone

An area where all activities are prohibited unless specific authorization is given (except for fishing from an adjacent shoreline with a cane pole). See 68C-22.002(11), F.A.C., for the complete definition.

Slow Speed

That speed where a vessel is fully off plane and completely settled in the water, and not creating an excessive wake or other hazardous condition. See 68C-22.002(4), F.A.C., for the complete definition.

Manatee License Plate and Decal Program



Manatee License Plate

The manatee license plate was enacted on March 16, 1990, and was created to raise funds for manatee research and protection. To date, over 690,000 manatee license plates have been issued and over \$36,000,000 collected to fund manatee research and protection in Florida.

The manatee license plate, once the most popular specialty license plate in Florida, is now the sixth most popular. Two explanations for the drop in sales of the manatee license plate are that it has not been marketed as effectively as many of the newer plates, and it has not been redesigned since its inception. Statutory changes now allow a portion of the license plate funds to be used for marketing. In addition, the manatee license plate has been redesigned to enhance market potential and to increase revenue. Florida artist Nancy Blauers designed the new tag and it is now available at local tag offices.

The redesigned license plate and attendant marketing campaign were launched in early 2008. The Commission's campaign, "It matters to us what plate you buy" appears in a variety of print media. In addition, the Wildlife Foundation of Florida helped promote the new plate on a new web site: <http://www.buyaplate.com>, and other media outlets.

The manatee license plate generated \$1,190,974 in revenue in FY 2008-2009. Over the next few years, FWC projects a 20% increase in revenue following the improved marketing and availability of the redesigned plate, which would add several thousand dollars of additional revenue.

Manatee Decal

Chapter 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, FWC holds an art contest for middle- and high school-age students to submit designs for the annual manatee decal. FWC invites all students who attend public, private, or home schools in Florida to enter the Manatee Decal Art Contest. This art project encourages older students to support protection efforts by learning about manatees and their role in Florida's environment.

Each year tax collectors participate by selling decals at their offices statewide. Money from the decals supports manatee protection

efforts such as rescue, rehabilitation, research, and outreach. During 2008-2009, the manatee decal with artwork by Austyn Bynon sold over 8,500 decals and raised approximately \$42,660 for the Save the Manatee Trust Fund.

In May 2009, a press event was held to present awards to the 2009-2010 Manatee Decal Art Contest winner, Deanna Parsons, a junior at Rockledge High School in Brevard County. FWC, the Brevard County Tax Collector and the Save the Manatee Club were on hand to present awards. Other students at the school were recognized since the students all placed in the top ten entries in the State.

*2008-2009 Decal: Protect Our Future.
West Boca Raton High School student,
Austyn Bynon, won top honors in FWC's
2008-2009 Manatee Decal Art Contest.*



