

2016 - This past year, scientists with the U.S. Geological Survey and FWC used data from ongoing monitoring efforts to complete an updated status and threats analysis for the Florida manatee. They reported that, assuming threats that manatees face continues to be managed effectively, manatees are projected to persist on both coasts of Florida and remain an integral part of the coastal Florida ecosystem through the coming century.

Synoptic Survey

- The 2016 synoptic survey count documented 6,250 manatees, which represents a minimum number of manatees known to be alive and using the warm water and winter habitats over the survey days.

Mortality and Rescues

- Statewide, there were 514 manatee carcasses documented in Florida during FY 2016-17.
- One hundred-fifteen (115) rescues were performed statewide. By the end of the fiscal year, 64 of the rescued manatees were released back in the wild, 24 died, and the remaining animals continued with their rehabilitation efforts.
- Three of the rescue events involved manatees becoming trapped in culverts or storm-water pipes. Barriers were installed to prohibit future manatee entrapment.
- Fourteen manatees were rescued after Hurricane Hermine's storm surge left them entrapped in canals and ponds that are normally inaccessible.
- A **red tide-related Repeat Mortality Event** was declared in Southwest Florida that lasted from fall into spring. One hundred-two manatees died and there were 10 manatees rescued.
- Another **Manatee Unusual Mortality Event** was declared for Indian River Lagoon (previous event in 2012). Eleven manatee deaths were documented.

Research

- The Manatee Radio-telemetry and Tracking section of the Fish and Wildlife Research Institute (FWRI) web site was updated.
- Manatee Forum (fall) topics – manatee carrying capacity, manatee health assessments, status and trends in Florida seagrasses
- Staff assisted USFWS with the development of the online planning tool, Information for Planning and Consultation (IPaC), which can help expedite manatee reviews for some federal permit applications.

Habitat

- During 2016 and 2017, FPL completed the conversion of the Port Everglades Energy Center and began the permitting process to convert the Lauderdale power plant, which will be known as the Dania Beach Energy Center when completed.
- FWC staff worked collaboratively with the SW Florida Water Management District, USFWS and the City of Crystal River to stabilize approximately 1,100 feet of shoreline at Three Sisters Springs.

Education and Outreach

- The 2016-2017 manatee decal with the caption, "Tracking Manatees" and a focus on the FWRI manatee research program, was sent to tax collectors for statewide distribution. This decal design also received a national award for Second Place in the Advertising/Display category from the Association of Conservation Information.



2017 – On May 5, the U.S. Department of the Interior’s **reclassification** of the West Indian manatee from endangered to threatened went into effect. Notable increases in manatee populations and improvements in its habitat allowed the U.S. Fish and Wildlife Service (FWS) to change the species’ status under the Endangered Species Act (ESA). The downlisting comes after diverse conservation efforts and collaborations by Florida and other states, the Commonwealth of Puerto Rico, Caribbean nations, public and private organizations and citizens. Although the downlisting represents a milestone for the manatee, FWS cautioned that important challenges remain to ensuring the species’ long-term future throughout its range. As such, FWS biologists emphasized that even though the species status has changed the existing federal protections will continue to play a vital role in the recovery of the species. The manatee will also continue to be protected under the Marine Mammal Protection Act.

Synoptic Survey Results

- The winter 2017 synoptic survey count documented 6,620 manatees, which represents a minimum number of manatees known to be alive and using the warm water and winter habitats over the survey days.
- FWC has conducted synoptic surveys during most years since 1991. The 2017 synoptic survey count is the highest manatee count recorded during the annually planned synoptic surveys.

County Related

- The **Charlotte County** Manatee Protection Plan was adopted. This is the 16th Florida County to develop and adopt a Manatee Protection Plan.
- FWC approved **Wakulla County's** local ordinance for manatee protection and boating safety zones on portions of the Wakulla and St. Marks rivers.
- **Pinellas County** (68C-22.016, F.A.C.) — The Florida Manatee Management Plan identified western Pinellas County as an area to be evaluated for consideration of new manatee protection zones. FWC staff began working on this project in late 2010 and the final rule was adopted in December 2015. Posting of regulatory markers was completed in September 2017.

Mortality and Rescues

- A total of 538 dead manatees were recorded for the calendar year. Natural, watercraft related impacts and perinatal deaths were the top manatee mortality categories.
- During FY 2017-18, there were 85 red tide-related mortalities and 3 red tide-related rescues.
- Three manatees died due to entrapment with water control structures. These deaths increased the overall total of water control structure-related deaths to 231 since 1974.
- On July 23, the City of Bradenton lost its most famous resident when **Snooty** the manatee died at age 69. In 2015, Guinness World Records had certified him as the oldest manatee in human care. Snooty had lived in his Southwest Florida home since 1949.
- One hundred-nineteen rescues were performed statewide during FY 2017-18. Additionally, there were 12 manatees rescued in Charleston, South Carolina, due to cold weather and unfavorable location. Eleven of these were moved to warmer waters in Florida and released immediately, and one was taken to a rehabilitation facility and released later.
- FWC and partners captured and relocated 10 manatees that were entrapped from storm surge after Hurricane Irma.
- Staff assisted with three events where manatees were trapped in culverts or storm-water pipes and required rescue or recovery. Staff assists with these incidents by ensuring that adequate barriers are installed on the culverts to prohibit future manatee entrapment.

Habitat

- Coordination continues with the Water Management Districts in the development of Minimum Flows and Levels (MFLs) for river and spring

systems that provide warm-water habitat for manatees. During 2017, FWC staff provided technical assistance and information related to manatee use of De Leon, Crystal River and Silver Glen Springs.

Manatee Forum

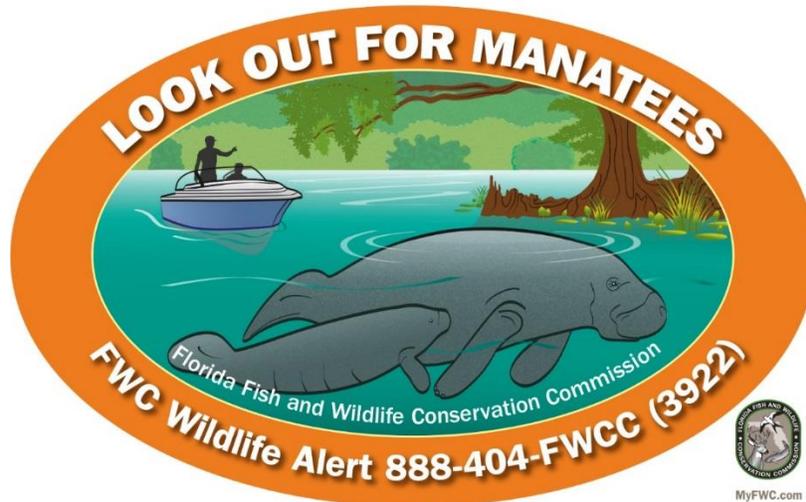
- The Manatee Forum met in November 2017. The presentation topics focused on the current and future health of Florida springs as well as springs that provide important manatee habitat. In addition, presentations regarding restoration of submerged aquatic vegetation and manatee warm-water habitat were provided.

Research

- One hundred eighty-two manatees meeting specific photo-ID criteria were added to the southwest portion of the MIPS catalog of uniquely identifiable animals.
- A study that documented manatee behavioral response to passing boats was published in the peer-reviewed journal, Marine Mammal Science. The project used a combination of manatee-borne electronic tags (digital acoustic recording tags [DTAG] and GPS tags) and boat-based observations. The DTAG provided a continuous record of boat noise and other sounds and recorded a suite of behavioral parameters, allowing a three-dimensional reconstruction of manatee movements, depth, and orientation underwater.

Education and Outreach Resources

- Manatee resource boxes were created for six law enforcement locations around the state. The boxes provide staff with manatee-related educational materials to use in presentations or at events.
- A Manatee Entanglement Issues web page was created and added to the manatee program pages.
- A Manatee Cultural Art Treasure Quest for north Florida counties was researched and promoted this year through the WFSU Summer Passport program.
- The popular Manatee Activity Workbook (geared toward 3-7 grades) was updated to include more information about FWC, manatee rescues, career opportunities for students to consider and links to manatee-related web pages.
- Staff developed a water-proof vinyl sticker to distribute FREE to boaters. The sticker is designed for placement on boat consoles as a reminder to boaters about precautions they can take to protect manatees when boating.
- The manatee decal available for distribution at tax collector offices this year was titled, "Look Out For Manatees". Over the course of the fiscal year, the decal raised approximately \$17,760 for the Save the Manatee Trust Fund. This manatee decal design won a third-place award for the Graphics: Advertising/Display Category at the annual Association of Conservation Information conference.



2018 - During the 2017-2019 red tide bloom, staff prepared a report for review by a federally mandated panel of experts, referred to as the Working Group on Marine Mammal Unusual Mortality Events. The Working Group declared a Repeat Mortality Event (RME) involving red tide and manatees in southwest Florida. This was the 12th officially declared mortality event in Florida (and ninth related to red tide) since 1996, roughly an event every other year over the past two decades.

Synoptic Survey Results and Population Assessment

- A traditional synoptic survey was conducted January 6-8th and research staff counted 6,131 manatees at warm water sites throughout the state.
- Genetic sampling surveys (where staff collects skin biopsy samples from wild manatees) were conducted in southwest Florida. A total of 504 samples were collected during the winter months from three areas – Port of the Islands (107), Orange River (152) and Tampa Bay (245). As of June 2018, 1,850 unique individual manatees were identified in the database and 342 new individuals were pending addition.
- An updated analysis using the more recent abundance surveys produced the latest population abundance estimate to date. Those updates are available in Technical Report TR-23 entitled Updated Statewide Abundance Estimate for the Florida Manatee.
- The FWC photo-ID program completed the transition to a new, more efficient and stable, image management software application, including the transfer of images and associated metadata for over half a million images.

Behavioral Ecology

- A passive thermal basin that has provided warm-water habitat for a large aggregation of manatees at Port of the Islands is expected to disappear once hydrologic restoration of sheet flow in the Picayune Strand is completed. To mitigate this loss, the South Florida Water Management District and Army Corps of Engineers— in consultation with FWC, USFWS, and USGS—created deep pools that are designed to provide and hold warm, saline ground water. Manatee use of these newly-created mitigation pools at Port of the Islands, as well as at nearby warm-water sites, was assessed during a cold front. The spatial distribution of manatees using these winter sites was mapped with aerial video and methods were developed to estimate abundance.
- Manatee distribution and abundance in Salt Creek, which is the outflow from Warm Mineral Springs, was investigated in relation to ambient temperature during winter using ground surveys. Continuous monitoring of water temperatures and tidally-influenced water levels within the creek provide a baseline for future comparison to the system after restoration.
- With support from Florida Sea Grant, FWC researchers collaborated with colleagues and students at the University of Florida, the University of South Florida, and USGS to develop a comprehensive risk assessment framework that quantitatively evaluates the probabilities of manatee-boat encounters. This project integrates information on the density and distribution of manatees and watercraft with data on manatee behavior, including swim speed, diving behavior, and response to approaching boats. (More information: “Integrating encounter rate theory with decision analysis to evaluate collision risk and determine optimal protection zones for wildlife”—published in the peer-reviewed Journal of Applied Ecology and featured in a journal spotlight on conservation in marine habitats).

Manatee Forum Meetings

- The May 2018 meeting included presentations focused on the FWC’s Manatee Management program’s past and future efforts including: the review and implementation of Manatee Protection Plans, interagency efforts to reduce conflicts associated with water-control structures, review of coastal construction projects and manatee protection zones.
- The December 2018 presentation topics focused on the red tide effects on manatees in southwest Florida, the new manatee abundance estimate and FWC waterway signs and a study regarding manatee behavioral response to boats.

County Related

- **City of Jacksonville MPP:** FWC approved an amendment to the existing plan, which allowed an increase in the number of slips in Jacksonville’s downtown special development area.
- The **Collier County** rule was filed for adoption with the Department of State in January 2018 and became effective in February 2018. Due to the uncertainty of an appeal outcome, FWC’s regulatory marker posting plans

have not been implemented and the County remains marked in accordance with the 1997 Collier County rule.

- **Western Pinellas County** — (Note: The first year of a recreational boating study in western Pinellas County was completed in August 2016. These data collection efforts represent “pre-manatee zone rule” surveys and were completed in advance of the posting of regulatory markers in western Pinellas County, which were adopted in December 2015.) This study is currently being repeated as of September 2018, which was approximately eleven months after the regulatory markers were installed. The “post-manatee zone rule” surveys will help to determine if the new speed zone regulations result in changes in vessel distribution or travel patterns and to gauge compliance with the zones.
- **Indian River County** — FWC staff initiated a manatee distribution aerial survey in Indian River County in October 2018. The study consists of 24 individual surveys, over a one-year period, and will allow for an understanding of manatee distribution, seasonal trends, and migratory patterns.
- **Eastern Panhandle Region** — FWC staff began a two-year manatee distribution aerial survey in the eastern Florida panhandle covering portions of **Gulf, Franklin, Wakulla, Jefferson, and Taylor Counties**.

Mortality and Rescues

- As of July 31, 2018, 64 of the 119 manatees rescued in 2017-2018 were released back into the wild, 28 died, and the remaining 27 animals were still in rehabilitation facilities.
- Elevated manatee mortality was documented in southwest Florida in early April 2018.
- A red tide bloom persisted in southwest Florida throughout most of 2018 and extended to the south and central east coast in the fall of 2018. A Repeat Mortality Event was declared in July 2018. This event had the largest geographical area and longest duration on record in the history of manatee mortality.
- 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, Department of Environmental Protection - DEP, FWC), academic institutions (University of Florida - UF), non-governmental organizations (Save the Manatee Club), and private oceanaria (Cincinnati Zoo, Clearwater Marine Aquarium, Columbus Pittsburgh Zoo, Dallas World Aquarium, Jacksonville Zoo and Gardens, Miami Seaquarium, Mote Marine Laboratory, SeaWorld Orlando, South Florida Museum, ZooTampa at Lowry Park, and Walt Disney World’s The Seas).
- Due to flooding from Hurricane Michael, three manatees swam over a spillway into a retention pond in Oldsmar. All three manatees were given health assessments and released. In December of 2018, 12 manatees

were trapped behind a weir in Crystal River after an extremely high tide due to wind and rain. The manatees were released, and the structure was modified to prevent further access.

Habitat

- Warm Mineral Springs' downstream run in Sarasota County is the most important natural manatee warm-water refuge along Florida's southwest coast. FWC staff worked with a variety of partners to develop and complete a project to restore and enhance the spring run, which improved access and habitat quality for manatees.
- During the 2018 Legislative Session, the Legislature appropriated \$50 million for springs restoration. FWC staff coordinated a review of the 2018-2019 project proposals received for consideration of the DEP funding.
- FWC continued to work with Florida Power and Light (FPL), Duke Energy, and the Tampa Electric Company to ensure the protection of manatees during the conversion of their existing facilities along Florida's coastline from oil or coal burning turbines to the more efficient combined cycle natural gas units.
- FWC staff, in coordination with the USFWS, and other partner agencies, are leading an effort to review and update The Warm Water Action Plan.

Education and Outreach Resources

- The manatee decal available at tax collector offices this year was titled, "I'm making a difference for manatee conservation". This decal has raised approximately \$17,010 to the Save the Manatee Trust Fund. The counties distributed 3,402 decals throughout the State during the annual vehicle/vessel registration period.



- A new addition to outreach events in the state was the debut of the Edward Ball Wakulla Springs State Park's "Hu-Manatee Mini-Festival" held in November at the park's waterfront area.

- FWC staff in south Florida created a “Super Manatee” costume for one of their events. The new costume is proving to be a popular attraction.
- Annual manatee festivals continue to be held in many locations around the state.



For more information, please check the **Save the Manatee Trust Fund** Annual Reports.