VOLUSIA COUNTY

MANATEE PROTECTION PLAN

ANNUAL REPORT
2024

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Background

Florida has been a home to the Florida manatee (*Trichechus manatus latirostris*) for thousands of years. The abundant number of freshwater, brackish, and marine ecosystems throughout the state have historically provided good habitat for the manatee to thrive and reproduce. However, the increase in the human population of Florida has, in recent years, become more of a threat to manatees. This increased threat led to several important federal protection measures, including the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973, both of which prohibit harassment and harm to the species. In 1978, the Florida Manatee Sanctuary Act declared the entire state as a manatee refuge, and later in 1989, 13 counties, including Volusia County, were listed as key to manatee survival.

Under the 1989 mandate each of the 13 key counties were required to develop a Manatee Protection Plan (MPP). Volusia County completed an MPP that included a marina siting element, as well as educational and outreach components. A Boating Activity Study, which was completed in 1996 and updated in 2000, is the underpinning for many of the policies outlined within the MPP.

The Volusia County MPP strives to balance manatee protection and resource preservation with recreational and economic demands. We divided the plan into two phases to fully address all the components. The goal of both Phase I and Phase II is to achieve and maintain an optimal sustainable manatee population within Volusia County.

Phase I focuses on manatee conservation efforts through education, outreach, habitat enhancement, scientific research, and interagency coordination. The Florida Fish and Wildlife Conservation Commission (FWC) approved Phase I in February 2001. Phase II of the MPP includes the boat facility siting plan, which outlines methods for boat facility placement to minimize watercraft related injuries to manatees. The boat facility siting element creates policies that address protection of the manatee population, as well as preservation of manatee habitat. Phase II was approved by the FWC in October of 2005. An addendum to Phase II was approved in 2023 (see 2023 MPP Addendum in this document for more details).

Phase I

Phase I of the Volusia County Manatee Protection Plan (MPP) addresses issues such as habitat inventory, law enforcement, habitat protection, education and awareness, scientific research, and governmental coordination. The objective of Phase I is to evaluate current impacts to manatees, and implement strategies to increase public awareness, facilitate interagency coordination, and promote scientific research. Volusia County has designed and developed several projects to increase manatee conservation and habitat protection to meet the objectives of Phase I.

MONOFILAMENT RECOVERY/RECYCLING AND MARINE DEBRIS PROGRAMS

Bins: The objective of the Volusia County Monofilament Line Recovery and Recycling Program (MRRP) is to minimize the negative impacts of improperly discarded fishing line by decreasing the amount of fishing line entering the environment, increasing the amount of fishing line being recycled, and by fostering awareness of the potentially harmful effects of improperly discarded line. Monofilament fishing line causes numerous threats to the environment, wildlife, and humans. The program's goal is to place monofilament line recycling bins in areas where there is an abundance of fishing activity, as well as at all county boat ramps.

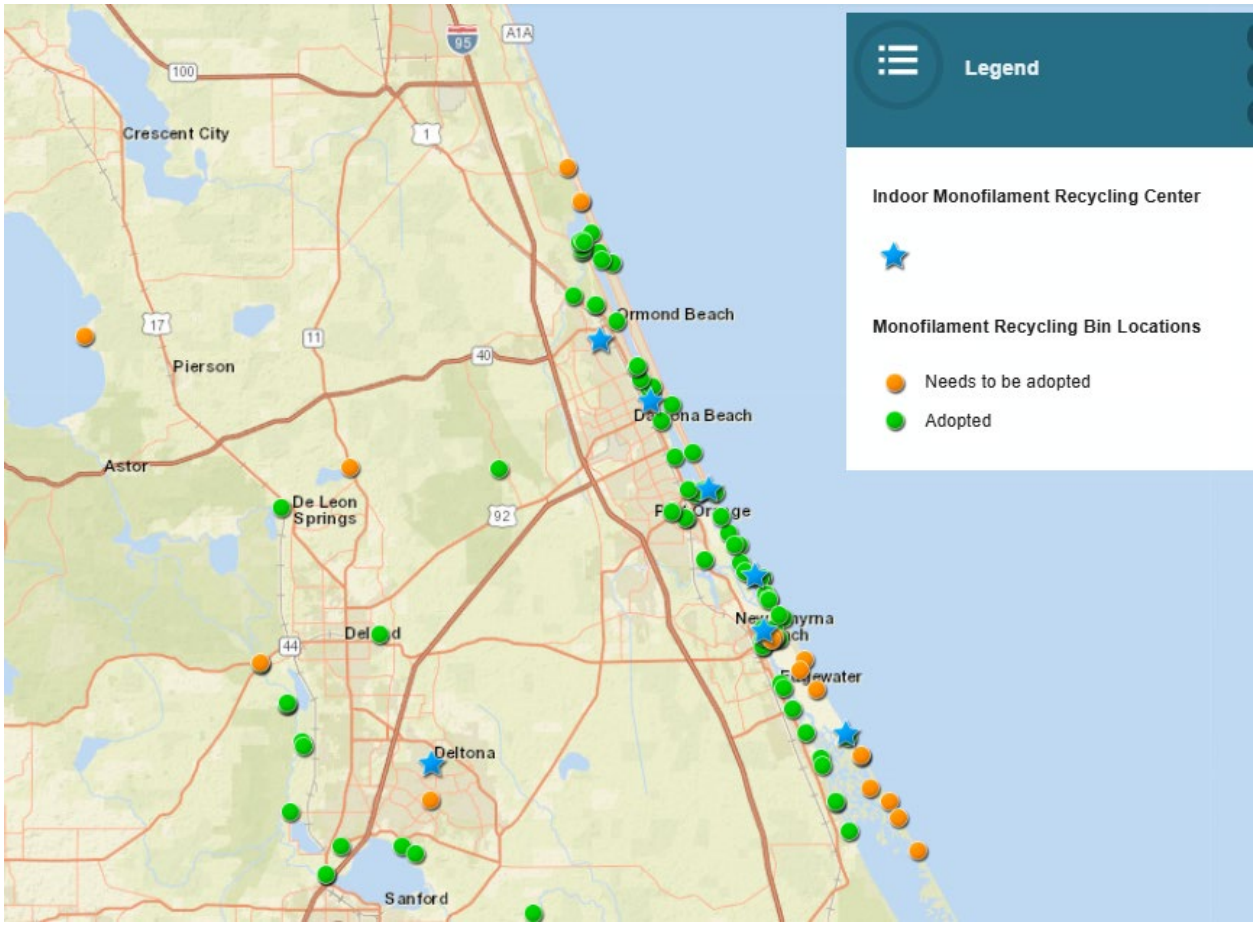
Individuals, school groups, civic organizations, and business groups volunteer to maintain the bins. Bin maintenance by volunteers includes emptying the bin to remove garbage, sinkers, bobbers, hooks, and lures, and properly disposing of all items. Volunteers complete data forms each time they empty their bin, which is often on a quarterly basis. An online data entry form makes the reporting process much easier for volunteers by allowing them to complete the form and submit it in one easy process, which eliminates the need for scanning, copying, or mailing in data sheets. The website and online form can be found at www.volusiafishinglinerecycling.org. The data collected allows program staff to determine how much line is being recycled and which bins are most often used. The collected data also shows how full the bins become, what types of fishing gear are collected, and how much time volunteers are contributing to the program.

In 2024, volunteers recovered a cumulative total of approximately 20 bins full of used line. This equates to approximately 80 pounds of line that did not enter the environment. There are 107 bins in total in Volusia County. There are currently 88 bins adopted. This number changes throughout the year due to unforeseen circumstances such as volunteers moving out of the area and retiring their bins, or other reasons when volunteers decide they can no longer continue with the program. Unadopted bins were checked and cleaned by County staff as time permitted. Staff recruited two new volunteers who adopted a total of 3 bins in 2024. There are currently 19 bins in need of adoption.

Once the bins are emptied, the volunteers then take the clean monofilament line to an indoor recycling center which can be found at participating fishing tackle shops, environmental learning centers or other partner locations. Once full of fishing line, the pre-paid postage recycling box is then sent to The Berkley Conservation Institute where it is recycled. The collected fishing line is melted down to make plastic pellets, which are used to create artificial fish habitats, and tackle boxes. Berkley then sends the empty recycling container back to the recycling center for continued collection. This recycling process is convenient, easy, and free as an incentive for fishers and boaters to participate in the program.

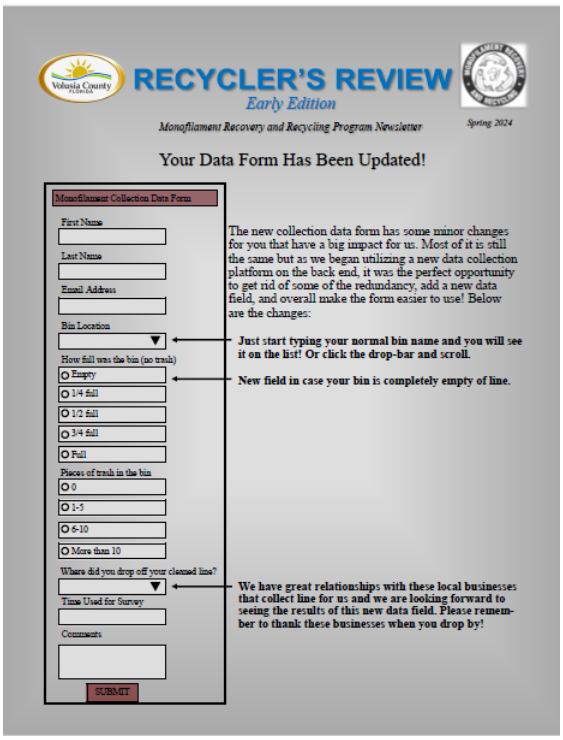
Monofilament line recycling volunteers spent approximately 71 hours collecting and recycling line, which is the equivalent of $2,377.79 in volunteer time.

The online interactive monofilament bin map, developed in 2019, also continues to be used to help recruit new volunteers. This map allows interested volunteers to expand the map in the area that they are interested in adopting a bin. Once focused on their area of interest, they can see which bins are available for adoption and its exact location. This interactive map is located on the www.volusiafishinglinerecycling.org website as well.



Screenshot of December 2024, interactive monofilament bin map

Monofilament line recycling program staff maintains communication with volunteers through e-mail updates sent on a quarterly basis. Each update highlights either a current issue, or a dedicated volunteer. This is a way to acknowledge the diversity and accomplishments of the program and participants. The update also provides facts, hints and reminders concerning fishing line recycling.



RECYCLER'S REVIEW

Early Edition

Monofilament Recovery and Recycling Program Newsletter *Spring 2024*

Your Data Form Has Been Updated!

Monofilament Collection Data Form

First Name

Last Name

Email Address

Bin Location

How full was the bin (no trash)

Empty

1/4 full

1/2 full

3/4 full

Full

Pieces of trash in the bin

0

1-5

6-10

More than 10

Where did you drop off your cleaned line?

Time Used for Survey

Comments

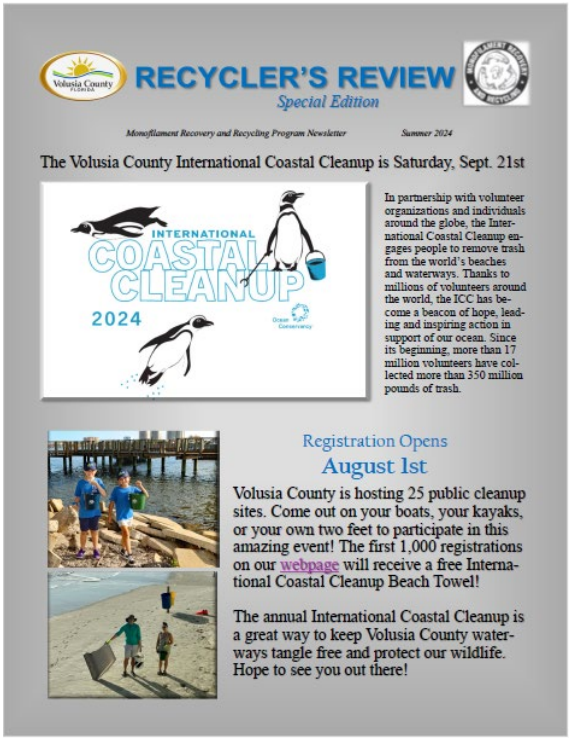
SUBMIT

The new collection data form has some minor changes for you that have a big impact for us. Most of it is still the same but as we began utilizing a new data collection platform on the back end, it was the perfect opportunity to get rid of some of the redundancy, add a new data field, and overall make the form easier to use! Below are the changes:

Just start typing your normal bin name and you will see it on the list! Or click the drop-bar and scroll.

New field in case your bin is completely empty of line.

We have great relationships with these local businesses that collect line for us and we are looking forward to seeing the results of this new data field. Please remember to thank these businesses when you drop by!



RECYCLER'S REVIEW

Special Edition

Monofilament Recovery and Recycling Program Newsletter *Summer 2024*

The Volusia County International Coastal Cleanup is Saturday, Sept. 21st

INTERNATIONAL COASTAL CLEANUP 2024

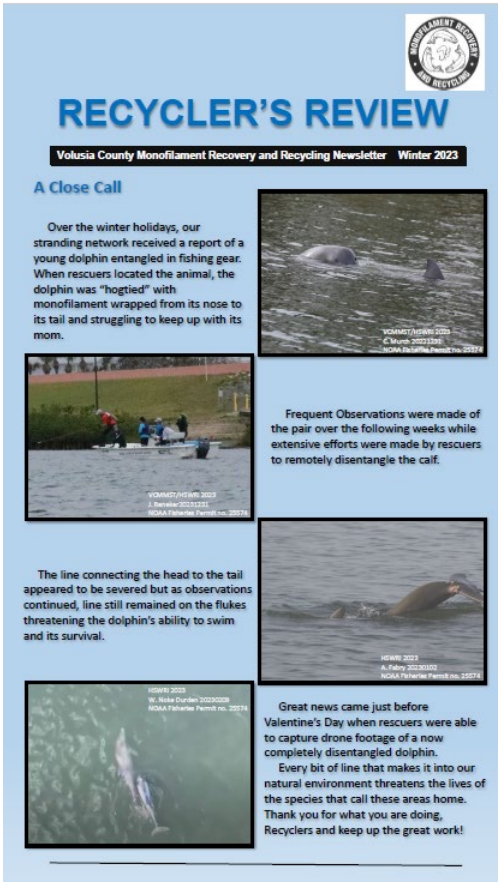
In partnership with volunteer organizations and individuals around the globe, the International Coastal Cleanup engages people to remove trash from the world's beaches and waterways. Thanks to millions of volunteers around the world, the ICC has become a beacon of hope, leading and inspiring action in support of our ocean. Since its beginning, more than 17 million volunteers have collected more than 350 million pounds of trash.

Registration Opens

August 1st

Volusia County is hosting 25 public cleanup sites. Come out on your boats, your kayaks, or your own two feet to participate in this amazing event! The first 1,000 registrations on our webpage will receive a free International Coastal Cleanup Beach Towel!

The annual International Coastal Cleanup is a great way to keep Volusia County waterways tangle free and protect our wildlife. Hope to see you out there!



RECYCLER'S REVIEW

Volusia County Monofilament Recovery and Recycling Newsletter Winter 2023

A Close Call

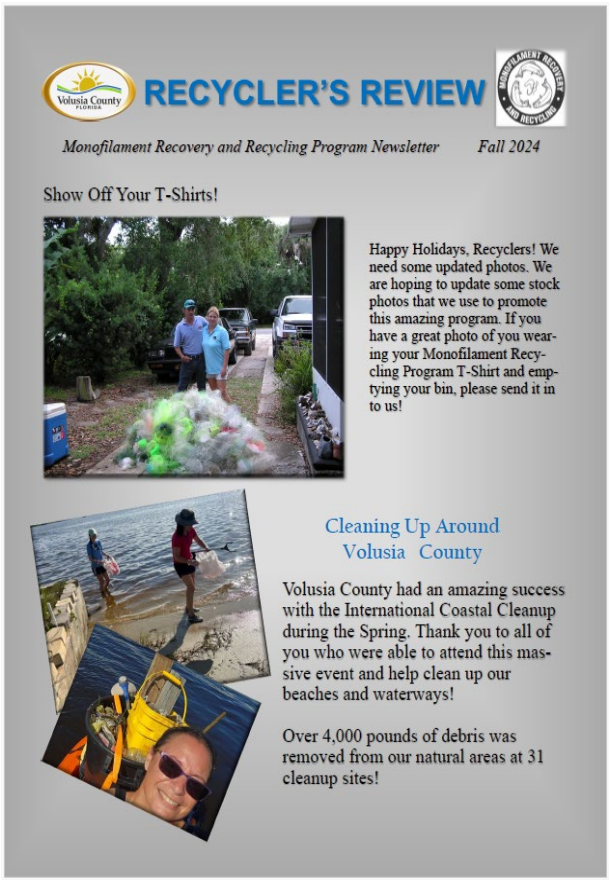
Over the winter holidays, our stranding network received a report of a young dolphin entangled in fishing gear. When rescuers located the animal, the dolphin was "hogtied" with monofilament wrapped from its nose to its tail and struggling to keep up with its mom.

Frequent Observations were made of the pair over the following weeks while extensive efforts were made by rescuers to remotely disentangle the calf.

The line connecting the head to the tail appeared to be severed but as observations continued, line still remained on the flukes threatening the dolphin's ability to swim and its survival.

Great news came just before Valentine's Day when rescuers were able to capture drone footage of a now completely disentangled dolphin.

Every bit of line that makes it into our natural environment threatens the lives of the species that call these areas home. Thank you for what you are doing, Recyclers and keep up the great work!



RECYCLER'S REVIEW

Monofilament Recovery and Recycling Program Newsletter *Fall 2024*

Show Off Your T-Shirts!

Happy Holidays, Recyclers! We need some updated photos. We are hoping to update some stock photos that we use to promote this amazing program. If you have a great photo of you wearing your Monofilament Recycling Program T-Shirt and emptying your bin, please send it in to us!

Cleaning Up Around Volusia County

Volusia County had an amazing success with the International Coastal Cleanup during the Spring. Thank you to all of you who were able to attend this massive event and help clean up our beaches and waterways!

Over 4,000 pounds of debris was removed from our natural areas at 31 cleanup sites!

Photos of the 2024 "Recyclers Review" updates, provided to MRRP volunteers.

Underwater Cleanups: In an effort to remove monofilament line and other debris that has already entered the environment, the monofilament recycling program organizes and conducts underwater cleanup events along the north jetty at Ponce Inlet during the summer months. Teams of divers, spotters and boat captains work together to remove rope, nets, anchors, lures, fishing poles, fishing line and other debris from this important coastal habitat. During these cleanup events, divers have also freed entangled animals including fish, seahorses, sea urchins, crabs, and other species.

In 2022, “Underwater Cleanup Ambassadors” were added as a new element to the cleanups and continue to support the program Ambassadors are volunteers who help educate curious onlookers watching divers from the nearby fishing pier and jetty. The ambassadors walk along the jetty during the dives, informing the anglers of what the divers are doing and answering any questions they have. They also share ethical angling suggestions on how to best fish while minimizing gear loss. They clean debris and line from the exposed jetty rocks as well.

Photo: Underwater Cleanup Crew and Ambassadors separating lead fishing weights from line and debris.

In 2024, seven underwater cleanups were conducted at the north jetty of the Ponce de Leon Inlet. Three dives were canceled due to the weather and/or lack of available crew members. Divers removed a combined total weight of 680 pounds of monofilament fishing line, gear, and other debris from the inlet. This was a significant decrease from 2023 due to fewer active team members and poor visibility.

In past years, a GoPro underwater camera was used to make a video record to show the extent of the impact created by fishing line and other marine debris in the north jetty cleanup area. Education videos were created from the GoPro footage. The 2013 video of our underwater cleanup efforts, produced by Trey Hannah (Volusia County Environmental Management) can be viewed at: https://www.volusia.org/services/growth-and-resource-management/environmental-management/natural-resources/florida-manatee/monofilament-recycling-program/.

In May 2018, the "Underwater Cleanup" video created by Gary Daniels for the Volusia Magazine, won a Bronze Award in the National Telly Awards in the Nature/Wildlife catagory. Other winners included national shows such as Sea rescue, Ovean Treks and Jack Hanna's Wild Countdown. To watch this video, follow the link on the following webpage. https://www.volusia.org/services/growth-and-resource-management/environmental-management/get-involved/waterway-cleanups/

During the clean ups, divers also remove non-native species, such as Green Mussels, *Pema vindis* and Titan Acorn Barnacles, *Megabalanus coccopoma* when found. Though they are not always captured or removed, several invasive species are documented as well, such as the Lionfish (*Pterois volitans*). These observations are shared with other biologists and researchers whenever possible so that the location can be included in other research and removal efforts.

Photo: Exotic Green Mussel (Pema vindis) removed during an underwater cleanup

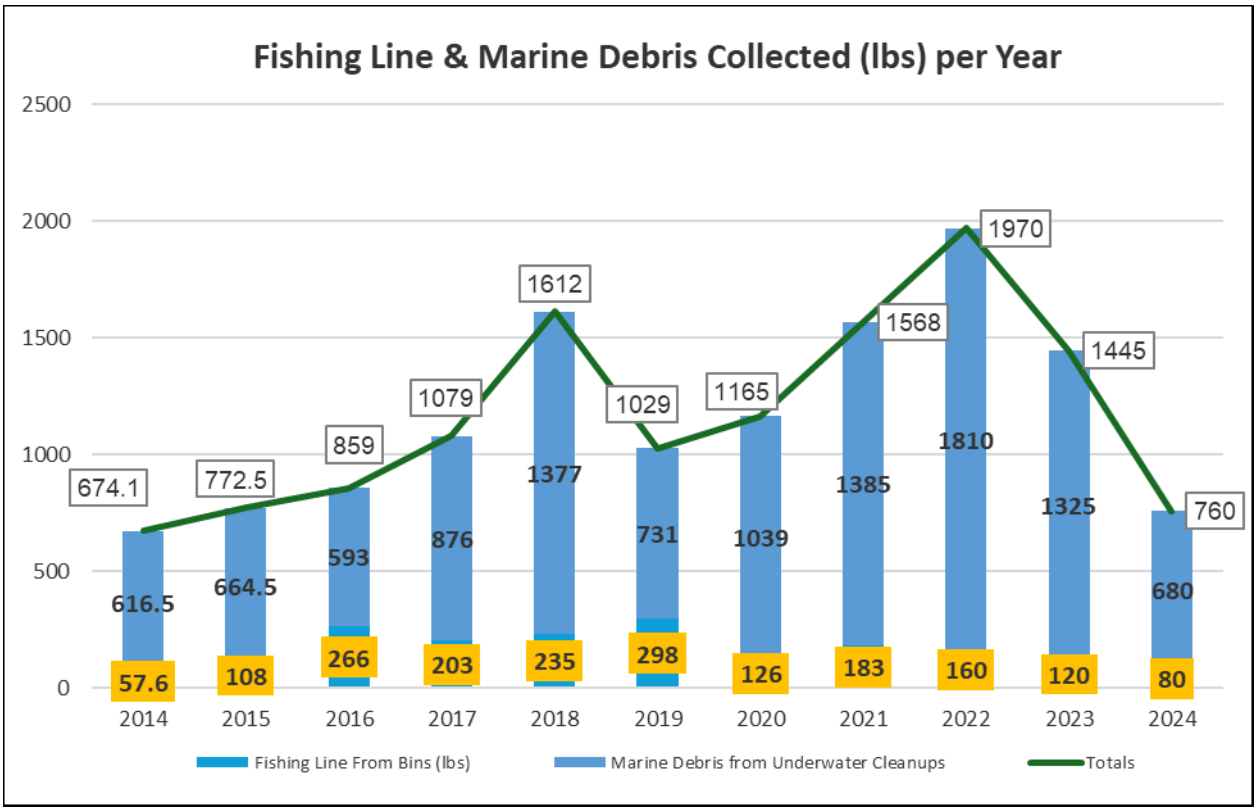


Figure 1. Chart depiction of the total amount of fishing line debris recovered from bin collection and underwater cleanups combined for the past eleven years.

Thanks to the efforts of dedicated volunteers and staff members of the Monofilament Recovery and Recycling Program, the total amount of monofilament and marine debris collected from bins and underwater cleanups from 2002 through 2024 reached 17,602 pounds, of which 760 lbs. were retrieved in 2024 (Figure 1).

MARINE DEBRIS

NOAA Project: In December of 2017, Volusia County became the first partner in the state of Florida to participate in the NOAA Marine Debris Monitoring and Assessment Program (MDMAP). Manatee Protection Program staff identified a site at Rose Bay, Port Orange to conduct monthly marine debris surveys. In 2021 NOAA updated their collection protocols. Due to the changes, a new survey location was selected to collect data accurately and efficiently. Therefore, in June 2021 Volusia County changed their survey location from Rose Bay, Port Orange to Lighthouse Point Park, Ponce Inlet.

In 2024, MPP staff surveyed the designated area of shoreline in Ponce Inlet monthly except for November and December. The 100m long site is divided into four randomized 5m transects for each survey. All data collected was uploaded to the NOAA Marine Debris and Monitoring database, which is used to inform and assess debris prevention and mitigation.

A description of the NOAA project, with maps and data denoting survey sites is located at: https://marinedebris.noaa.gov/monitoring-toolbox
Below is a Figure (2) created by the MDMAP website which summarizes the collection effort. On the NOAA website the chart is interactive, allowing users to hover the curser over each section of the chart to show the percentage amount of the type of debris that was collected. As shown below, over 83% of items collected in these surveys are plastic.

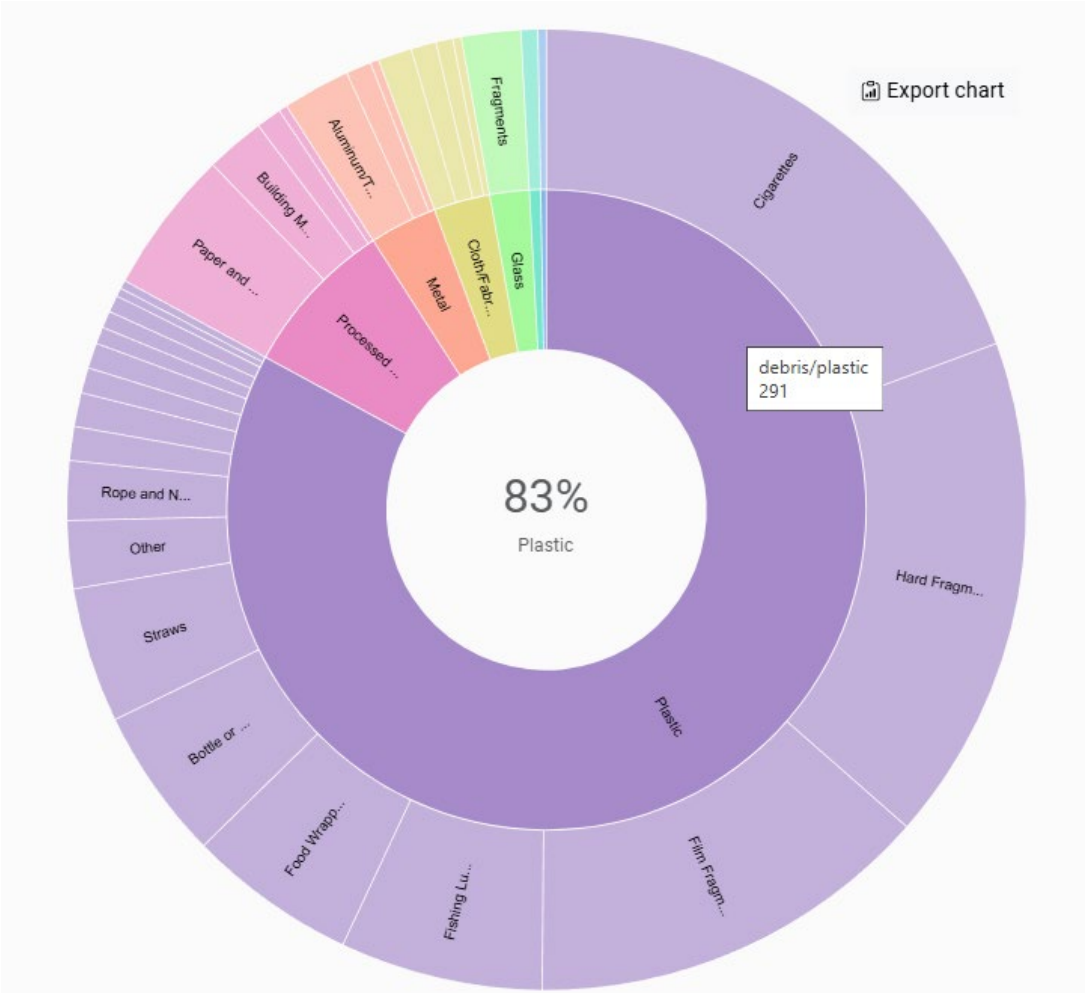
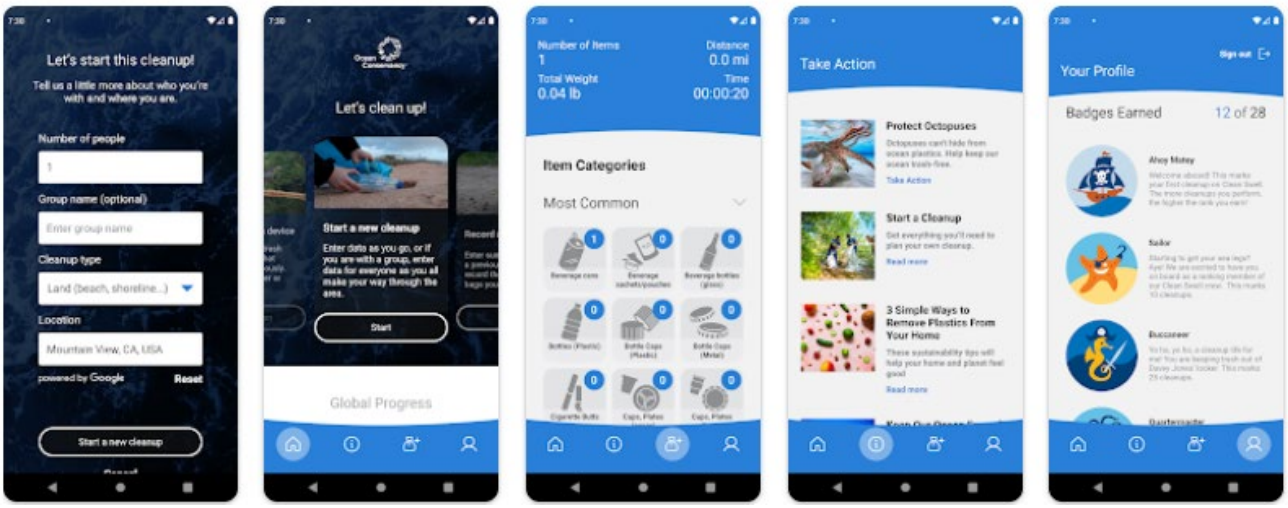


Figure 2. NOAA MDMAP Debris breakdown Piechart Visualize | Lighthouse Point Park II (noaa.gov)

In addition to this monthly effort, which is closely monitored by and reported to NOAA, data is also submitted through their smart phone application (app) called the Marine Debris Tracker, which can be downloaded at: Home | Marine Debris Tracker. This app allows the public to participate in an important large scale citizen scientist project, by tracking marine debris in their own neighborhoods. MPP staff encourage people to use the app during educational outreach efforts.

Other Waterway Cleanups: MPP staff partnered with the Volusia County Habitat Conservation Plan (HCP) staff to coordinate the International Coastal Cleanup (ICC) in Volusia County. The ICC is promoted worldwide by the Ocean Conservancy as is generally held on the 3rd Saturday in September. The 2024 event was conducted on September 21st, 2024, at 33 waterway sites. Participants were encouraged to use an Ocean Conservancy designed phone data collection app called Clean Swell in place of the paper data card which had been the predominate method of data collection until recently. However, this year most sites had connection problems when submitting their data on the Clean Swell application. Since the International event is held throughout the world on the same day, the server crash was due to too many participants using the app at once which overloaded the system. During the event, site captains did their best to record and document all the information to the best of their ability. However, since the app was being used to replace the formerly used tally cards, which generate paper trash, there was a short supply of cards. Measures will be taken for the 2025 ICC event, to ensure each site Captain knows how to collect a tally in the event the app crashes again.

MPP staff also promote using the Clean Swell app for individual cleanup efforts and recruits' participants to help with the ICC and St. Johns River cleanups (another Volusia County coordinated event) during outreach events throughout the year.

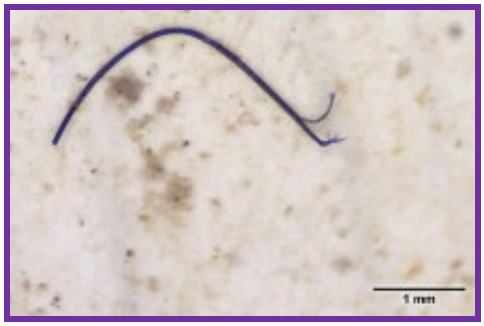


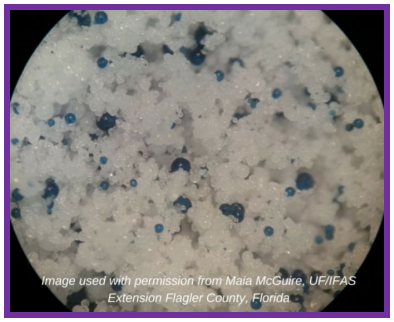
Screen Shot of Clean Swell application used during International Coastal cleanup events.

FLORIDA MICROPLASTICS AWARENESS PROJECT

Dr. Maia McGuire, Associate Director of Extension and Education for the UF/IFAS extension program, created a program called the Florida Microplastic Awareness Project. A NOAA Marine Debris Prevention, Education and Outreach Partnership Grant funds the project. In 2015, MPP staff received training on testing water samples for microplastics. They learned how to filter the water and identify the plastics under the

microscope. They began incorporating education about microplastics and water sample collection into education programs with the Volusia County School's Project IBIS, the Marine Science Center, Lyonia Environmental Center, and Explore Volusia programs. For more information on the Awareness Project, visit www.plasticaware.org. Microplastics are less than 5mm long plastic particles. These particles can take several forms, including microplastic fragments derived from larger pieces of plastic, "Nurdles" pre-production plastic pellets, microbeads, film, and fibers. Researchers have continued to see large increases in these particles in our oceans over the past 10-15 years. Due to a growing concern about the potential impact of microplastics in the marine environment, staff decided to take a closer look at the problem.





Photos: Top Left to Right: Microfiber – Marine & Environmental Research Institute, Microbead - Maia McGuire,
Bottom Left to Right: Fragment - Maia McGuire, UF/IFAS Extention, Nurdle - Maia McGuire, UF/IFAS Extension, Flagler County, FL

The program has been very successful in bringing awareness, to both students and adults, about a growing problem that most people did not know existed until recently. Scientists are still assessing the possible transfer of microplastics through our food web, and the extent of the harm microplastic pollution is causing to the marine environment, and to human health. MPP staff conducted four microplastics awareness presentations during 2024.

MANATEE EDUCATION AND OUTREACH

Manatee conservation education continues to be an important program objective. Volusia County Manatee Protection Program education and outreach includes the development and distribution of original lesson plans, manatee activities, participation in

community festivals, other educational events, and transmitting information to the public via the education program website and other opportunities such as radio and tv interviews.

Online Resources: Educational activities and lesson plans focusing on manatee genetics, taxonomy, and protection to promote conservation of the endangered Florida manatee are available online at: https://www.volusia.org/services/growth-and-resource-management/environmental-management/natural-resources/florida-manatee/education/. The educational curriculum correlates with skill sets outlined in the Next Generation Sunshine State Standards or Common Core, with the goal of providing a complete educational package in a "ready-to-use" format. Teachers can correlate a particular manatee educational lesson to the learning skill they are focusing on at the time. Teachers have access to the manatee curriculum through the manatee education webpage (link above). There are also other educational activities and links to related resources on the web page.

Volusia County Schools Field STEM Program (formerly known as Project IBIS): Project IBIS (Investigating Biomes in Science) was created to increase student engagement and achievement in the natural environment. In 2024 the name of this program was changed to Volusia County Schools Field STEM (Science Technology, Engineering, Mathematics) Program, when it merged with the STEM education program. In 2021 Volusia County Schools produced a U-Tube video that gives a small explanation about the educational opportunities at Spruce Creek Park IBIS/STEM Program: https://www.youtube.com/watch?v=Yquv5rgu4aM. The Field STEM program is primarily for high school students; however, elementary age students are the focus audience at Lyonia and the Marine Science Center educational facilities. Manatee presentations at each location are designed to be appropriate to the students' grade levels and as an enhancement to their classroom learning experiences. All activities complement the curriculum maps for each part of the school year, address specific Next Generation Sunshine State Standards, and address topics found on the End of Course exams.

Manatee protection staff provided various types of education and activities for project Field STEM. The activity, "How Long Will It Take to Decompose?" based on facts from the workbook, "Talking Trash and Taking Action", by the Ocean Conservancy and NOAA Marine Debris, are used with high school students attending the IBIS program. Students are given a type of marine debris commonly found during beach, shoreline, and underwater cleanups, and asked to guess how long it would take their item to decompose in the marine environment. During the lesson, the students are also asked other questions, for example, what is marine debris? How does each marine debris item affect the marine environment? What can we do to prevent this item from getting into the marine environment? And why does their item decompose at a different rate than another? One of the items used in this exercise is fishing line. When discussed, it provides an opportunity to educate the classes about the Volusia County Monofilament Recovery and Recycling Program. Students are amazed to learn about the 600-year decomposition rate of monofilament, as well as the efforts that are taking place around

the county to help prevent the problem and to restore our waterways. The discussion often leads to concerns about marine debris in general and then into microplastic pollution. At the end of each lesson, the activity includes a hands-on marine debris cleanup of Rose Bay. During the cleanups, students are educated about the different types of mangroves commonly found on the East coast of Florida and the importance of the estuary they are helping to preserve. The students typically remove 10-12 bags of marine debris and several hundred pounds of chemically treated wood during each cleanup.
Through native plant educational walks and talks, the Field STEM students learn about the value of estuaries as habitat and as natural buffers to storms. They also learn why estuaries are one of the most productive ecosystems in the world. The walks/talks teach students to identify local species of mangroves, and other estuarine plants, and demonstrate how these plants have developed the necessary individual adaptations that allow them to live in such a harsh, saline environment.

In 2024, staff continued to give presentations on microplastics to students. An Activity Lesson is followed in conjunction with the program. The lesson outlines how to conduct a microplastic experiment for high school students within a 30–45-minute timeframe. The lesson also describes the equipment needed, water sample collection protocol, and process for filtering for microplastics utilizing the Microplastic Awareness Project guidelines.

Water quality presentations were also conducted. During these, students collected water samples using a Nanson Bottle. They tested their samples for Nitrates, Sulfates, Ph, temperature, salinity, and clarity. Following the test sample, there was a question-and-answer session to explain their results and discuss possible reasons for how their results could be affected by air temperature, pollution in the waterways, and other variable influences.

In 2024 MPP staff made educational presentations to a total of 105 students plus their teachers and chaperones.

Other Presentations: Manatee Protection Program staff provides in person education on manatees, manatee habitat, marine mammals, monofilament line recycling, marine debris, microplastic pollution, and the estuarine environment at the Marine Science Center (MSC) in Ponce Inlet. Staff educated 199 children and chaperones during class trips and summer camps at the MSC. They also participated in education programs for SIMS (Seniors in Motion), Florida Master Naturalist Program, the Port Orange Library, Ponce Inlet Boatworks, Port Orange Chamber of Commerce, Explore Volusia and the Ormond Environmental Center. These programs allowed MPP staff to educate 188 additional participants, which are mostly adult members of the community.

Community events and activities also provided numerous opportunities for education and outreach by MPP staff. Additional events and programs MPP staff participated in were Volusia County Envirothon, Volusia County Elementary Expo and Volusia Today Radio program.

Festivals: One of the largest annual outreach events that MPP staff attend each January is the Manatee Festival, which is held jointly at Valentine Park and Blue Springs State Park in DeLand, FL. In 2024 over 8,500 guests attended the festival where staff were onsite providing education material and a booth that many attendees visited. Please visit www.themanateefestival.com for more information about this event. MPP staff educated thousands more at other festivals such as Turtle Day and the Wildlife Festival held at the Marine Science Center, the Lyonia Environmental Center Wildlife Festival, and the Ormond Beach Seafood Festival.

MANATEE WATCH

In 2005, the Manatee Watch program was established as a volunteer network to assist MPP staff in gaining a better understanding of how manatees are utilizing Volusia County's waterways. Now in its 19th year, the program continues to play an important part in understanding manatee movement and activities within Volusia County.

In 2024, MPP staff conducted two in person training sessions for new volunteers. There is also an online training option with pre-recorded sessions, including a question-and-answer section. The trainings introduce the Manatee Watch program to potential volunteers, and provide education on manatee biology and physiology, manatee identification and scar pattern recognition, and an overview of manatee regulatory laws. In total 48 new members were trained in 2024.

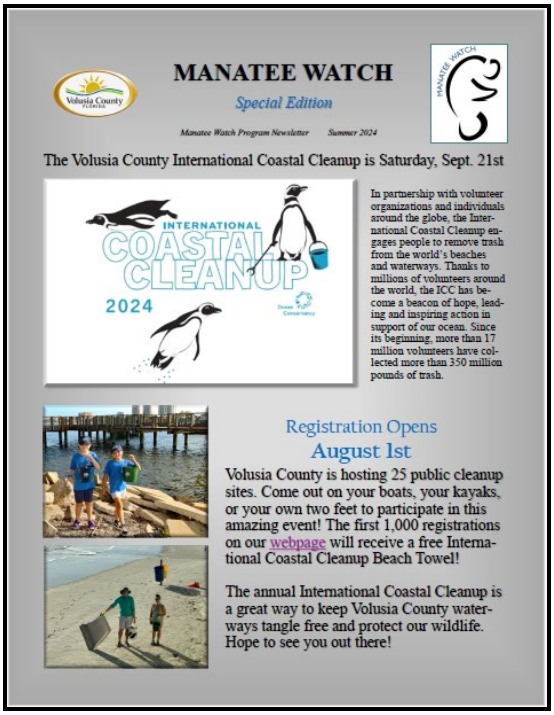
The volunteers report valuable information and send photos that can be very helpful in identifying locations of known manatees, reporting animals in distress, and cataloging new animals.

Manatee Watch volunteers are not trained or authorized for manatee rescues, or any sort of intervention. However, once trained, they can recognize the difference between an animal in distress and natural behavior. If they observe something wrong, they are instructed to report distressed animals to the Florida Fish and Wildlife Conservation Commission and MPP staff immediately. This allows for rescue teams to respond as quickly as possible.

Since 2006, MPP staff has also been collaborating with the U. S. Geologic Survey (USGS) and FWC on the Sirenia Project which maintains the Manatee Individual Photo Identification System (MIPS) database. This is a statewide photo identification database that many entities work on collaboratively to maintain. Whenever good photographic documentation is received, MPP staff send manatee sighting reports and photos, from volunteers to the MIPS program via e-mail so that it can be reviewed and possibly added to the database.

MPP staff maintain contact with valued volunteers through periodic Manatee Watch Newsletters which help to keep them current with sightings, upcoming training events,

manatee facts, and tips (see photos below). Feedback from the volunteers has been positive and there has been increased participation since implementing the updates.



MANATEE WATCH

Special Edition

Manatee Watch Program Newsletter Summer 2024

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INTERNATIONAL COASTAL CLEANUP 2024

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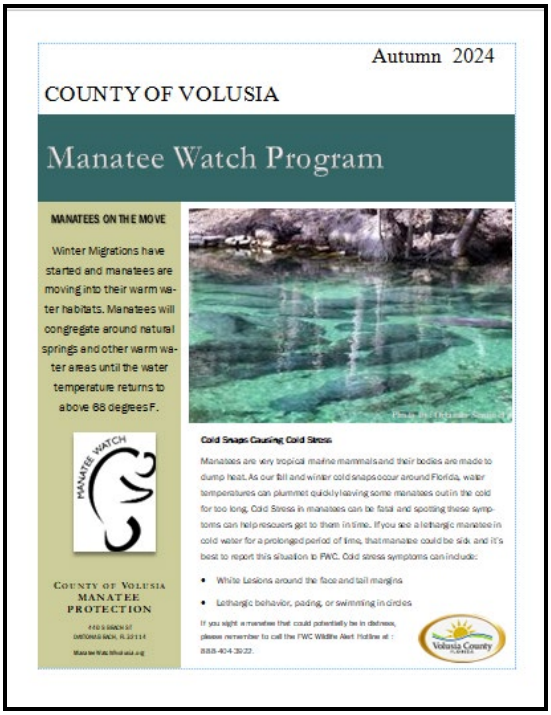


Autumn 2024

COUNTY OF VOLUSIA

Manatee Watch Program

MANATEES ON THE MOVE

Winter Migrations have started and manatees are moving into their warm water habitats. Manatees will congregate around natural springs and other warm water areas until the water temperature returns to above 68 degrees F.

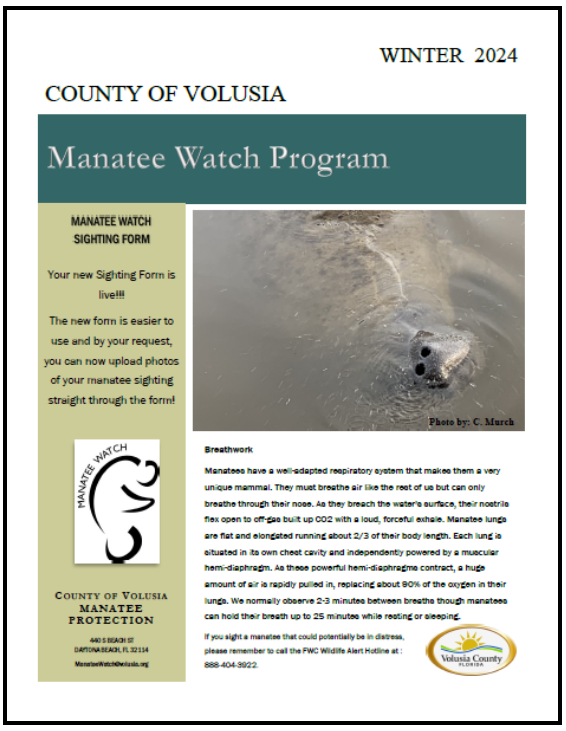
Cold Snaps Causing Cold Stress

Manatees are very tropical marine mammals and their bodies are made to dump heat. As our fall and winter cold snaps occur around Florida, water temperatures can plummet quickly leaving some manatees out in the cold for too long. Cold Stress in manatees can be fatal and spotting these symptoms can help rescuers get to them in time. If you see a lethargic manatee in cold water for a prolonged period of time, that manatee could be sick and it's best to report this situation to FWC. Cold stress symptoms can include:

- White Lesions around the face and tail margins
- Lethargic behavior, pacing, or swimming in circles

If you sight a manatee that could potentially be in distress, please remember to call the FWC Wildlife Alert Hotline at : 888-404-3922.

COUNTY OF VOLUSIA MANATEE PROTECTION



WINTER 2024

COUNTY OF VOLUSIA

Manatee Watch Program

MANATEE WATCH SIGHTING FORM

Your new Sighting Form is live!!!

The new form is easier to use and by your request, you can now upload photos of your manatee sighting straight through the form!

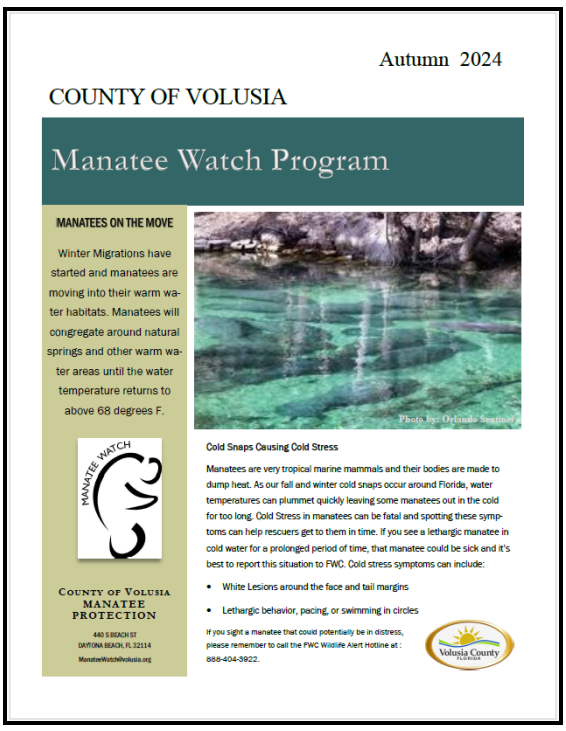
Photo by: C. Murch

Breathwork

Manatees have a well-adapted respiratory system that makes them a very unique mammal. They must breathe air like the rest of us but can only breathe through their nose. As they breach the water's surface, their nostrils flex open to off-gas built up CO2 with a loud, forceful exhale. Manatee lungs are flat and elongated running about 2/3 of their body length. Each lung is situated in its own chest cavity and independently powered by a muscular hemi-diaphragm. As these powerful hemi-diaphragms contract, a huge amount of air is rapidly pulled in, replacing about 90% of the oxygen in their lungs. We normally observe 2-3 minutes between breaths though manatees can hold their breath up to 25 minutes while resting or sleeping.

If you sight a manatee that could potentially be in distress, please remember to call the FWC Wildlife Alert Hotline at : 888-404-3922.

COUNTY OF VOLUSIA MANATEE PROTECTION



Autumn 2024

COUNTY OF VOLUSIA

Manatee Watch Program

MANATEES ON THE MOVE

Winter Migrations have started and manatees are moving into their warm water habitats. Manatees will congregate around natural springs and other warm water areas until the water temperature returns to above 68 degrees F.

Photo by: Orlando Sentinel

Cold Snaps Causing Cold Stress

Manatees are very tropical marine mammals and their bodies are made to dump heat. As our fall and winter cold snaps occur around Florida, water temperatures can plummet quickly leaving some manatees out in the cold for too long. Cold Stress in manatees can be fatal and spotting these symptoms can help rescuers get to them in time. If you see a lethargic manatee in cold water for a prolonged period of time, that manatee could be sick and it's best to report this situation to FWC. Cold stress symptoms can include:

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COUNTY OF VOLUSIA MANATEE PROTECTION

Photos: Manatee Watch volunteer Newsletters

Another way volunteers are encouraged to participate is by rewarding each volunteer that sends in three manatee sightings with a unique Manatee Watch t-shirt!

With the addition of 48 new volunteers in 2024, the number of trained Manatee Watchers throughout the years reached 491.

The amount of time spent in 2024 by Manatee Watch volunteers increased exponentially. Manatee Watch Volunteers submitted 58 sighting reports in 2024, some of which consisted of two or more animals per sighting. A total of 187 manatees were documented. There was one case where a volunteer found a carcass that was reported to Florida Fish and Wildlife Conservation Commission (FWC), collected, and necropsied to determine the cause of death. There were no cases of injured animals reported. Sighting reports were submitted by 13 different volunteers, in which manatees were documented in several different bodies of water, including one observed in Brevard County. Volunteers reported spending 19.6 hours conducting manatee observation, which is valued at $656.40.

Volunteers submit their data from their computers or smart phones through the webpage at www.volusiamanatees.org. See figures 3-5 for a breakdown of data collected from the volunteers.

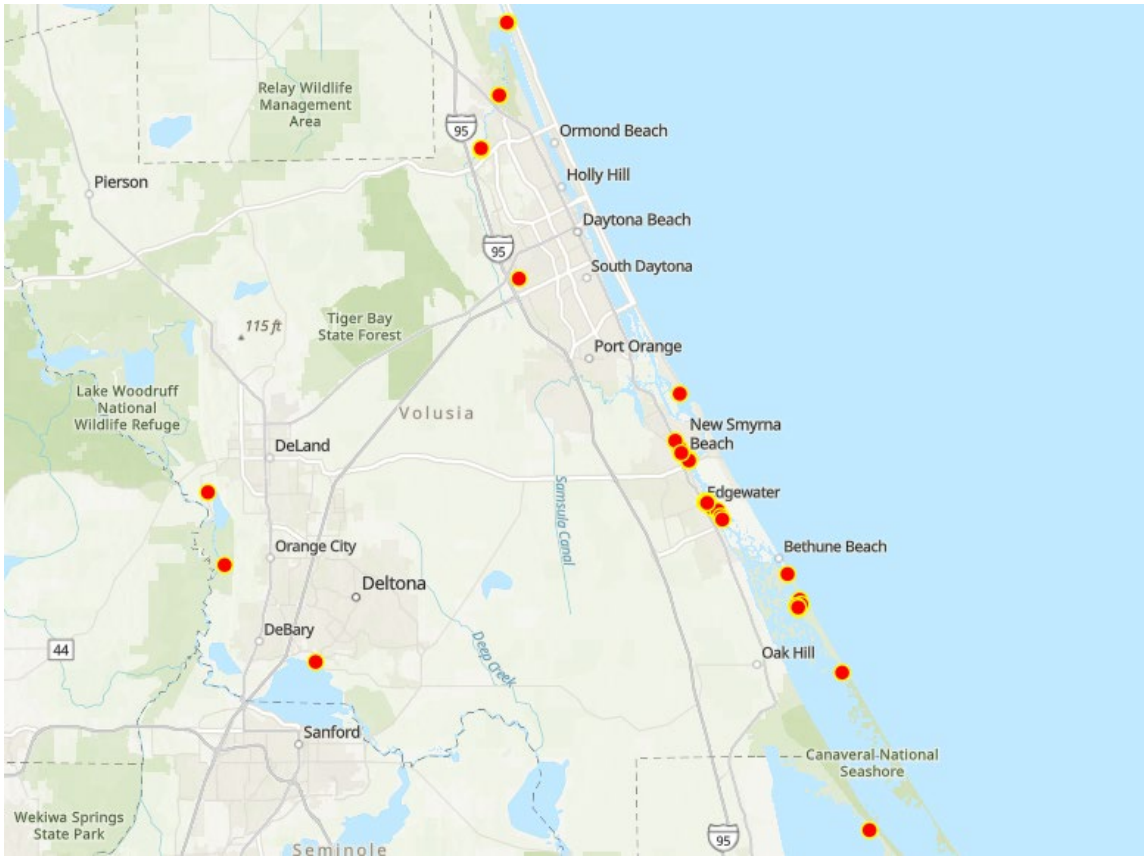


Figure 3: 2024 Map of manatee sighting locations submitted through the new GIS online data report.

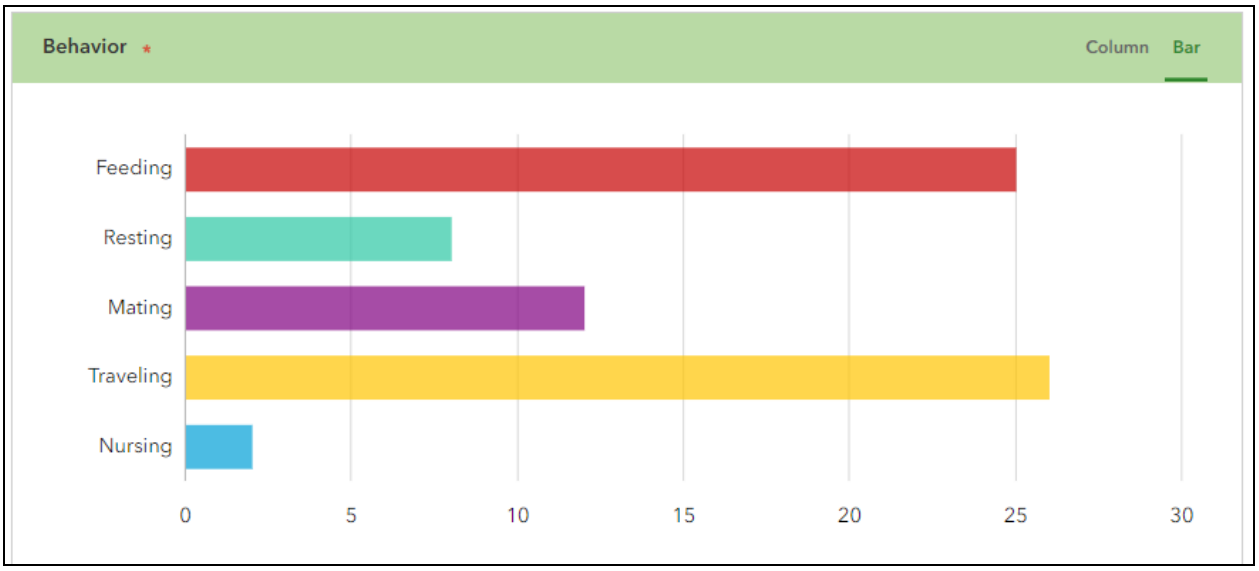


Figure 4. Chart of Manatee behaviors documented

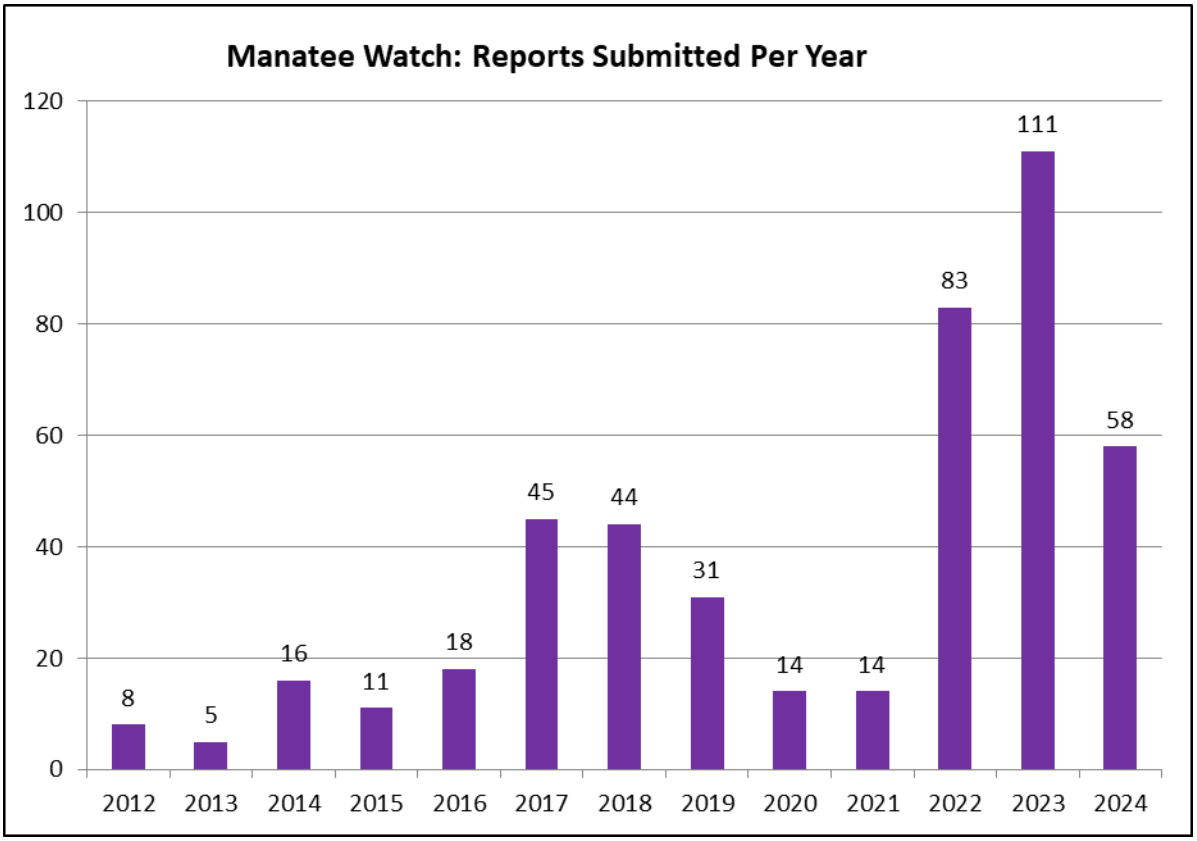


Figure 5. Chart showing volunteer reports submitted from 2012 – 2024.

The Manatee Watch Program is fortunate to have a dynamic group of volunteers with varied experience and knowledge working to collect manatee sighting information throughout the county. A well-trained group of volunteers can gather more information and cover more territory than staff members alone would be able to do, and they provide a valuable service to the county's Manatee Protection Program. From this data, we gain a better understanding of how manatees use Volusia County waterways and information such as behavior, size, associations, movement, and even individual identification, which all proves to be extremely valuable in making management decisions. Manatee Watchers have also proven themselves to be invaluable by alerting staff when they observe a manatee that is injured or in distress. This is a great asset for our Marine Mammal Stranding Team's ability to respond quickly to potentially compromised manatees in our waterways.

The Manatee Watch program continues to grow and adapt in response to incoming volunteers, new data, and participation in beneficial collaborative efforts. In 2024 the data collection sheets, and online data collection form were updated to narrow in on the most important information requested, needed, and used by the Manatee Protection Program and other associated agencies.

BLUE SPRING STATE PARK INTERAGENCY MANATEE OBSEVER PROGRAM

In 2014, MPP staff held the first Manatee Observer training, which is a more advanced level of Manatee Watch and only conducted by trained volunteers at the park. The program is a cooperative effort between Blue Spring State Park volunteers and park staff, and volunteers from Save the Manatee Club (SMC), Clearwater Marine Aquarium Research Institute (CMARI) and Volusia County Manatee Watch. The goal of the Blue Spring Manatee Observer (MO) program is to provide trained volunteers, to assist Blue Spring Park rangers with education and reduce human interactions with manatees during the summer months (March – October). This is when the manatees are often sharing the swim area of the spring run with people and constant supervision is essential. Ideally, there is a volunteer in a kayak and one on the boardwalk or on the swim/diver entry dock to provide park visitors with educational information and answer manatee questions. The presence of the volunteers also helps to prevent manatee harassment by swimmers and divers.

MO volunteers interested in observing by kayak, are required by the Department of Environmental Protection (DEP) to attend an additional mandatory kayaking skills and safety course, conducted by an ACA certified level two kayak instructor employed by DEP. They also must complete the US Boater Safety course online. The program now has 30 active observers, most of which are approved to use kayaks while observing.

In 2024 a bank stabilization project was underway in the spring run. Although the run was closed to all water activities, Manatee Watchers were asked to keep an eye out for manatees entering the run and notify park staff so that the construction workers could be informed of their presence.

Photo: Manatee "Mata Hari" and her 2024 calf.

Photo: *Trained Boardwalk Manatee Observer*

Photo: Manatee Observer in official Manatee Observer Kayak

In 1971, there were 11 manatees recorded at Blue Spring, which included one calf. In 1981 there were 36. In 2024, there were 697 manatees reported at Blue Spring State Park in a single day during Save the Manatee Club's daily manatee identification counts. These figures clearly demonstrate the effectiveness of the manatee protections that have been put into place on the St. Johns River and at Blue Spring State Park. The number of manatees utilizing the spring as a warm water habitat also shows how important it is to maintain healthy habitat conditions in Volusia County waterways.

CLEAN MARINA PROGRAM

The Florida Department of Environmental Protection (DEP) developed the Clean Marina Program (CMP) as a voluntary designation process for marinas that assists them in becoming more environmentally friendly. To achieve their goal, the CMP assists facilities throughout the state with incorporating Best Management Practices (BMPs) into their operating procedures, provides compliance assistance, and supplies education on storm readiness through the Clean & Resilient Program. The program also provides the opportunity for marinas to apply for funding for new pump outs and/or pump out maintenance. DEP has encouraged clean boating through the development of several designations: Clean Marina, Clean Boatyard, Clean Marine Retailer, and Clean and Resilient Marinas. These programs recognize facilities engaging in environmentally friendly practices, beyond regulatory requirements, in and around Florida's waterways. The Manatee Protection Program serves as a county liaison for the state program. Currently Volusia County has 21 marinas that have passed inspection and are listed as a "Clean Marina"; one of which is also designated as a "Resilient Marina". There are also three boatyards designated as "Clean Boatyards" in the county. For more information on the Clean Marina Program, visit Clean Boating Programs | Florida Department of Environmental Protection. In 2024, two routine marina inspections were completed to ensure compliance with the program standards, both were renewed as clean marinas. Four marinas are due for inspection in 2025. For a list of Volusia County Clean Marinas and Boatyards visit https://www.volusia.org/services/growth-and-resource-management/environmental-management/sustainability-and-resilience/florida-manatee/clean-marina-clean-vessel-act.stml.

LIVING DOCKS PROGRAM

In 2022 MPP staff has partnered with EMD Water Quality staff to begin a Living Docks (LD) Program in Volusia County. Living docks are made up of oyster mats that are attached to pilings on boat docks and/or fishing piers. The chemical composition in the shells attracts oysters, as well as other bivalves through chemical cues, and acts as natural habitat for filter-feeding organisms to settle on. In return, these communities improve water clarity as well as attract larger organisms such as fish, crabs, and shrimp, creating a diverse ecosystem. (https://www.floridaocean.org/living-docks)

The LD team developed a pilot project modeled after a similar program in Martin County, Florida. The goal of the Volusia County LD program is to improve the water quality of the Indian River Lagoon (IRL). The purpose of the pilot project is to test the materials in various locations for productivity and get a baseline of water quality in those locations. The pilot project will last one year starting with the deployment of mats in January 2024 and ending with a winter data collection in January 2025. Decisions on when, where and how to grow the project into a continuing program will be based off the data collected during the pilot.

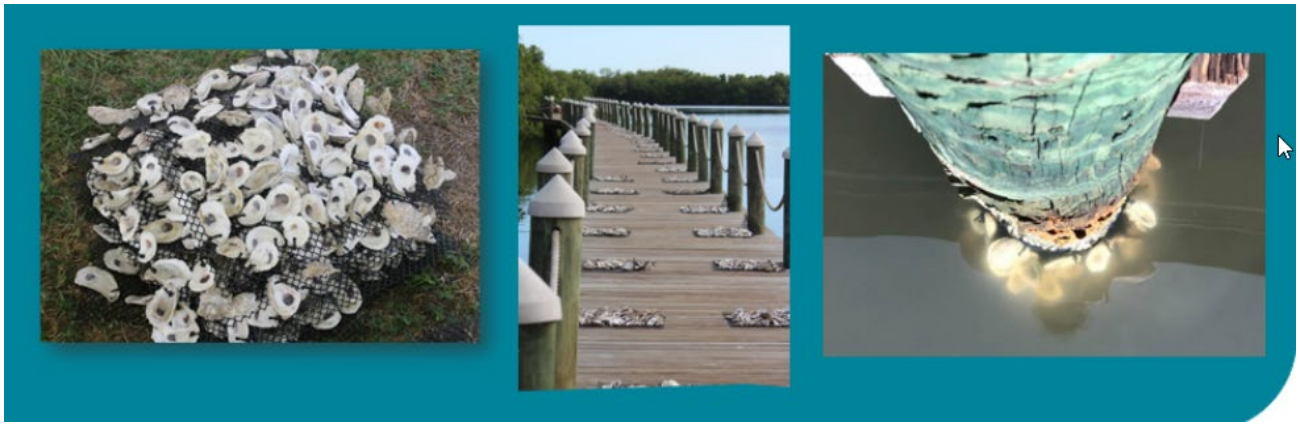


Photo: Florida Oceanographic Society Living Docks Photos

In 2023, the LD team met with scientists from Florida Oceanographic Society (FOS) and Florida Institute of Technology (FIT) for direction and assistance in the startup of the program. These organizations collaborated to bring the model Living Docks program to the southern IRL and St. Lucie Estuary. They also developed a volunteer-based program to deploy and monitor living docks at residences within their area. If their pilot project is successful, the LD team hopes to implement a similar volunteer program created by FOS and FIT in Volusia County.

Members of the LD team also attended a Living Shorelines Class for Contractors to get a better understanding of how the permitting process for projects such as this work.

The team began the initial stage of the project in 2023. During which time they obtained oyster mats from the Director at The Arc in Vero Beach, FL. The mats were constructed by the special needs students of the Arc and graciously donated to the LD project. Next, the team identified and researched eleven different docks and piers throughout the county to decide which ones were suitable for the project. Five of the eleven did not already have oyster growth, were not near heavy boat traffic launches and/or did not have heavy angler usage, making them suitable locations for the project. Out of the final five docks chosen to be a LD, the team was given permission by only three of the dock owners to use the location for the project. Therefore, all three pilot locations are at county owned fishing piers. One is in New Smyrna Beach and the other two are in Ormond Beach. In November of 2023 the final permits were received for the three locations, data sheets were created, and a project implementation plan was developed.

In January of 2024, the mats were deployed to five pilings on each of the three dock locations and a control piling, that would have no mat installed on it, was selected to be checked during each monitoring date. The mats were attached using UV-resistant cable ties and were placed so that the top of the mat was below the average low tide line. The mats were initially checked for damage or any other issues on a weekly basis, then monthly, then seasonally. Additionally, seasonal analysis on water quality as well as biodiversity growth on the mats and neutral pilings were collected. During 2024 three of the four seasonal monitoring efforts were conducted. The pilot project will wrap up in January of 2025 when the final one is completed

Initial findings show that there is a significant amount of growth on each of the pilings with mats. The average number of oysters at each of the locations during the first three data collections are below (Figure 6). A full set of data for each of the locations including data on the control piling will be available after the 2025 January data collection.

Average Number of Oysters

Locations	Spring	Summer	Fall
Bethune	0.5	83	126
River-Ocean shore	2.5	28	138.5
Seabridge	0	7	71.5

Figure 6: Average oysters at each location

Photo: Members of the LD team deploying one of the mats.

Photo: Some of the growth on one of the randomly selected mats during fall monitoring 2024.

PARTNERSHIPS AND COLLABORATIVE EFFORTS

The Manatee Protection Program staff continues to participate in working groups and interagency task forces at the state and federal levels to enhance their knowledge of issues relating to scientific research, public interest, available grants, and education and outreach efforts. This also creates opportunities for collaboration with other government agencies and helps to inform staff of new initiatives. Additionally, participation allows the county to have direct input at both the state and federal level.

The Manatee Protection Program Manager attends the annual Blue Spring Interagency Meeting, which focusses on discussing plans for the removal of exotic aquatic vegetation in the St. Johns River and the potential impact this activity may have on manatees. At these meetings, one task is to review maps and an annual herbicide spray schedule. Plans are adjusted as deemed necessary to avoid over spraying areas and to ensure enough food sources are available for manatees using the nearby habitat. Attending agency staff also give updates on their respective programs.

The Program manager also attended meetings with the Northeast Estuary Restoration Team (NERT), and the newly formed Florida Sea Grant Advisory Committee. In 2024 the MPP manager attended and presented at the Interagency Manatee Protection Plan meeting where MPP mangers throughout the state gathered to discuss their programs and opened lines of communication throughout the counties. The meeting was held in Volusia County which gave attendees an opportunity to visit the Stetson Aquatic Center

which is located along the banks of Lake Beresford which is connected to the St. John's River and Blue Springs, a natural warm water manatee refuge.

Staff were also invited to join a statewide initiative called the Warm Water Habitat Action Plan (WWHAP) which launched at an in-person meeting in August of 2024. After the initial program introduction by FWC and FWS, attendees were designated into regional partnerships to provide input in locations within geographic ranges they have knowledge and experience with. Volusia County staff were assigned to the North Atlantic Regional Partnership. The partnership is scheduled to meet virtually monthly to discuss ideas and identify warm water habitat areas which might be suitable for restoration and enhancement projects so that when manmade warm water sites are retired, manatees will have other natural sites to utilize.

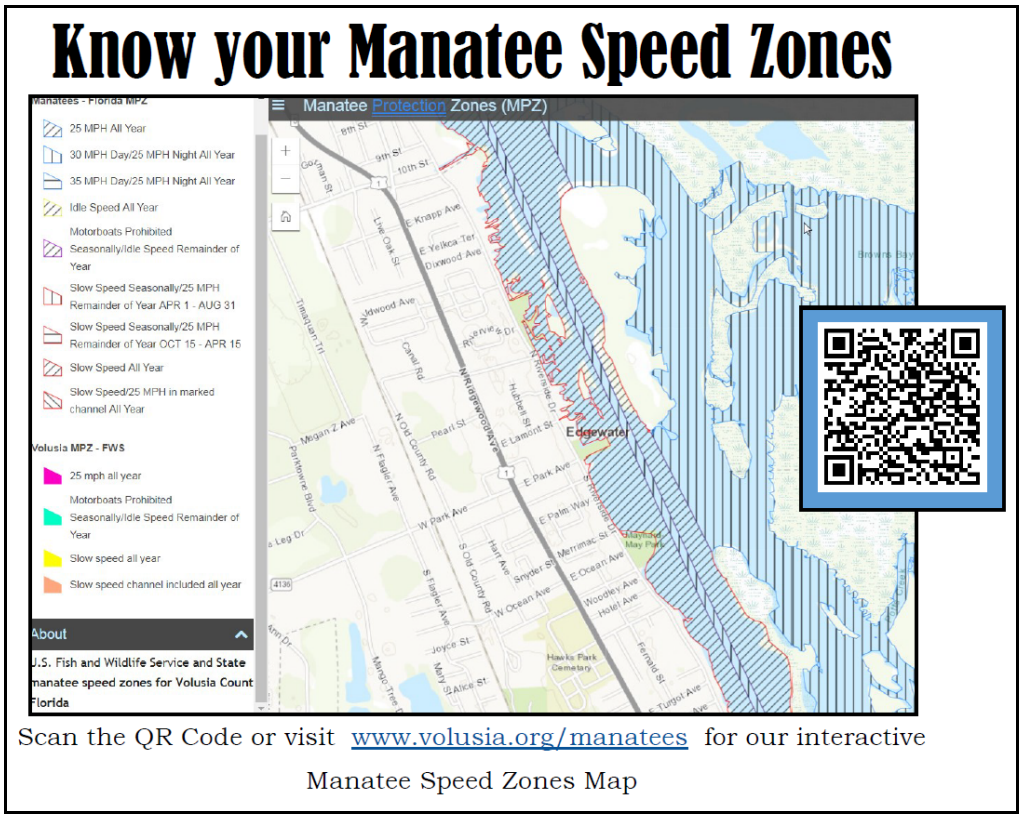
LAW ENFORCEMENT

Good coordination and communication with the law enforcement agencies responsible for enforcing manatee speed zones within the county is an essential element of manatee protection.

Staff continue to maintain contact with the different agencies to coordinate with each other to maximize their presence and effectiveness. Staff also contact the Sheriff's Marine Unit concerning manatee-related enforcement issues that arise from citizen calls, which precipitate a timely on-the-water response. For state related issues staff contact the Florida Fish and Wildlife Conservation Commission Law Enforcement.

Manatee Protection Program staff continued to strive to decrease the number of manatee injuries and mortalities by providing additional information to the public regarding manatee speed zones. While enjoying Florida's waterways, boaters often pass through manatee speed zones. Especially for the many people visiting or new to Florida, it can be hard to know what areas of waterbodies have manatee protection zones. In 2018, the County developed an interactive map that provides users with digital access to manatee speed zones. While enjoying Florida's waterways, boaters can use the interactive map to zoom in to the area they are interested in or enter a nearby address or landmark in the search box, to advance to the location. A link to the interactive map can be found on the Volusia County Manatee Speed Zone webpage, https://www.volusia.org/services/growth-and-resource-management/environmental-management/natural-resources/florida-manatee/manatee-speed-zones.stml. Staff continue to promote a QR code at festivals. Visitors can quickly scan the code with their smart phones and save the link for easy access while on the water.

Future efforts to improve ease of use for users will be to create a smartphone app for this purpose.



Screen Shot: Sign created to display at festivals for access to speed zone app.

MARINE MAMMAL STRANDING TEAM

The purpose of the Volusia County Marine Mammal Stranding Team (VCMMST) is to provide a quick and organized local marine mammal stranding response which is vital to the survival of live stranded marine mammals by offering them the best chance at successful rescue and rehabilitation. It also allows for the timely collection of data and disposal of dead animals. Collection of data from dead stranded marine mammals provides an opportunity to learn about the life history, ecology and health of species that are inherently difficult to study in the wild. These animals also serve as indicator species and serve to gauge the health of our marine ecosystems.

Marine Mammal Stranding Team members are county employees, which provides for continuity in team membership and facilitates increasing the level of training and expertise of the Team as a whole. The Stranding Team works closely with the County's Water Quality Program, the Sea Turtle Program, Beach Safety, the Marine Science Center, and the Marine Discovery Center of New Smyrna Beach. The Stranding Team is an effective catalyst for gathering stranding data efficiently and then removing stranded animals from the beach or waterways as quickly as possible. This in turn elicits an interest in marine mammals from visitors and provides a method for distributing information about marine mammal strandings to the public.

The Volusia County Stranding Team is authorized through the Hubbs-SeaWorld Research Institute's (HSWRI) Stranding Agreement with the National Oceanic and Atmospheric Administration (NOAA) Marine Fisheries Service when responding to cetacean (dolphins and whales) calls. Team members work extensively on increasing their level of knowledge and experience, and because of this hard work and dedication, the Stranding Team maintains a "Designee" status under the HSWRI Stranding Agreement.

When responding to manatee calls, the Stranding Team takes directions from the Florida Fish and Wildlife Conservation Commission (FWC). In 2008 the Stranding Team applied for and received a Letter of Authorization from the U. S. Fish and Wildlife Service (FWS) for the designation of manatee "Verifier", which allows team members to be first responders to manatees under the direction of FWC staff. The Team continued to work extensively with FWC staff; both with the Jacksonville Field Station (FWC-NEFL), and with the FWC Melbourne Station (FWC-ECFL). In 2021, in addition to "Verifier" staff applied for and were granted a "Rescuer" status. With this new status, the team is authorized to respond to reports of injured and/or distressed manatees and can initiate hands-on rescue as needed, after consultation and direct authorization from FWC.

The Atlantic coast of Florida continued to suffer from a Manatee Unusual Mortality Event (UME) that started in 2021 and continued through 2024. Researchers have attributed the UME to starvation due to the lack or seagrasses in the Indian River Lagoon. In recent years, poor water quality in the Lagoon led to harmful algal blooms and widespread seagrass loss. FWC reported a total of 1,100 manatee deaths statewide in 2021, 800 statewide in 2022, 556 in 2023 and 565 in 2024. A majority of the deaths attributed to the UME were primarily recovered in Brevard County which is located immediately south of Volusia County. FWC explained three possible reasons for the decrease in mortalities over these three years. 1.) In 2022 there was no longer a red tide-related mortality event on the Gulf coast increasing the number, as there was in 2021. 2.) Cooler temperatures have a negative effect on manatees especially when they are suffering from malnutrition. The winter months of 2022 and 2023 were mild, contributing to fewer mortalities. 3.) The overall population size significantly decreased in 2021.

The Team welcomed six new members in 2024. New members are required to attend training presentations to familiarize them with Stranding Team protocols and basic marine mammal biology. New members are included on a monthly on-call calendar as a member in training. Typically, two Team members respond to each stranding event, however, members in training accompany an experienced Team member until they have reached a certain level of competence so sometimes; there are more than two responders. In addition, when a stranding requires a higher level of Team member response, more than two members may be necessary to handle the event. At those times, other Team members, Hubbs SeaWorld (HSWRI) volunteers and FWC volunteers may also respond. The Stranding Team regularly works with Hubbs SeaWorld and FWC trained volunteers to provide the highest level of trained

responders possible. In 2023 a new level to the team experience structure was added. A level I team member is required to attend the New Member Training. A level II member has completed the training, finished all required reading materials, participated in three open water net set captures, three cetacean necropsies, shown proficiency in collecting scientific data and genetic sampling, and has been on the stranding team for at least 1 year. Finally, a level III member has completed all level II requirements and participated in a total of five necropsies. The team currently has 8 level I members, 3 level II and 5 level III members which includes the team manager and leader.

Also, all team members are required to attend Habitat Conservation Plan (HCP) training from Sea Turtle Program staff to ensure that they understand the proper regulations and safety precautions for driving on beaches when conducting a standing response during the sea turtle nesting season and in accordance with the HCP.

The Team has four stranding kits located throughout the county. The kits are in place so that when a stranding occurs, the responding team members can access equipment quickly and are fully equipped for any situation. The VCMMST coordinator regularly takes inventory and restocks all five kits to ensure that they are ready to go with all necessary stranding event supplies.

For several years, the United States Geological Survey (USGS) research staff led manatee captures and health assessments at Crystal River in conjunction with FWC, University of Florida veterinary and marine programs students, researchers, and stranding teams. These assessments consisted of shoreline net sets, morphometric work ups, ultrasonography for skin and blubber thickness, photography for individual identification, pit-tagging, blood collection for health assessment and various studies, respiratory and heart rate monitoring, etc.

Manatee health assessments provide a significant learning experience for VCMMST members because they acquire invaluable knowledge about, and experience with live animal handling and capture techniques. During the assessments, members have the opportunity to help with the capture net, transference of animals from the capture location to the medical tents, as well as the release of the animals. Some may also have the chance to help with respirations, giving oxygen, monitoring carbon dioxide, taking blood samples and inserting pit tags.

Health assessments were not held in Crystal River in 2024. However, key MPP staff assisted with the Brevard County health assessments in December 2024. This assessment was conducted to monitor animals located in the area where the UME is mainly occurring. A total of 9 manatees (5 males, 4 females) were captured and assessed, all were tagged with satellite transponders before release. None of the animals needed to be brought to rehabilitation and all that were assessed were large healthy adults ranging from 638lbs to 1288lbs. A tenth animal was also captured for retagging and a health workup. The animal “Pachyderm” was initially tagged in 2023 and weighed in at 1743lbs in 2024!

Every year VCMMST members are also provided with an opportunity for an open water net set training. FWC staff from the East Central Florida Field Station hold a classroom session covering capture methods during a classroom PowerPoint presentation and then conduct a hands-on boat training. To date, almost all VCMMST members are net set trained. However, in 2024 the attempt to conduct this training was postponed due to impacts from hurricane Milton that passed through the week before the training was set.

In 2024, thirteen team members attended an optional “Intro to Manatee Necropsy” training class, given by MPP staff. During the class, members were taught the basics in genetics necropsy sampling, and how to take measurements and photographs.

The VCMMST Associate continued to assist with HSWRI’s dolphin photo identification surveys in 2024. Assistance included captaining the research boat and recording habitat and behavioral data while HSWRI staff photographed the animals. MPP staff continues to practice photographing, to further assist during these routine surveys.

Every year Volusia County staff offers a Marine Mammal First Responder training to new and returning Volusia County Beach Safety (VCBS) emergency medical technicians (EMT’s) and lifeguards since they patrol the beach, they are often the first on scene when a stranding occurs. During the First Responder training, MPP staff gives a brief background on the VCMMST and its partners (HSWRI & FWC). They go over common cetacean identification and teach basic stranded marine mammal response procedures for manatee and cetacean strandings. In 2024, four training classes were conducted reaching over 40 VCBS staff members either training for the first time or as a refresher for senior staff.

In 2024, the VCMMST responded to 76 stranding calls. There were 10 cetacean (Bottlenose dolphins), 63 sirenian (manatee) calls, two whale calls (Dwarf Sperm whale & Gervais’ Beaked whale) and one other call where team members were sent to retrieve a satellite tag that had fallen off a manatee (Figure 6).

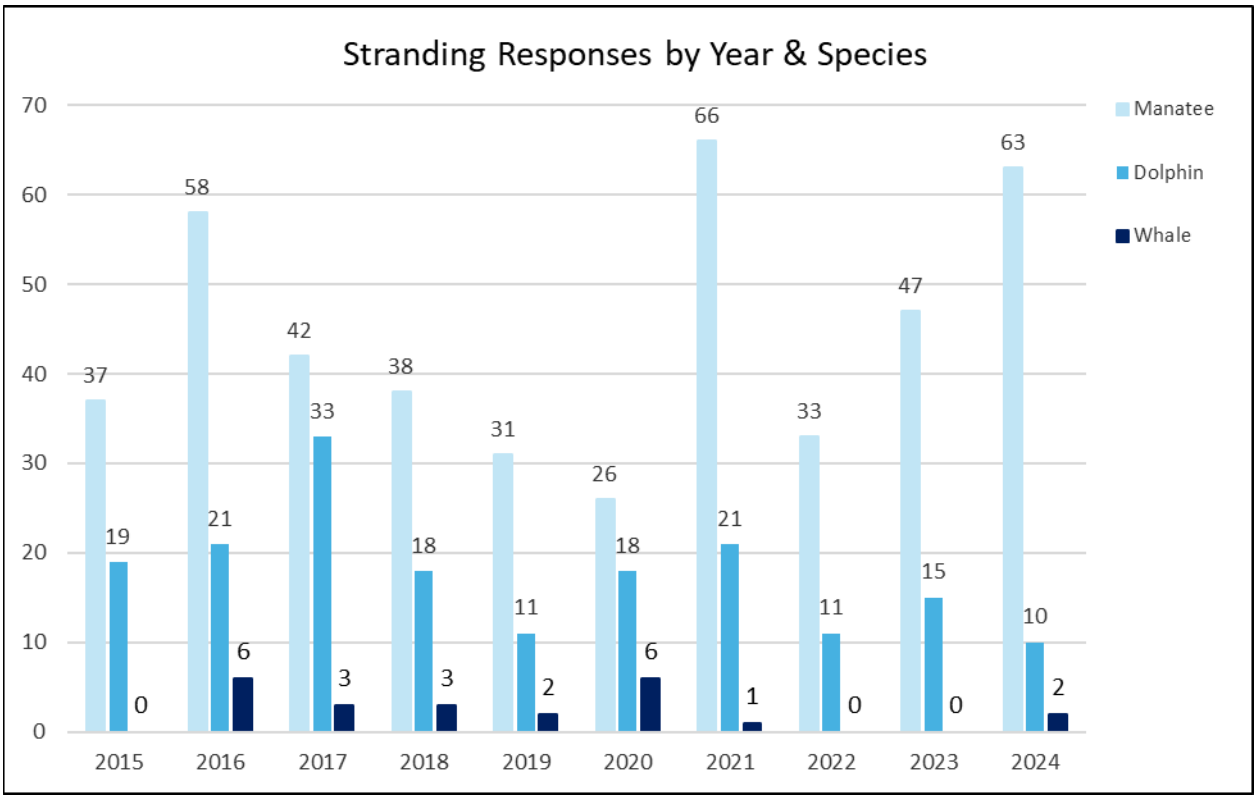


Figure 7. Chart showing the Volusia County stranding responses by year, 2015 - 2024.

Of the ten responses for cetaceans, three were for verification of animals that were found to be in good health or that staff could not find (CNF). There was one case where the animal was found and in need of additional monitoring. Four calls were for deceased animals that required either partial or full necropsies. There were also two live cetacean stranding rescues (Figure 7).

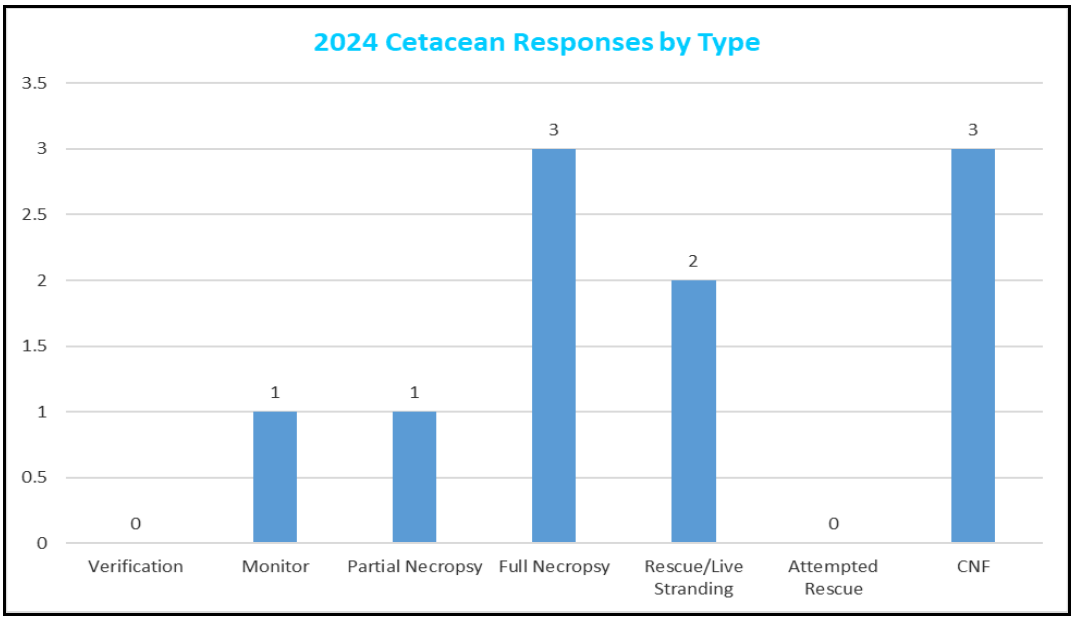


Figure 8. VCMMST Cetacean responses by type

In 2024, the Volusia County Marine Mammal Stranding Team responded to 63 manatee response calls (Figure 8).

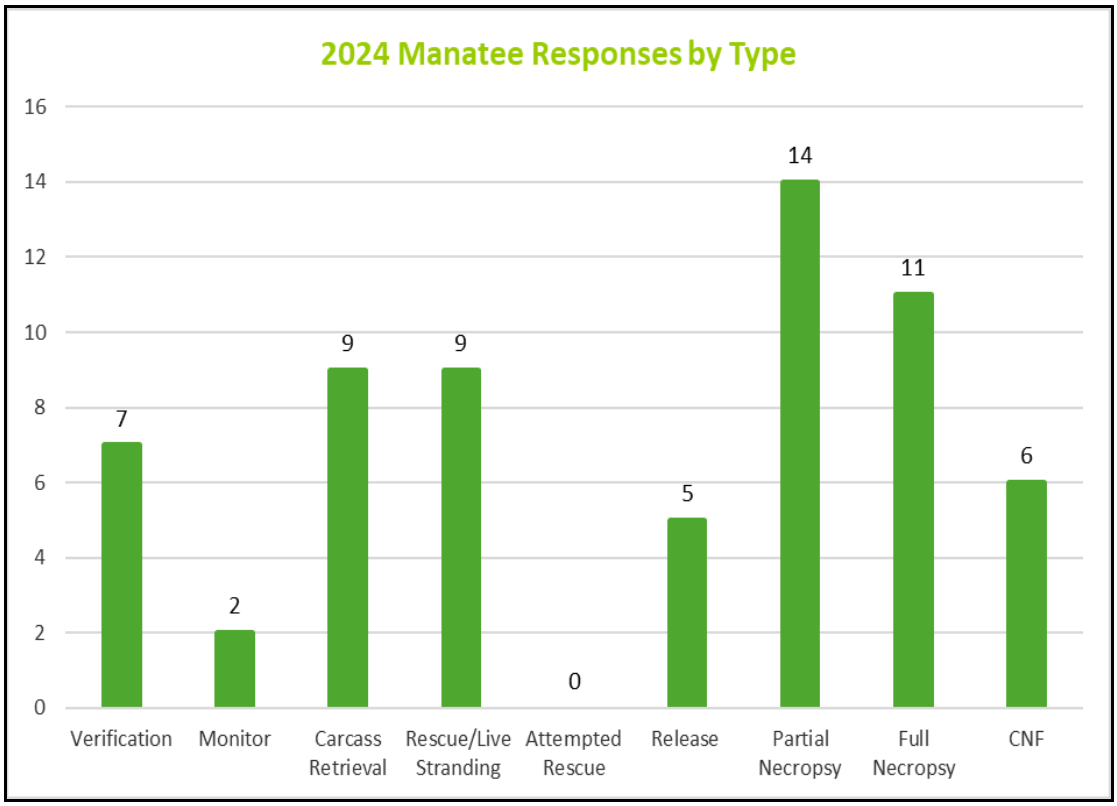


Figure 9. VCMMST Manatee responses by type

Thirteen calls were in response to calls by concerned citizens, in which the manatee was either not located, or the manatee was located but appeared to be showing normal behavior. During two of the responses, the animal needed additional monitoring. Nine calls that the team responded to were for carcass retrieval. In this case, the team member located the carcass, towed it by boat and secured it to the nearest boat ramp or dock for FWC retrieval. Nine of the calls were for live responses and rescues. There were fourteen partial necropsies and eleven full necropsies. During necropsies VCMMST transferred the carcasses to a remote location, took photos, conducted an internal and external exam, and took measurements, genetics and other samples. During partial necropsies, a less in-depth internal exam was required. There were also five rehabilitated manatees which were released back into the wild that team members assisted other agencies with during release.

The following charts show the total percentage of strandings for each species, including Bottlenose dolphins (*Tursiops truncatus*), manatees (*Trichechus manatus latirostris*), one Dwarf Sperm whale (*Kogia sima*) and one Gervais' Beaked whale (*Mesoplodon europaeus*) (Figure 9), their stranding locations within Volusia County (Figure 10) and the breakdown of strandings per city (Figure 11).

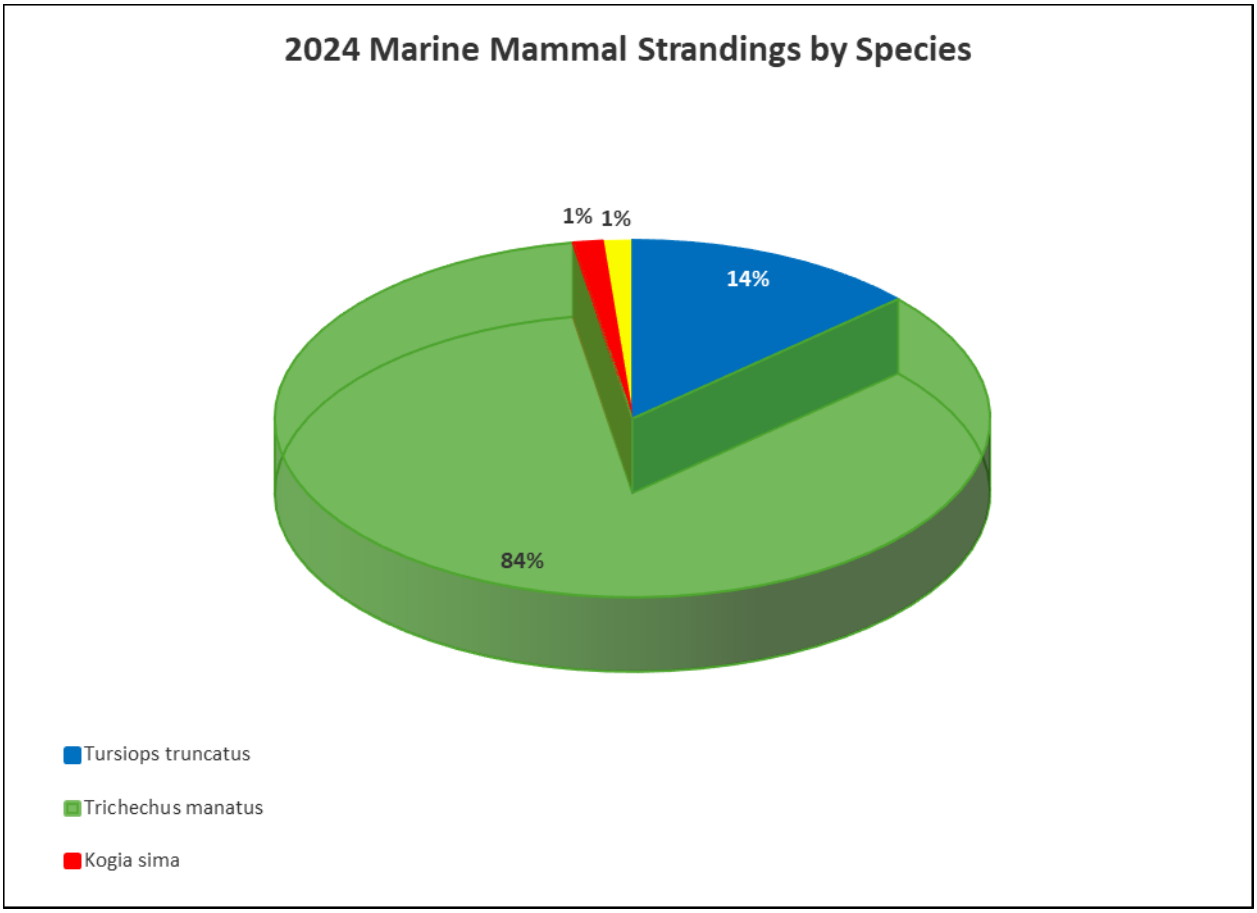


Figure 10. Species strandings percentage for 2024 (14% Bottlenose Dolphins, 84% Florida Manatees and 1% for each of the Whales).

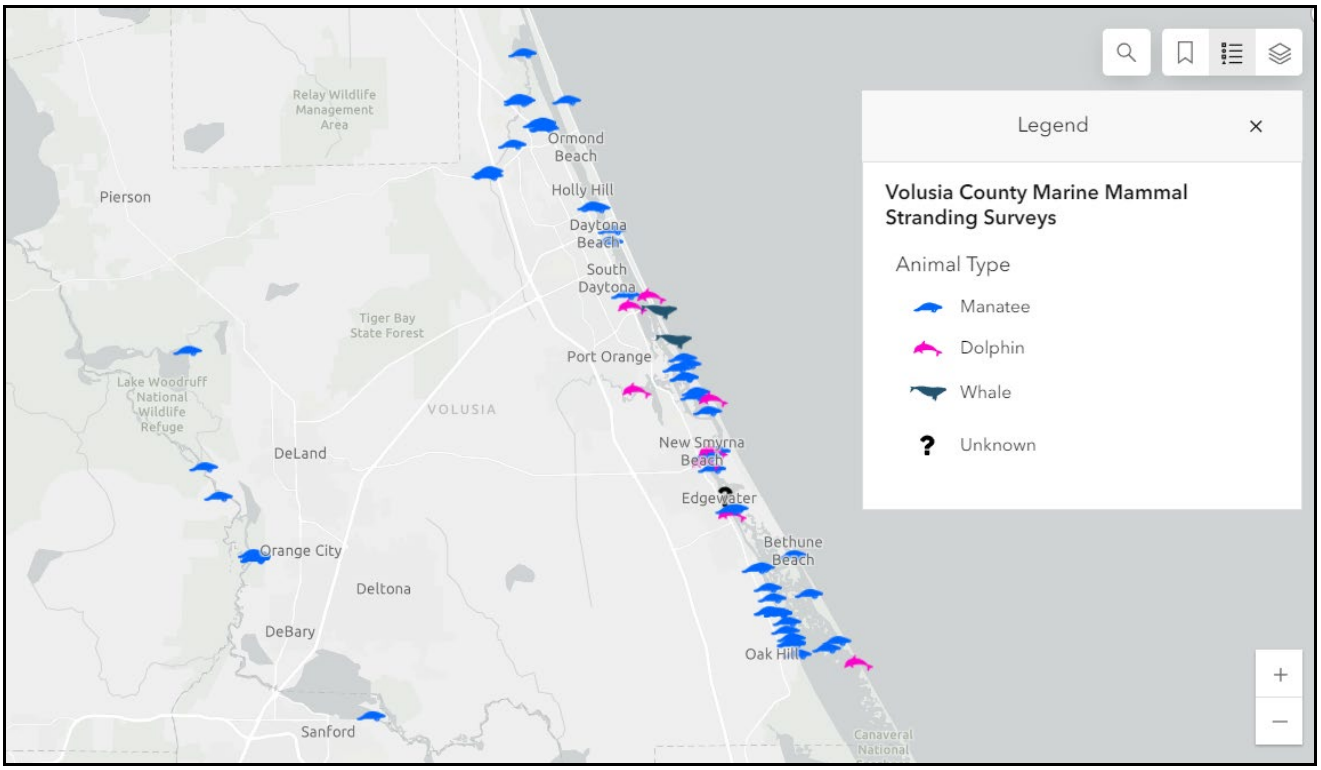


Figure 11: Screen shot of interactive online database showing 2024 stranding locations within Volusia County and nearby counties.

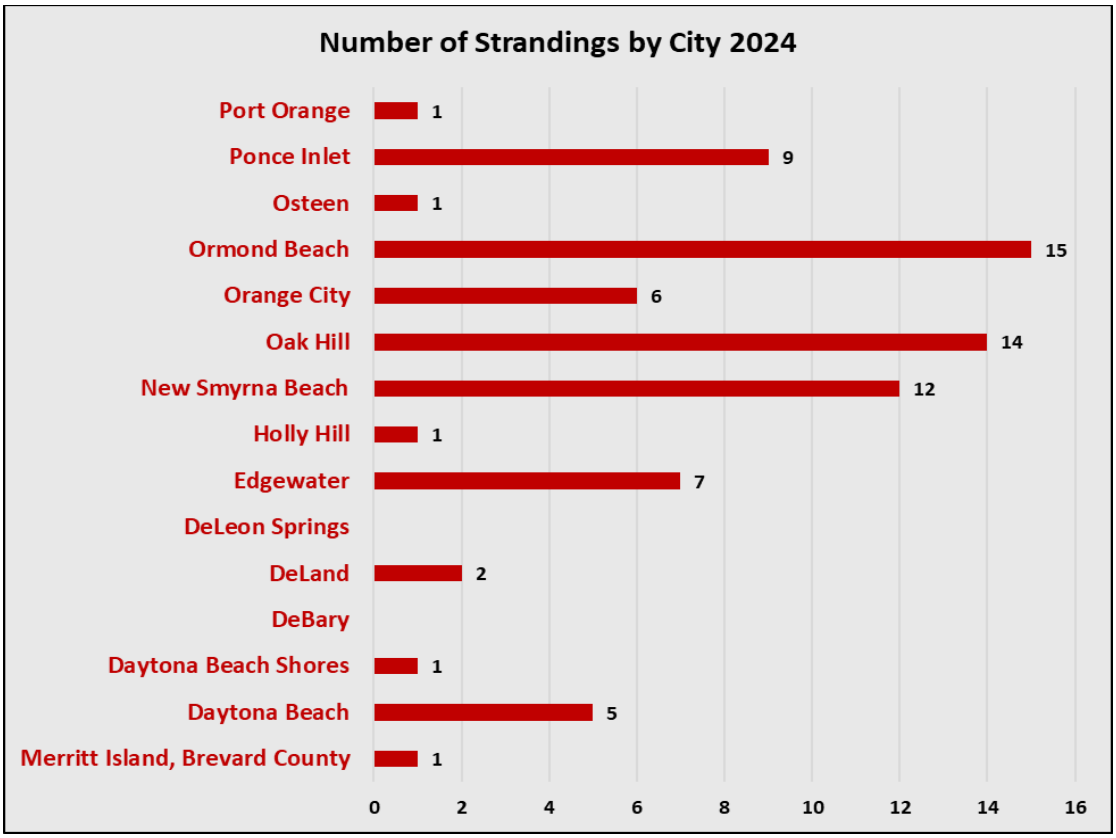


Figure 12. Number of stranding calls by city

Seasonal patterns of stranding calls may occure for marine mammal species. For example, in the winter there are often spikes due to cold stressed manatees and during the spring months many calls come in for mating herds, orphanded or deceased manatee and dolphin calfs, or entagled animals when more anglers are out on the water. In Volusia County these patters are seen but varry throughout the years depending on how cold our winters are along with other various factors that may affect mating seasons, calfing seasons, etc. See figure 12 for the fluctuations thougout the seasons for the past three years.

Volusia County Stranding Calls Seasonal Variations from 2022-2024

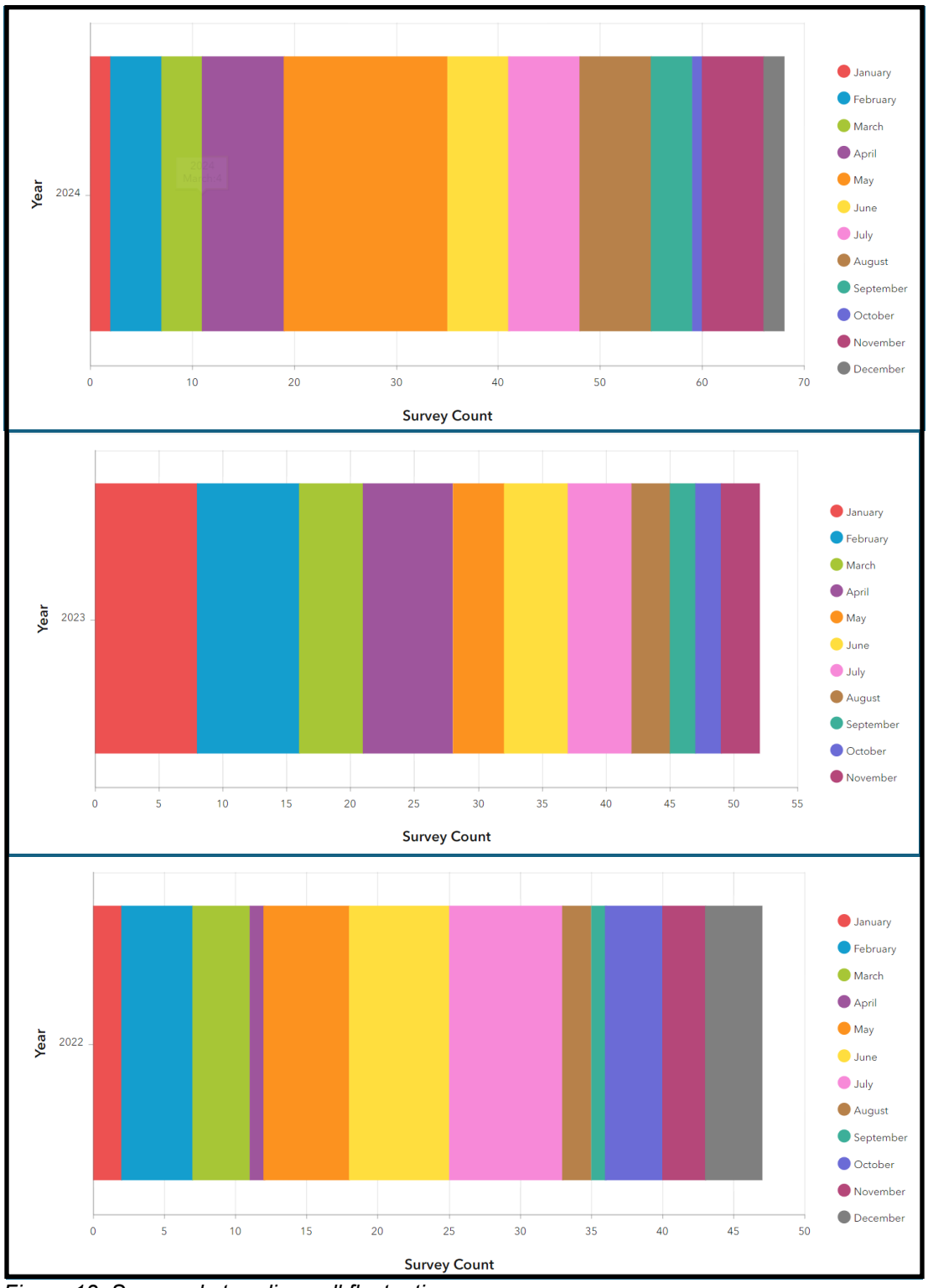


Figure 13: Seasonal stranding call fluctuations

The following are photos from marine mammal responces that VCMMST members assisted with.

Photo: Gervais' Beaked Whale, stranded in Ponce Inlet, FL

Photo: Manatee released at Blue Spring State Park (VCMMST in red)

MANATEE MORTALITY

The Florida Wildlife Research Institute (FWRI), which is the research branch of the Florida Fish and Wildlife Conservation Commission (FWC), maintains an on-line manatee mortality database. This database indicates that in 2024 there were a total of 565 manatee mortalities throughout the state of Florida, of which 58 were in Volusia County, an increase of 24 from 2023. This total includes all categories of mortality, human related as well as deaths from natural causes. Of the 58 manatee deaths, 12 were due to watercraft strikes, which include both propeller related injuries and blunt force trauma resulting from the impact with an engine, prop, boat hull, or other structural part of a boat (Figure 13).

There were 27 mortalities listed as perinatal deaths in 2024. The term perinatal refers to the size of the animal rather than a cause of death and is an animal less than 150 cm (5 ft.) in total length, which was not determined to have died due to human-related causes. The number of perinatal mortalities was unusually high compared to other years. Researchers believe that the mothers were still recovering from the UME conditions, and their body conditions were not fit enough to be able to care for their young.

Other mortality causes included, three natural causes, such as heart conditions or age, three undetermined, and thirteen unrecovered that were not necropsied to determine cause of death. There were zero mortalities caused by cold stress and non-boat related human interaction caused death, e.g., starvation from plastics or fishing line ingestion.

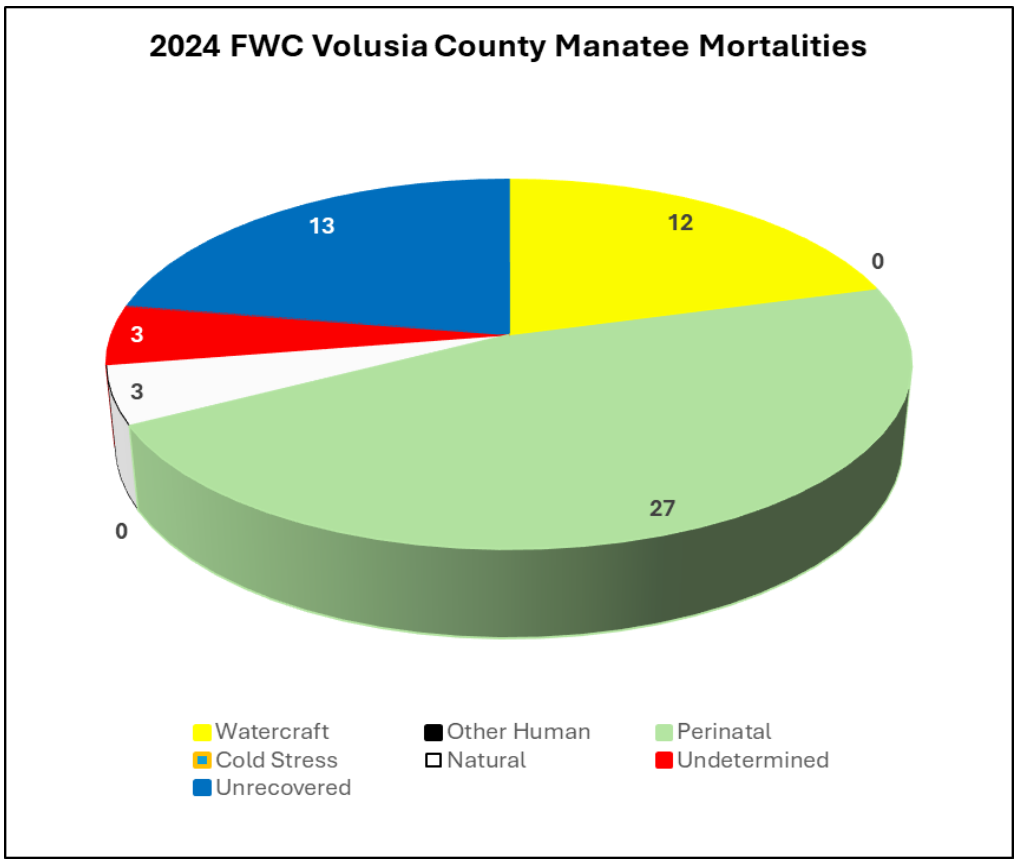


Figure 14. FWC Volusia County manatee mortality by category

The largest mortality threat to manatees are watercraft injuries. The total number of manatee mortalities in Volusia County has fluctuated over the years.

Although the total number of manatee deaths increased in 2024, the number of manatee mortalities caused by watercraft was less. It dropped from 14 in 2023 to 12 in 2024 (Figure 14).

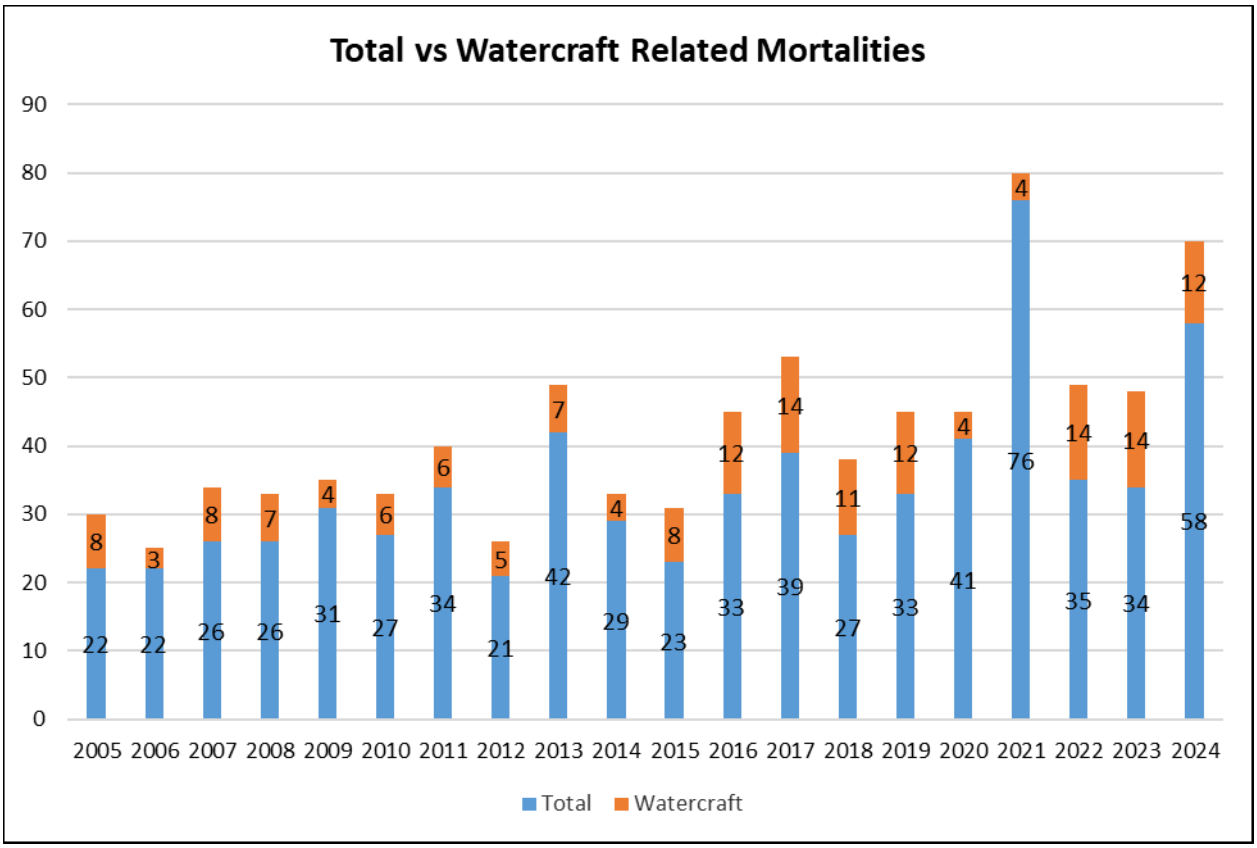


Figure *15. Volusia County total manatee mortalities vs watercraft manatee mortalities through the years 2005-2024.*

A red tide, or harmful algal bloom, is a higher-than-normal concentration of a microscopic algae. In Florida and The Gulf of Mexico, the species that causes most red tides is *Karenia brevis*. The last reported red tide UME for manatees was in 2018. Fortunately, in 2024, there were no cases of confirmed manatee mortalities due to red tide effects and two suspected or possible cases, where the tissue samples are still undergoing testing for confirmation. No red tide mortality cases occurred in Volusia County. For more information on Red Tides visit, https://myfwc.com/research/redtide/faq/ (Figure 15).

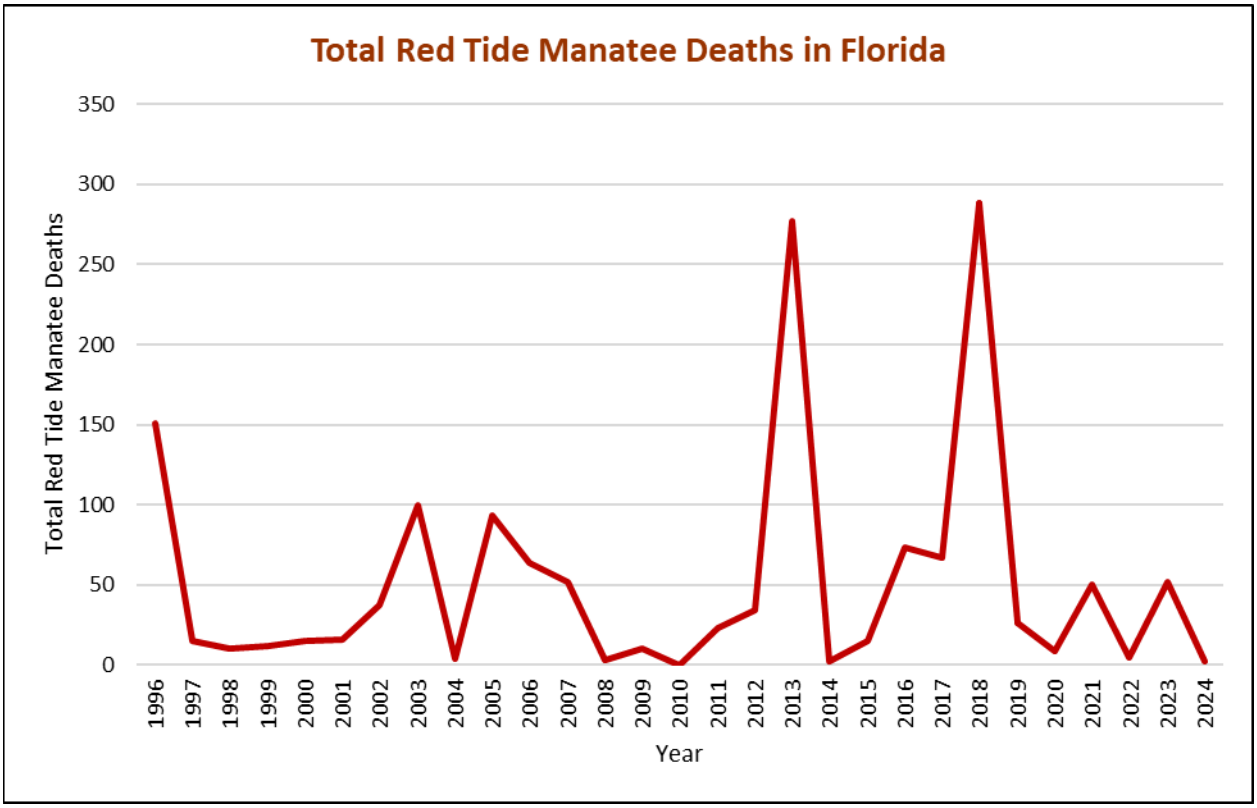


Figure 16. Total number of manatee deaths from Red Tide blooms from 1996-2024

For more information regarding manatee statistics visit:
https://myfwc.com/research/manatee/rescue-mortality-response/statistics/mortality

For more information regarding the ongoing manatee UME visit:
Manatee Mortality Event Along The East Co]]]]]]]]]]ast: 2020-2022 | FWC (myfwc.com)

Phase II

BACKGROUND

Phase II of the Manatee Protection Plan for Volusia County (MPP) is the Boat Facility Siting Plan. The goal of Phase II is to provide directions to those wishing to expand or construct new marine facilities, to decrease the potential direct impact to manatees through watercraft collisions, and to minimize potential indirect impacts to manatees and their habitat.

The primary method for determining boat facility placement is the use of area specific slip-to-shoreline ratios established by a criteria-based evaluation of the manatee data and manatee habitat, by state and federal agencies. Another essential part of Phase II is the funding mechanism incorporated within the plan, which provides for increased on-

the-water enforcement of manatee speed zones. The boat facility siting plan also includes site-specific criteria such as water depth, water quality, presence of submerged aquatic vegetation, zoning and land use policies, etc. Guidelines for best management practices are also included as recommendations for facility structure and management. These provisions utilized together result in a dock density that is appropriate for Volusia County.

CITY PARTICIPATION

Volusia County is essentially surrounded by water, with the Atlantic Ocean and the Intracoastal Waterway on the east side of the county, and the St. Johns River on the west side. These waterbodies, and all lakes, and tributaries connected to these primary waterways, which are traversable by manatees, are included in the Manatee Protection Plan (MPP) and covered by the provisions of the plan. On the coastal side of the county, there are ten existing municipalities with shoreline affected by the provisions of the plan, and on the west side, there are two such municipalities.

Coastal Volusia

- City of Ormond Beach
- City of Holly Hill
- City of Daytona Beach
- City of Daytona Beach Shores
- City of South Daytona
- City of Port Orange
- Town of Ponce Inlet
- City of New Smyrna Beach
- City of Edgewater
- City of Oak Hill

West Volusia

- City of DeBary
- City of Deltona

Under the MPP Phase II provisions, cities and municipalities bordering waterways along the coastal side of the County have three options that relate to boat facility siting. Those cities may:

1) Adopt Phase II provisions as written, referred to as the “as is” option,
2) Adopt a city specific refinement to Phase II’s provisions referred to as the “slip aggregation” option, or
3) Take no action.

Unincorporated county lands, and cities bordering the St. Johns River have two options:

1) Adopt Phase II provisions as written, referred to as the “as is” option, or
2) Take no action.

The option for slip aggregation does not apply to the west side municipalities, or to unincorporated county lands.

Since the MPP is a county specific document, and applies to unincorporated Volusia County, adoption by the cities of either the “as is” option or the “slip aggregation” option is necessary to include that city under the MPP and allow permitting to be regulated by the Phase II provisions. A decision by an affected city to take no action could result in impediments in the boat facility permitting process within that city.

Currently only one coastal city, Ormond Beach, has decided to adopt the “as is” option as outlined in Phase II of the MPP. All the other coastal cities have opted for the “slip aggregation” method, and all have endorsed the MPP and adopted resolutions to that effect. The unincorporated county, and cities with lands bordering the St. Johns River, are required by the MPP, to utilize the “as is” method if they decide to endorse the MPP provisions. Both DeBary and Deltona, the only two cities bordering the St. Johns River, have endorsed the MPP and adopted the “as is” method through resolutions of support.

Another MPP requirement of Phase II is the execution of a Memorandum of Understanding (MOU) with each participating city to outline the responsibilities of both the county and the city, and to detail the process for the permitting of boat facilities. All the affected cities have executed MOUs with the county.

SLIP ALLOCATIONS

All the cities that opted for the “slip aggregation” method have slip pools that were agreed upon by both the cities and the FWC. The slip pools are derived from a formula that started with the measurement of shoreline within each city jurisdiction, and the calculation of the possible number of slips for each city, as per the MPP. Then all existing wet slips, dry slips, and boat trailer spaces are deducted, and all single-family residential parcels are deducted. The remaining number of slips are then placed in a “slip pool” from which the respective cities can allocate slips to marine facilities.

In accordance with the Manatee Protection Plan, all single-family residences are allowed no more than two slips per parcel. These slips are not deducted from the city’s slip pools.

All commercial docks, multifamily developments or marina projects must submit plans and an application to Volusia County Environmental Management for review and to obtain a letter of exemption or compliance with the Manatee Protection Plan for their projects including all new slips, remodels and repairs.

In 2024, one multi-family/commercial facility in Edgewater increased their number of slips. Nineteen other commercial properties throughout the county were issued a Letter of Exemption for repairs and/or modifications to existing slips.

As of December 31, 2024, the current slips available in each of the slip pools, from the "aggregation" option cities are as follows:

Holly Hill -274
Daytona Beach -2,466
South Daytona -622
Daytona Beach Shores -81
Port Orange – 1083
Ponce Inlet -443
New Smyrna Beach (N of N CSWY & S of S CSWY) -1290
Edgewater -434

Manatee project reviews were conducted on 74 single-family residences throughout the county. See figure 16 for a comparison of MPP project reviews completed for each city and unincorporated county.

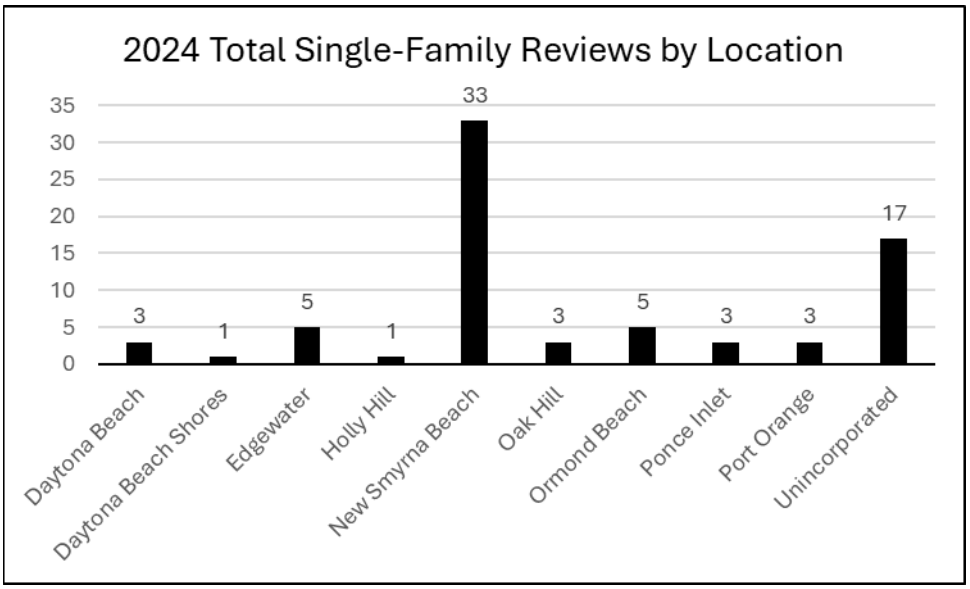


Figure 17: 2024 Number of MPP Project Reviews by City

There had been a steady increase in project reviews between 2017 to 2021. Then, there was a significant drop in applications during 2022 and 2023, possibly due to hurricanes that passed though the east coast of Florida in late 2022 which may have altered or delayed the construction process of new docks. In 2024 the number of project reviews increased by 27 from the previous year and includes post storm repairs. (Figure 17).

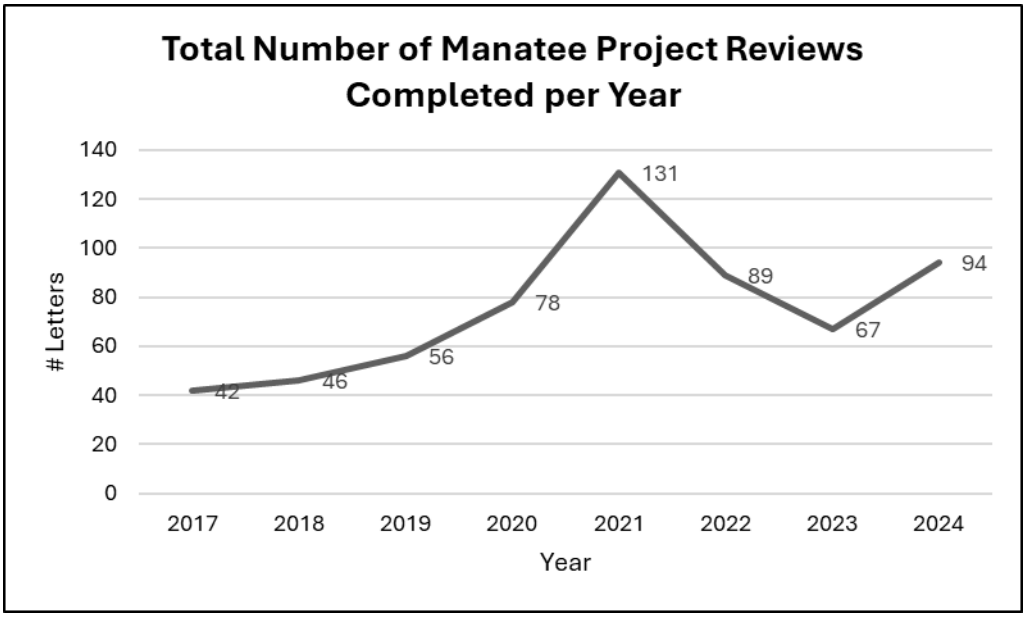


Figure 18. The total number of manatee project reviews completed for each year from 2017-2024

In 2023, the MPP manager implemented a final inspection process for single-family, city jurisdiction and all commercial slip projects. In 2024 seven commercial, 16 single-family (withing city jurisdiction) final reviews were completed by MPP staff. Ten unincorporated single-family final reviews were also completed by county permitting staff (Figure 18). In 2024 the total number of final inspections increased by 21.

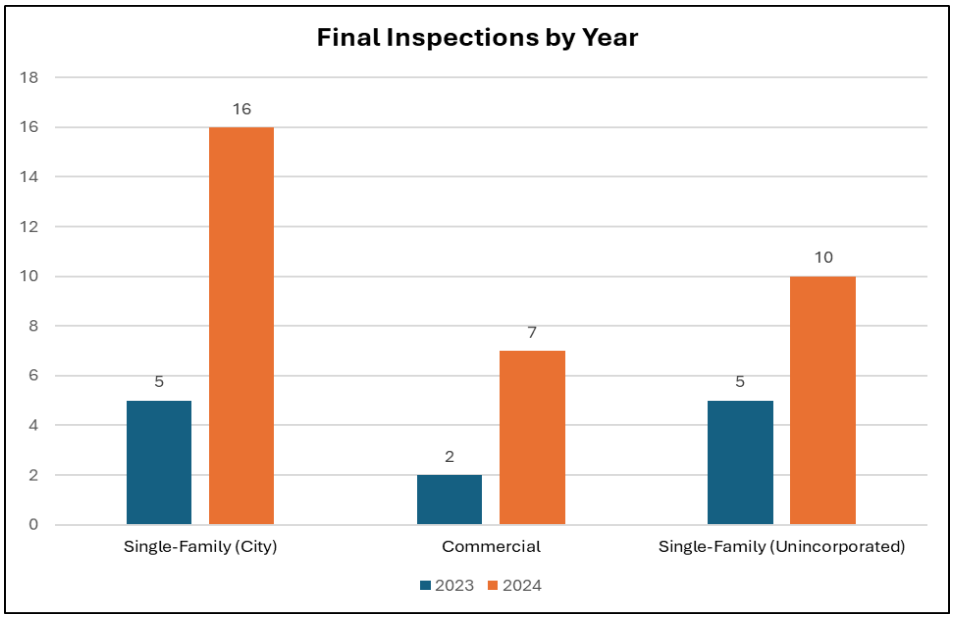


Figure 19: Final inspections completed by type and year.

LAW ENFORCEMENT

An important premise of the MPP is that to sustain a healthy, viable manatee population within the context of a growing county, additional on-the-water enforcement is necessary. The boat facility siting component of the MPP provides a mechanism for funding this additional enforcement through the collection of a manatee mitigation fee. All applicants with new or expanding boat facilities must pay a one-time mitigation fee for each new: boat slip, ramp parking space, and/or dry storage space. The fees are deposited into a dedicated, interest-bearing account named the Manatee Conservation Fund (MCF).

In 2024, all new or expanded boat facilities paid a one-time manatee mitigation fee, which ranged from $375.80 for single family residential boat docks, to $1,503.22 per wet slip, dry storage space, or ramp parking space for all other types of facilities. While various factors including watercraft related manatee mortality may necessitate changes in mitigation fees, under the MPP, the Volusia County Council reserves the right to raise fees as it sees fit. However, for the first five years of the plan the mitigation fees and planning zone descriptions were to remain fixed.

The Volusia County Manatee Protection Program administers the MCF, with the majority of the funds being disbursed as grants to on-the-water law enforcement units. The MCF was designed so that the first $500,000 collected could be used in its entirety for enforcement and manatee conservation and education purposes. Once the $500,000 dollar threshold was reached, thereafter the County of Volusia could only utilize/disburse the interest accrued on the fund account each year. In 2011, the MCF reached and exceeded the $500,000 threshold, and from then until 2023, only interest was used for grant disbursement (see pg. 41, “2023 MPP Addendum” for more information).

Seventy-five percent of the funding is reserved for law enforcement and is awarded through grants to the County Sheriff’s Marine Unit as well as participating cities. MCF grant funding to the Sheriff’s Marine Unit and the participating cities is determined by percentage, based on linear river miles within each agency’s jurisdiction. The funding is used for increased enforcement of manatee speed zones by marine law enforcement units, additional equipment for on-the-water law enforcement efforts, and enforcement related education programs.

Twenty-five percent of the MCF is reserved for manatee conservation efforts, and education and awareness programs, administered by the County Manatee Protection Program.

With these funds, in 2024 the Mantee Protection Program was able to purchase four sets of dive gear and cleaning equipment for their crew to use during the next Underwater Cleanup season. Removing these debris and fishing line helps improve the quality of the environment and will help ensure the safety of the manatees as well as other animals, boaters, and divers.

The Volusia County Sheriff's Marine Unit has participated in the Manatee Conservation Fund grant program since its inception, actively patrolling the county's waterways. The Volusia County Sheriff's Office Marine Unit is very involved in efforts to conserve and protect manatees and has assisted in numerous manatee carcass recoveries and rescues. They also educate the boating public about manatee awareness and assist with underwater marine debris collection in Ponce de Leon Inlet. The Sheriff's Marine Unit has also been instrumental in conducting directed patrols in areas where human and manatee interaction has occurred.

The Sheriff's Marine unit applied for and received their MCF grant in the 2023/24 fiscal year. The money they received was used for a total of 350 hours of overtime for officers patrolling the Volusia County waterways. This included approximately 100 miles of freshwater waterways and 50 miles of intracoastal waterways. These patrols concentrated within the busiest manatee zones, which are designated as slow speed zones. Marked patrol boats enforced the laws in these areas and distributed manatee education and safe boating practices materials to those they had to stop. In total the VCSO Marine Unit had 1,746.8 hours underway, 178 boating citations issued, 1,010 boating warnings issued, 9 felony arrests and 57 misdemeanor arrests. Their presence on VC Waterways is invaluable to the safety of the animals, environment and people utilizing our areas.

2023 MPP ADDENDUM

An addendum to the MPP was created to define things more accurately and to clarify the design criteria required for docks, update maps, and improve the permitting process e.g., including final inspections on the flowchart, without having to do a major revision to the existing MPP.

In addition, the County proposed to change how the mitigation fees are managed and distributed. Staff requested that the mitigation fees increase in accordance with other county permit fees (ex. Wetland fees) using the Consumer Price Index (CPI). If the CPI annual increases had been applied from the start of the MPP, the fees would have increased from $250.00 to $358.25 per residential slip and from $1,000 to $1,433.00 for commercial slips in 2022. Updates also include that instead of only dispersing the interest of the MCF each year, that $50,000 would be available for distribution annually. The funds would continue to be divided according to the same guidelines as drafted at the start of the MPP but the annual amounts available to fund recipients would be significantly higher than in recent years. Figure 19 shows an increase in the amount of funds available for distribution compared to previous years. Due to the recent increase in manatee strandings and deaths along the east coast of Florida because of foraging habitat loss, more of these funds can now be utilized towards partnering with agencies on efforts directed at improving habitat, conservation efforts and manatee rescues.

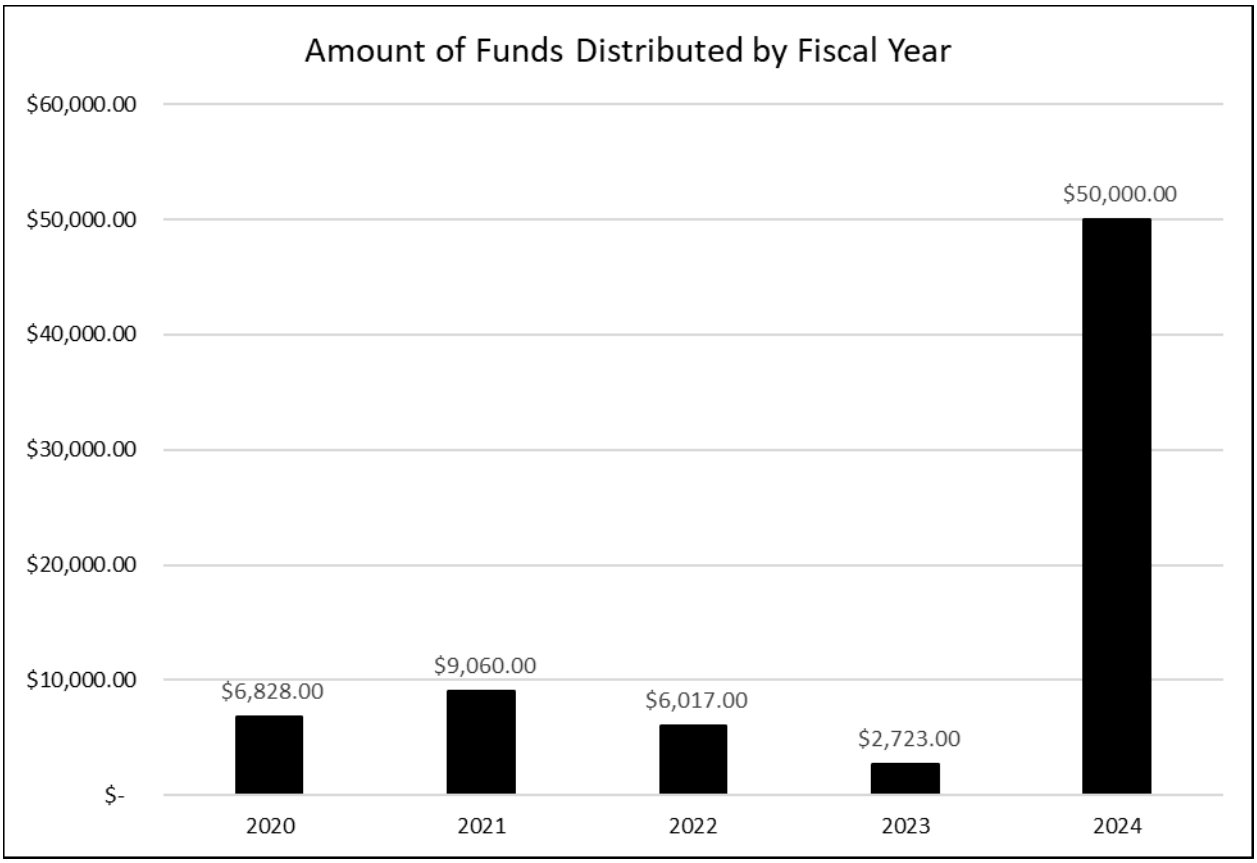


Figure 20. Amount of funds available for distribution per year.

The addendum and request for fee changes and fund distributions was submitted and approved by the Volusia County Council in December of 2022, by U.S. Fish and Wildlife Service in September of 2023 and by Florida Fish and Wildlife Conservation Commission in July of 2023.

For more information on the Volusia County Manatee Protection Plan, visit https://www.volusia.org/services/growth-and-resource-management/environmental-management/natural-resources/florida-manatee/manatee-protection-plan/