

with vertical bulkheads, shoreline armoring and/or piers, docks and marina facilities may negatively affect a variety of natural coastal processes and may result in the loss of submerged or emergent aquatic vegetation that provide foraging habitat for manatees.

Several federal, state and/or local regulatory permitting programs currently provide protection for these sensitive natural resources. For example, property owners must obtain approvals from the U.S. Army Corps of Engineers (ACOE) for projects within “Waters of the United States”, which include all areas of manatee habitat in St. Johns County. Additionally, the State of Florida requires that approvals be obtained from FDEP or SJRWMD for projects that affect “Waters of the State”, which includes all areas of manatee habitat in St. Johns County. Additionally, for areas that are within state-designated boundaries of Aquatic Preserves, there is an additional level of protection that often requires approval from the Governor and Cabinet prior to conducting dredge/fill projects.

2. Comprehensive Plan

As part of the development of this MPP, the existing St. Johns County Comprehensive Plan has been reviewed in order to determine the extent to which existing Goals, Objectives and Policies either are consistent with (or are potentially in conflict with) manatee protection.

This analysis revealed that, in general, although the goals, objectives and policies were not developed specifically with protection of manatees in mind, nearly every Element includes items that benefit manatees either directly or indirectly. Specific pages of the Comprehensive Plan in which items are described that would have some effect on manatee or manatee protection are included in Appendix E, with pertinent line items highlighted. As an example, statements regarding the County’s desire to acquire conservation lands and/or improve the quality of surface waters can be found in Section D (Sanitary Sewer Sub-element), Section E (Conservation/Coastal Management Element), Section F (Recreation and Open Space), and Section G (Intergovernmental Coordination Element). Improving water quality within manatee habitat areas will have a positive effect on manatees.

Upon acceptance of the Manatee Protection Plan, the County is expected to amend their *Land Development Regulations* to specifically adopt provisions that would increase protection of manatees.

D. Education and Awareness

Educational information on manatees is available from a variety of public and private sources. Existing sources of information, materials and public awareness programs are presented in this section.

1. Florida Department of Environmental Protection

The FDEP is one of two state agencies primarily responsible for dissemination of environmental information. Within FDEP, the state park system provides a variety of materials describing the state’s flora and fauna. Three state parks are located in St. Johns County: Anastasia State Park, Faver-Dykes State Park, and Fort Mose Historic State Park. Manatee sightings are not uncommon at/near Anastasia and Faver-Dykes State Parks, and park management plans include information about manatees. Information about these parks is available at <http://www.floridastateparks.org/FindaParkRegion.cfm?Dist=Central>.

Additionally, in coordination with the state's five Water Management Districts, FDEP administers the Environmental Resources Permitting Program. This program incorporates site-specific environmental resource information, including manatee data, into its permitting decisions regarding activities potentially affecting Waters of the State.

Prior to a major reorganization of state agencies in July 1999, the majority of regulatory and public awareness activities regarding manatees in Florida were conducted by FDEP. However, the reorganization involved the transfer of most manatee-related activities to FWC, as described in the following sub-section.

2. Florida Fish and Wildlife Conservation Commission

Upon reorganization of the State of Florida's environmental agencies in 1999, activities concerning manatees were transferred to FWC. The primary FWC agencies involved with manatees are the Florida Wildlife Research Institute (FWRI) and the Imperiled Species Management Section of the Division of Habitat and Species Conservation. Although scientific information (e.g., mortality statistics) is compiled by FWRI, the majority of FWC's educational materials are made available through the Tallahassee-based Imperiled Species Management Section. These materials include a variety of posters, brochures, booklets and videos, many of which are identified on Table 6.

3. St. Johns County School System

Educational information concerning manatees is available to varying degrees at all levels in the St. Johns County School System. Although there is no established curriculum specifically focusing on manatees, some individual teachers have chosen to include manatee information in their biology or environmental science classes.

Several schools have established partnerships with the environmental education program of the St. Johns River Water Management District. The District provides classes for children through the Camp Wet (Water, Education and Training) program, and is also involved with training for St. Johns County teachers. There are on-going programs, through a Service Learning Grant, at three middle schools in St. Johns County. Although none of these programs are 'species specific' the underlying message is that projects that prevent degradation (or improve) surface waters benefit all marine life, including manatees.

Similarly, at the high school level, there are presently no 'units' within the existing curriculum that specifically focus on manatees. The closest thing to an organized manatee-specific program appears to be the result of the direct enthusiasm of high school marine science teacher Jenny Fagan. Ms. Fagan is also the leader of the SCUBA Club and, after introducing manatee biology to club members through the use of video tapes, she conducts an annual dive trip to Crystal River, where club members can SCUBA dive with manatees.

Table 6**Partial List of Manatee Information Available from FWC**

Videos	A Standing Snag
	Exploring Florida: Tracking Manatee
	General Rescue Guidance for Small Manatees
	Manatee Awareness, Airship Science Flight, and Animal Rescue Feature
	Manatee Messages: What You Can Do!
	Manatees: Preserving the Legacy
	Nickelodeon Wildside (with Manatee Segment)
	Roll on Manatee
	Silent Sirens
	The Best of Manatees
	What in the World is a Manatee?
	Posters
Mini-Poster: The Florida Manatee	
Miss Her Now, Miss Her Forever	
Sirenians of the World	
Brochures	Manatee Decal Collection
	Miss Her Now, Miss Her Forever
	The West Indian Manatee in Florida
	Tips for Protecting Manatees in Florida
	Where are the Manatees?
Fact Sheets	Manatees: Florida's Gentle Giants
	Attention: Swimmers, Boaters and Divers
	Commonly asked Questions about Manatees
	Manatee Antillano Fact sheet
	Manatee Fact Sheet
	Manatee License Plate Fact Sheet
	Marine Mammal Regulations
	Mind Your Waterway Signs
	Save the Manatee Trust Fund
Coloring/Activity Books	Travel Activity Sheet
Educational Guides	The Manatee, Florida's Endangered Marine Mammal: Student Activity Workbook for Middle and High School Students
	Ecoventures – Learning in Florida's Environment
	Manatees: A Guide for Boating, Diving & Snorkeling
	Manatees: An Educator's Guide
	Information on the Advisory Committee on Environmental Education (ACEE)
	Propeller Guard Issues
	Recommendations to Improve Boating Safety & Manatee Protection for Florida's Waterways
	Why Manatees Are Important: A Scientist's Perspective
Newsletter	Manatee News Quarterly

4. Florida Sea Grant

The Florida Sea Grant program, which was established as a component of the Florida Cooperative Extension Service in 1972, is a statewide, non-regulatory governmental entity that was designed to promote the wise use of marine and estuarine resources in coastal counties. Marine extension agents, along with extension specialists and campus coordinators in 30 colleges around the state, work to establish research and educational programs in areas of concern to coastal residents. Offices are located in some individual counties, and are occasionally responsible for multiple counties. The NE Florida Sea Grant program is based at the St. Johns County Agricultural Center and serves Nassau, Duval, St. Johns and Flagler counties.

The program works closely with commercial and recreational fishing groups, marinas, environmentally concerned groups, 4-H and other youth programs, local school teachers and marine researchers. Presently NE Florida Sea Grant personnel work with staff from the GTMNERR and other regional groups to promote the public's understanding and stewardship of coastal resources. In addition to participating in summer camps for children, specific programs that the NE Florida Sea Grant office administers that are related to protection of manatees and their habitat include:

1) *A Marine Debris Reduction Program.* Sea Grant worked to develop and implement a monofilament fishing line recycling program in northeast Florida. Discarded monofilament, which can cause environmental hazards for fish, turtles, birds and manatees, is collected at approximately 20 collections/recycling stations in St. Johns County. The recycling containers are maintained by volunteers and the line is collected routinely from these stations for recycling. Additional information about the program is available at: www.fishinglinerecycling.org.

2) *The Clean Marina Program.* Florida Sea Grant is a local partner in this program administered by FDEP through which marinas are encouraged to adopt environmentally sound best management practices. Participating marinas and boatyards receive incentives and may be eligible for discounted tax and/or insurance rates. Information about the Clean Marina program can be found at www.dep.state.fl.us/law/Grants/CMP/default.htm.

3) *Environmental Education.* The Sea Grant agent is available to hold workshops or participate in educational workshops for teachers and youth leaders. 4-H marine science summer camps for different age groups are held in several counties. Teacher workshops range from 2 hours to 3 days and topic areas include estuaries, coral reefs, field studies and aquaculture. The Sea Grant agent also helps develop study materials for the 4-H Marine Ecology Judging Event.

4) *Environmentally Responsible Boating.* With funding assistance provided by the St. Augustine Port, Waterway & Beach District, the NE Florida Sea Grant staff has recently coordinated the development and printing of a boater's guide entitled "Navigational, Historical, and Environmental Perspective of St. Augustine Waterways". The boater's guide (Appendix F) provides information specifically for boat operators to promote their stewardship of coastal resources, and includes general and site-specific information regarding manatees.

Additional information about the NE Florida Sea Grant program is available at <http://stjohns.ifas.ufl.edu/sea/seagrant.htm>

5. Local Electrical Utilities

The Jacksonville Electric Authority (JEA) and Florida Power and Light Company (FPL), the state's largest electric utility, are partners in the St. Johns River Power Park, an electricity generating facility located on Pelotes Island north of the St. Johns River in Jacksonville Florida. (FPL is the provider of electricity to St. Johns County residents and businesses, but there are no power generating plants in the County). A by-product of the generation of electricity is thermally enhanced water, and the warm-water discharges from several power plants, including the St. Johns River Power Park facility, have been documented to attract manatees, particularly during the colder months when ambient water temperatures would otherwise be in the 70's or less. Due to this interaction, the utilities have become involved in a variety of manatee-related research and public awareness programs. They routinely provide funding for aerial manatee surveys, produce and distribute manatee educational materials and support research projects. In 1989, FPL produced an informative educational booklet entitled "The West Indian Manatee in Florida". This publication is available through FPL's Environmental Services Department, P.O. Box 14000, Juno Beach, Florida 33408. Manatee related information is also provided on these utilities websites.

6. Save the Manatee Club

The Save the Manatee Club (SMC) is a non-profit organization based in Maitland, Florida, and is the single largest organization in the United States dedicated solely to the protection of manatees. SMC has developed a variety of public educational materials, and provides a variety of information on its website. Materials available through SMC include:

- Manatees – An Educator's Guide (5th Edition);
- Manatees: A Coloring and Activity Book;
- Adopt-a Manatee Program;
- Manatee Messages: What You Can Do (video);
- The Best of Manatees (video);
- The Manatee (book);
- Manatees and Dugongs (book);
- Sam the Sea Cow (book for young readers);
- J. Rooker Manatee (book for youths age 3-12); and
- Mary Manatee: A Tale of Sea Cows.

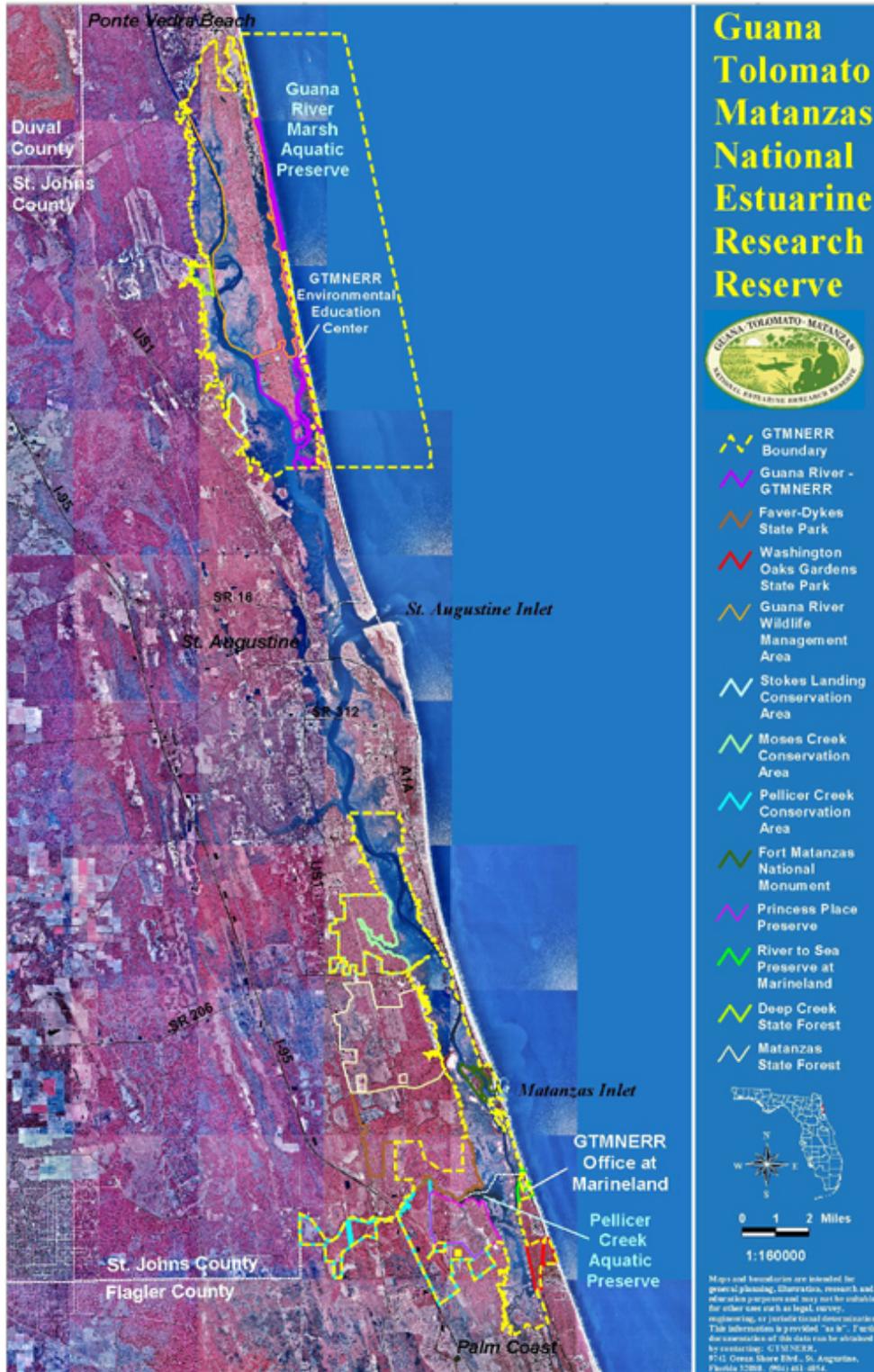
SMC also offers speakers for community and organization presentations and display booths for community events.

7. Other Local Conservation Organizations and Educational Initiatives

Guana-Tolomato-Matanzas National Estuarine Research Reserve

The GTMNERR is one of three National Estuarine Research Reserves in Florida, and is the only one on Florida's east coast. It is managed as a unit under FDEP's Coastal and Aquatic Managed Areas (CAMA) program. Encompassing a total of approximately 55,000 acres of uplands, wetlands, tidal marsh and open-water areas, the GTMNERR is separated into a northerly Guana Marsh Tract and a southerly tract (Figure 19). Established in 1999, the GTMNERR contains lands that had previously been state-owned, including the Guana River

Figure 19 - Boundary of the National Estuarine Research Reserve



State Park and Guana Wildlife Management Area. In addition to a variety of research and monitoring projects being conducted by staff, the GTMNERR also serves as a field laboratory where visiting scientists can conduct research on local flora, fauna, water quality and meteorological conditions. Current projects involve the development of a System Wide Monitoring Plan, and research on juvenile fishes, beach mice, sea turtles and glass eels. In September 2005, the GTMNERR plans to have the grand opening of their new education center, which will be located on the northerly tract, on the west side of SR A1A approximately 8 miles north of the Vilano Beach Bridge. Once open, the education center will be the venue for environmental education classes, lectures and other community presentations. Presently there is no research or monitoring being conducted by/at the GTMNERR regarding manatees, and there are no plans to add manatees as a species for research in the future.

St. Augustine Port, Waterway & Beach District

The St. Augustine Port, Waterway and Beach District is a local taxing district that is responsible for ensuring the navigability of waterways within its boundaries. The District uses taxes collected from local residents to perform projects including beach nourishment, construction and maintenance of boat ramps and removal of abandoned and derelict vessels. The District is not presently involved in any manatee-related education or awareness activities.

Safe Boating Courses

Although safe boating courses are available in many large cities through the United States Coast Guard Auxiliary and United States Power Squadrons, no such programs appear to be presently available in St. Johns County. The nearest opportunities for St. Johns County residents are in Jacksonville and Daytona Beach.

8. Other Regional, State and Federal Organizations

Information concerning manatees is also available from a variety of other sources. Some of these entities have interactive and static exhibits and/or educational programs that could be incorporated into curricula used by environmental educators in St. Johns County.

United States Fish and Wildlife Service (FWS)

The FWS, which is the primary federal agency involved in the conservation of the nation's wildlife, operates the National Wildlife Refuge System. The nearest National Wildlife Refuge to St. Johns County that also provides habitat for manatees is Lake Woodruff National Wildlife Refuge which is located near the community of Deleon Springs in Volusia County. Information about Lake Woodruff is available at <http://lakewoodruff.fws.gov> or 386-985-4673.

Additionally, FWS is responsible for enforcing the Endangered Species Act and the Marine Mammal Protection Act. FWS issues concerning manatee protection, such as the Recovery Plan, are administered at the FWS office in Jacksonville, Florida, <http://www.fws.gov/southeast/es/> or (904)-232-2580. Manatee protection issues associated with the review and issuance of permits for federal dredge/fill projects in St. Johns County are also the responsibility of USFWS staff in Jacksonville.

U.S. Geological Survey (USGS)

The USGS Sirenia Project is based in Gainesville Florida and conducts field research on manatees, including conducting the monitoring of manatees that are fitted with transmitters. Information regarding the Sirenia Project is available at http://cars.er.usgs.gov/Manatees/Manatee_Sirenia_Project/manatee_sirenia_project.html or (352)-372-2571.

U.S. Army Corps of Engineers (ACOE)

The ACOE is the federal agency responsible for reviewing and issuing permits for projects in the nation's rivers, lakes, harbors, navigation channels and wetlands. Although their primary responsibility with regard to manatee protection is permitting, information about manatees is available through the ACOE's Public Affairs Office, P.O. Box 4970, Jacksonville, Florida 32232, at <http://www.saj.usace.army.mil/> or (904)-232-1650.

St. Johns River Water Management District (SJRWMD)

SJRWMD is one of five water management districts in Florida. Together with the FDEP, the water management districts share in the responsibility for reviewing and issuing state permits for projects in waters and wetlands of the state. SJRWMD maps seagrasses in the Indian River Lagoon and owns and manages land and a number of water control structures that affect water quality in St. Johns County waterways. SJRWMD publishes and distributes a variety of brochures and environmental education information from their District headquarters located at 4049 Reid Street, in Palatka. The District also works with the St. Johns County school system in a variety of environmental education initiatives. Although these programs are water-based, and do include field studies and training for teachers, there is presently no 'unit' specifically focusing on manatees. Additional information is available at <http://sjr.state.fl.us/> or: (386)-329-4500.

Florida Inland Navigation District (FIND)

FIND is responsible for maintaining the AICW for navigation. Additionally, FIND installs and maintains the signs that identify the boundaries of manatee-related vessel speed restriction zones. FIND, which is based in Jupiter Florida also prints and distributes the pamphlets that identify speed zones on the east coast of Florida. These brochures are available by contacting FIND at 1314 Marcinski Rd., Jupiter, FL 33477, <http://www.aicw.org/> or (561)-627-3386.

Sea World of Florida

Sea World of Florida is one of several state-approved facilities that provides care and rehabilitation of sick and injured manatees in Florida. They maintain a large exhibit where manatees can be observed. The exhibit includes informational videos and signs. Manatee education information is available from Sea World of Florida, 7007 Sea World Drive, Orlando, Florida 32809, <http://www.seaworld.org/animal-info/info-books/manatee/index.htm> or (407)-351-3600).

Audubon of Florida

Audubon of Florida is a statewide alliance of over 40 local Audubon chapters and the National Audubon Society. Audubon is a recognized leader in natural resource protection and provides information on a variety of conservation issues. Additional information is available from Audubon of Florida, 444 Brickell Ave., Ste 850. Miami, FL 33131, www.audubonofflorida.org or (305)-371-6399. Information about the local chapter, the St. Johns County Audubon Society is available at <http://members.aol.com/sjaudubon/>, or at P.O.Box 965, St. Augustine, FL 32085.

E. Governmental Coordination

Governmental coordination concerning manatees typically consists of three inter-related components: 1) Coordination during the review of proposed facilities; 2) Long-range planning that will allow future development to take place in a manner that ensures adequate protection for manatees; and 3) Coordination with state and federal wildlife protection agencies. Both these topics are discussed in this section.

In addition to St. Johns County, there are three municipal governments within St. Johns County; the City of St. Augustine, the City of St. Augustine Beach and the Town of Hastings. Presently, there appears to be little coordination and communication between the cities and the County regarding the protection of manatees and their habitat. However, all boat docks, marinas and similar facilities must be permitted through the state and federal agencies previously identified, and the County and municipalities are offered opportunities to comment on permit applications within their jurisdictional boundaries.

Permit Procedures and Development Review

Currently waterfront projects that involve new construction or renovation of existing facilities are regulated through a myriad of federal, state, regional and local regulations. Although each level of government has adopted its own review criteria and permitting standards, prior to construction (unless otherwise meeting exemption criteria) a project that is proposed to be conducted within manatee habitat typically must receive multiple approvals and meet the most stringent of all applicable review criteria.

At the federal level the ACOE is the lead agency in reviewing and permitting most waterfront development/construction projects. Depending on various project thresholds (e.g., number of slips, shoreline frontage, surface area over water, presence/absence of submerged resources, etc.), projects may also undergo review by the FWS for potential impacts to federally designated endangered and threatened species, including manatees. Also depending on project thresholds, copies of permit applications and/or Public Notice summaries of projects may be transmitted to St. Johns County for review and comment.

At the regional and state level, FDEP and SFWMD share responsibilities for reviewing and permitting waterfront development/construction projects. Depending on various thresholds, projects may undergo review by the FWC for potential impacts to state-designated endangered and threatened species. Also depending on project thresholds, copies of permit applications and/or Public Notice summaries of projects may be transmitted to St. Johns County for review and comment.