Pinellas County and Boca Ciega Bay Aquatic Preserves Management Plan

Florida Department of Environmental Protection
Office of Resilience and Coastal Protection
2600 Blair Stone Road, MS #235
Tallahassee, FL 32399
www.FloridaCoasts.org

Working late in the field can have its benefits like spectacular sunsets.

Mission Statement

The Office of Resilience and Coastal Protection's mission statement is: Conserving, protecting, restoring, and improving the resilience of Florida's coastal, aquatic, and ocean resources for the benefit of people and the environment.

The four long-term goals of the Office of Resilience and Coastal Protection's Aquatic Preserve Program are to:

1. Protect and enhance the ecological integrity of the aquatic preserves.
2. Restore areas to their natural condition.
3. Encourage sustainable use and foster active stewardship by engaging local communities in the protection of aquatic preserves.
4. Improve management effectiveness through a process based on sound science, consistent evaluation, and continual reassessment.

Executive Summary

Lead Agency: Florida Department of Environmental Protection's (DEP) Office of Resilience and Coastal Protection (ORCP)

Common Name of Property: Pinellas County Aquatic Preserve and Boca Ciega Bay Aquatic Preserve

Location: Pinellas County, Florida

Acreage: Pinellas County Aquatic Preserve = 357,600 acres
Boca Ciega Bay Aquatic Preserve = 23,700 acres (included in PCAP acreage)

Management Agency: DEP's ORCP

Designation: Aquatic Preserve

Unique Features: While the Pinellas County and Boca Ciega Bay Aquatic Preserves are located within one of Florida's most densely urbanized areas, the presence of vast acreages of seagrass and mangroves support productive fisheries. Pinellas County Aquatic Preserve includes submerged resources in state-owned freshwater areas, and it even includes subterranean caves and offshore hardbottom communities.

Archaeological/Historical Sites: More than 100 pre-Columbian archaeological sites are either within or adjacent to the aquatic preserves, including the well-known pre-Columbian assemblage at Weedon Island. Most notably, a pre-Columbian saltwater canoe has been excavated from this area. One historic shipwreck is known, but future efforts likely will identify more submerged historical and cultural resources. Because of its long history of human occupation, the area boasts 26 historic bridges and 16 resource groups.

Management Needs

Due to continued development in the Tampa Bay Area, Tampa Bay Aquatic Preserves (TBAP) will continue to play an important role in the avoidance and minimization of resource impacts and to the restoration of ecosystem function in degraded areas. Island restoration will continue to be important. Efforts to better understand the nature and distribution of submerged resources will be important to identifying issues and to addressing them promptly.

Ecosystem Science

TBAP often uses data from the wealth of research and monitoring initiatives provided by universities, nongovernmental organizations and governmental agencies. TBAP often plays an active role in the experimental design of these studies, and, when needed, TBAP has contributed in-house research and monitoring to address information gaps, and to assess and track new environmental issues as they arise.

Resource Management

Because of the large geographic area of the aquatic preserves, TBAP partners with local entities through their operating area to identify and address local issues. Throughout its history, TBAP has worked with regulatory entities to avoid and minimize impacts of projects to submerged resources, and, in many cases, the program has been able to direct funds from the regulatory process to additional habitat restoration and protection. In recent years, the program has focused on enhancing island habitats by removing invasive plants and establishing native communities. One of the most pervasive issues, marine debris, is addressed by TBAP with both preventive and removal approaches.

Education and Outreach

TBAP does not operate educational facilities, but partners with regional education centers. TBAP focuses on site-specific information to enhance appreciation for, and stewardship of, the resources. Information is often in kiosk panels, and at event exhibits.

Public Use

TBAP maintains some public use amenities, like picnic tables on some islands. TBAP partners with operators of access points to provide information, and sometimes advises sites on amenities, like kayak launch locations.

Public Involvement

Public support is vital to the success of conservation programs. The goal is to foster understanding of the problems facing these fragile ecosystems and the steps needed to adequately manage this important habitat. An advisory committee meeting and a public meeting will be held to receive input on revisions to the draft management plan. The revised management plan will be presented to the Acquisition and Restoration Council in another public meeting.

Management Goals and Objectives

Issue I: Protection of Submerged Resources

Goal 1: Reduce damage to seagrass and other submerged resources.

Objective 1: Increase public awareness of the importance of seagrass and other submerged resources.

Objective 2: Reduce damage to seagrass beds and other submerged resources.

Goal 2: Encourage and assist with restoration of damaged resources.

Objective 1: Identify “hotspots” of damaged submerged resources to target for restoration.

Objective 2: Recommend restorative measures for identified hotspots.

Goal 3: Encourage and assist with submerged resource inventories and research.

Objective 1: Identify, encourage and assist third-party resource inventories in the aquatic preserves.

Objective 2: Identify, encourage and assist third-party research in the aquatic preserves.

Goal 4: Provide regulatory review of projects that may impact submerged resources.

Objective 1: Provide training and coordinate with regulatory staff.

Objective 2: Provide input on avoidance, minimization and mitigation, as appropriate, in the permitting process.

Goal 5: Support assessment and protection of submerged historical and cultural resources.

Objective 1: Assess the knowledge and data gaps for historical and cultural sites in the aquatic preserves.

Issue II: Island Management

Goal 1: Continue native revegetation of islands.

Objective 1: Maintain existing native plant assemblages on islands and reduce nonnative coverage.

Objective 2: Continue to revegetate island areas presently occupied by invasive plant species.

Goal 2: Continue education and outreach efforts for islands.

Objective 1: Provide information about islands, their ecological importance and individual stewardship measures to the general public.

Objective 2: Provide information on islands and their ecological importance at points of access and use.

Goal 3: Improve public access on selected high-use islands.

Objective 1: Provide limited amenities in selected high-use areas.

Objective 2: Improve and maintain interpretive trail on island NCH-13.

Goal 4: Seek ways to better protect rookery islands.

Objective 1: Bird rookery islands are more effectively posted.

Issue III: Shoreline Alterations

Goal 1: Minimize new alterations to natural shorelines.

Objective 1: Increase awareness of the ecological and protective importance of natural shorelines.

Objective 2: Provide regulatory input when appropriate.

Goal 2: Seek opportunities to restore altered shorelines to a more natural state.

Objective 1: Facilitate natural shoreline restoration through the regulatory process.

Objective 2: Make technical advice and information available to interested parties.

Issue IV: Marine Debris

Goal 1: Reduce marine debris at the source.

Objective 1: Reduce marine debris through physical means.

Objective 2: Reduce marine debris through increased awareness.

Goal 2: Remove debris that has entered the aquatic preserves.

Objective 1: Coordinate and encourage debris removal activities

ORCP approval date:

ARC approval date:

Acronym List

Abbreviation	Meaning
BCBAP	Boca Ciega Bay Aquatic Preserve
CSO	Citizen Support Organization
DEP	Florida Department of Environmental Protection
ES	Environmental Specialist
F.A.C.	Florida Administrative Code
FNAI	Florida Natural Areas Inventory
F.S.	Florida Statutes
G	Global
GIS	Geographic information system
MANRRS	Multicultural Students in Agriculture, Natural Resources, and Related Sciences
NERR	National Estuarine Research Reserve
NOAA	National Oceanic and Atmospheric Administration
OFW	Outstanding Florida Water
OPS	Other Personal Services
ORCP	Office of Resilience and Coastal Protection
PCAP	Pinellas County Aquatic Preserve
S	State
SWFWMD	Southwest Florida Water Management District
SWIM	Surface Water Improvement and Management
TBAP	Tampa Bay Aquatic Preserves
Trustees	Board of Trustees of the Internal Improvement Trust Fund
USFWS	U.S. Fish and Wildlife Service

Table of Contents

List of Maps

Pinellas County's highly urbanized barrier islands are contrasted by beautiful white beaches which bring many tourists to the region.

Chapter 1 / Introduction

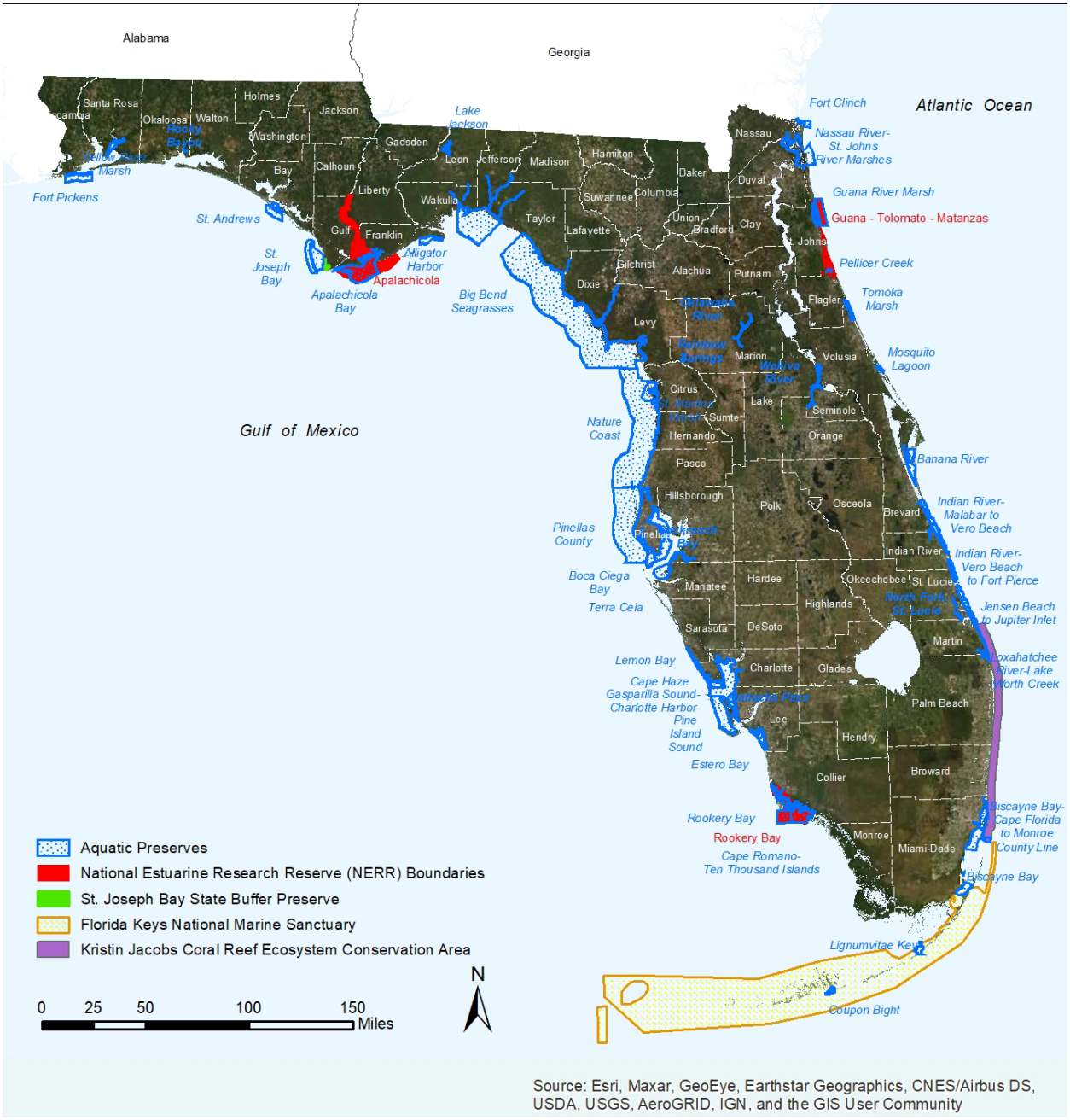
The Florida aquatic preserves are administered on behalf of the state by the Florida Department of Environmental Protection's (DEP) Office of Resilience and Coastal Protection (ORCP) as part of a network that includes 43 aquatic preserves, three National Estuarine Research Reserves (NERRs), a State Buffer Preserve, and the Florida Keys National Marine Sanctuary (Map 1). This network of managed areas provides for a system of significant protections to ensure that our most popular and ecologically important underwater ecosystems are cared for in perpetuity. Each of these special places is managed with strategies based on local resources, issues and conditions.

Our extensive coastline and wealth of aquatic resources have defined Florida as a subtropical oasis, attracting millions of residents and visitors, and the businesses that serve them. Florida's submerged lands play important roles in maintaining good water quality, hosting a diversity of wildlife and habitats (including economically and ecologically valuable nursery areas), and supporting a treasured quality of life for all. In the 1960s, it became apparent that the ecosystems that had attracted so many people to Florida could not support rapid growth without science-based resource protection and management. To this end, state legislators provided extra protection for certain exceptional aquatic areas by designating them as aquatic preserves.

Title to submerged lands not conveyed to private landowners is held by the Board of Trustees of the Internal Improvement Trust Fund (the Trustees). The Governor and Cabinet, sitting as the Trustees, act as guardians for the people of the state of Florida (§253.03, Florida Statutes [F.S.]) and regulate the use of these public lands. Through statute, the Trustees have the authority to adopt rules related to the management of sovereignty submerged lands (Florida Aquatic Preserve Act of 1975, §258.36, F.S.). A higher layer of protection is afforded to aquatic preserves including areas of sovereignty lands that have been "set aside forever as aquatic preserves or sanctuaries for the benefit of future generations" due to

“exceptional biological, aesthetic, and scientific value” (Florida Aquatic Preserve Act of 1975, §258.36, F.S.).

The tradition of concern and protection of these exceptional areas continues, and now includes Rookery Bay NERR in southwest Florida, designated in 1978; Apalachicola NERR in northwest Florida, designated in 1979; and Guana Tolomato Matanzas NERR in northeast Florida, designated in 1999. In addition, the Florida Oceans and Coastal Council was created in 2005 to develop Florida’s ocean and coastal research priorities, and establish a statewide ocean research plan. The group also coordinates public and private ocean research for more effective coastal management. This dedication to the conservation of coastal and ocean resources is an investment in Florida’s future.



Map 1 | Office of Resilience and Coastal Protection system.

1.1 / Management Plan Purpose and Scope

Florida's aquatic resources are at risk for both direct and indirect impacts of increasing development and recreational use, as well as resulting economic pressures, such as energy generation and increased fish and shellfish harvesting. These potential impacts to resources can reduce the health and viability of the ecosystems that contain them, requiring active management to ensure the long-term health of the entire network. Effective management plans for the aquatic preserves are essential to address this goal and each site's own set of unique challenges. The purpose of these plans is to incorporate, evaluate, and prioritize all relevant information about the site into a cohesive management strategy, allowing for appropriate access to the managed areas while protecting the long-term health of the ecosystems and their resources.

The mandate for developing aquatic preserve management plans is outlined in Section 18-20.013 and Subsection 18-18.013(2) of the Florida Administrative Code (F.A.C.). Management plan development and review begins with the collection of resource information from historical data, research and monitoring, and includes input from individual ORCP managers and staff, area stakeholders, and members of the general public. The statistical data, public comment, and cooperating agency information is then used to identify management issues and threats affecting the present and future integrity of the site, its boundaries, and adjacent areas. The information is used in the development and review of the management plan, which is examined for consistency with the statutory authority and intent of the Aquatic Preserve Program. Each management plan is evaluated periodically and revised as necessary to allow for strategic improvements. Intended to be used by site managers and other agencies or private groups involved with maintaining the natural integrity of these resources, the plan includes scientific information about the existing conditions of the site and the management strategies developed to respond to those conditions.

To aid in the analysis and development of the management strategies for the site plans, the ORCP identified four comprehensive management programs applicable to all aquatic preserves. To address the goals, objectives, integrated strategies and performance measures of the four programs, relevant information about the specific site has been collected, analyzed, and compiled to provide a foundation for development of the management plan. While it is expected that unique issues may arise with regard to resource or management needs of a particular site, the following management programs will remain constant across the resource protection network:

- Ecosystem Science
- Resource Management
- Education and Outreach
- Public Use

Each aquatic preserve management plan will identify unique local and regional issues and contain the goals, objectives, integrated strategies, and performance measures to address those issues. The plan will also identify the program and facility needs required to meet the goals, objectives, and strategies of the management plan. These components are key elements for achieving the resource protection mission of each aquatic preserve.

This management plan is an update of the Boca Ciega Bay and Pinellas County aquatic preserves management plan that was approved by the Acquisition and Restoration Council in 2019.

1.2 / Public Involvement

ORCP recognizes the importance of stakeholder participation and encourages their involvement in the management plan development process. ORCP is also committed to meeting the requirements of Florida's Government-in-the-Sunshine Law (§286.011, F.S.), including:

- meetings of public boards or commissions must be open to the public;
- reasonable notice of such meetings must be given; and
- minutes of the meetings must be recorded.

Several key steps are taken during management plan development. First, staff compose a draft plan after gathering information of current and historic uses; resource, cultural and historic sites; and other valuable information regarding the property and surrounding area. Staff then organize an advisory committee comprised of key stakeholders and conduct public meetings to engage the stakeholders for feedback on the draft plan and the development of the final draft of the management plan. Additional public meetings are held when the plan is reviewed by the Acquisition and Restoration Council and the Trustees for approval. For additional information about the advisory committee and the public meetings refer to Appendix C - Public Involvement.

Relaxing by Boca Ciega Bay at sunset.

Chapter 2 / The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection

2.1 / Introduction

The Florida Department of Environmental Protection (DEP) protects, conserves and manages Florida's natural resources and enforces the state's environmental laws. DEP is the lead agency in state government for environmental management and stewardship and commands one of the broadest charges of all the state agencies, protecting Florida's air, water and land. DEP is divided into three primary areas: Regulatory Programs, Land and Recreation, and Ecosystem Restoration. Florida's environmental priorities include restoring America's Everglades; improving air quality; restoring and protecting the water quality in our springs, lakes, rivers and coastal waters; conserving environmentally-sensitive lands; and providing citizens and visitors with recreational opportunities, now and in the future.

The Office of Resilience and Coastal Protection (ORCP) is the unit within the DEP that manages more than five million acres of submerged lands and select coastal uplands. This includes 43 aquatic preserves, three National Estuarine Research Reserves (NERRs), the St. Joseph Bay State Buffer Preserve, and the Florida Keys National Marine Sanctuary as well as providing management support through the Florida Coastal Management Program, the Outer Continental Shelf Program, the Coral Reef Conservation Program, the Clean Boating Program, the Florida Resilient Coastlines Program, and the Beaches Programs. The three NERRs, the Florida Keys National Marine Sanctuary, and the Coral Reef Conservation Program are managed in cooperation with the National Oceanic and Atmospheric Administration (NOAA).

ORCP manages sites in Florida for the conservation and protection of natural and historical resources and resource-based public use that is compatible with the conservation and protection of these lands. ORCP is a strong supporter of the NERR system and its approach to coastal ecosystem management.

Florida has three designated NERR sites, each encompassing at least one aquatic preserve within its boundaries. Rookery Bay NERR includes Rookery Bay Aquatic Preserve and Cape Romano-Ten Thousand Islands Aquatic Preserve; Apalachicola NERR includes Apalachicola Bay Aquatic Preserve; and Guana Tolomato Matanzas NERR includes Guana River Marsh Aquatic Preserve and Pellicer Creek Aquatic Preserve. These aquatic preserves provide discrete areas designated for additional protection beyond that of the surrounding NERR and may afford a foundation for additional protective zoning in the future. Each of the Florida NERR managers serves as a regional manager overseeing multiple other aquatic preserves in their region. This management structure advances ORCP's ability to manage its sites as part of the larger statewide system.

The Florida Keys National Marine Sanctuary, established in 1990 by Congress, and confirmed by the Board of Trustees of the Internal Improvement Trust Fund, covers 2.3 million acres of state and federal submerged lands. The Florida Keys National Marine Sanctuary contains unique and nationally significant marine resources, including the southern portion of the Florida Reef Tract (the world's third largest barrier coral reef), extensive sea grass beds, mangrove-fringed islands and more than 6,000 species of marine life. ORCP leads state co-management efforts in the Sanctuary in partnership with the Florida Fish and Wildlife Conservation Commission and NOAA.

The Coral Reef Conservation Program coordinates research and monitoring, develops management strategies and promotes partnerships to protect the northern portion of the Florida Reef Tract along the southeast Florida coast, pursuant to the U.S. Coral Reef Task Force's National Action Plan. The Coral Reef Conservation Program also implements Florida's Local Action Strategy, the Southeast Florida Coral Reef Initiative. The program leads response, assessment and restoration efforts and jointly oversees enforcement efforts for non-permitted reef resource injuries (vessel groundings, anchor and cable drags, etc.) in southeast Florida pursuant to the Florida Coral Reef Protection Act (Section 403.93345, Florida Statutes [F.S.]).

The Coral Protection and Restoration Program was created to focus the state's protection of Florida's Coral Reef and the administration of funds appropriated from the Legislature for these critical efforts. The Coral Protection and Restoration Program provides leadership on coral reef-related national and state legislative issues, represents Florida on the U.S. Coral Reef Task Force and U.S. All Islands Coral Reef Committee, and represents DEP on the Stony Coral Tissue Loss Disease leadership team.

The Florida Coastal Management Program is based on a network of agencies implementing 24 statutes that protect and enhance the state's natural, cultural and economic coastal resources. The goal of the program is to coordinate local, state and federal government activities using existing laws to ensure that Florida's coast is as valuable to future generations as it is today. ORCP is responsible for directing the implementation of the statewide coastal management program. The Florida Coastal Management Program provides funding to promote the protection and effective management of Florida's coastal resources at the local level through the Coastal Partnership Initiative grant program.

The Outer Continental Shelf Program is responsible for coordinating the state's review, oversight, monitoring and response efforts related to activities that occur in federal waters on the Outer Continental Shelf to ensure consistency with state laws and policies and that these activities do not adversely affect state resources. Reviews are conducted under federal laws, including the Outer Continental Shelf Lands Act, Coastal Zone Management Act, National Environmental Policy Act, Deepwater Ports Act, Marine Protection, Research and Sanctuaries Act, Rivers and Harbors Act, Clean Air and Water Acts and the regulations that implement them.

The Clean Boating Program includes Clean Marina designations to bring awareness to marine facilities and boaters regarding environmentally friendly practices intended to protect and preserve Florida's natural environment. Marinas, boatyards and marine retailers receive clean designations by demonstrating a commitment to implementing and maintaining a host of best management practices.

Via the Clean Boating Program, the Clean Vessel Act provides grants, with funding provided by the U.S. Fish and Wildlife Service, for construction and installation of sewage pumpout facilities and purchase of pumpout boats and educational programs for boaters.

The Florida Resilient Coastlines Program's mission is synergizing community resilience planning and natural resource protection tools and funding to prepare Florida's coastline for the effects of climate change, especially rising sea levels. This program is working to ensure Florida's coastal communities are resilient and prepared for the effects of rising sea levels, including coastal flooding, erosion, and ecosystem changes. The program is synergizing community resilience planning and natural resource protection tools; providing funding and technical assistance to prepare Florida's coastal communities for sea level rise; and continuing to promote and ensure a coordinated approach to sea level rise planning among state, regional, and local agencies.

A healthy beach and dune system provide protection for upland development and critical infrastructure, preservation of critical wildlife habitat for threatened and endangered species, and a recreational space that drives the state's tourism industry and economy. In order to protect, preserve and manage Florida's valuable sandy beaches and coastal systems, the Legislature adopted the Florida Beach and Shore Preservation Act, Chapter 161, F.S., in 1964. The Act provides for the creation of a statewide, comprehensive beach management program that integrates coastal data acquisition, coastal engineering and geology, biological resource protection and analyses, funding initiatives and regulatory programs designed to protect Florida's coastal system both above and below the mean high-water line. This comprehensive approach allows DEP's Beaches Programs to collaborate with coastal communities to address critical erosion caused by altered and managed inlets, imprudent construction, rising seas and storm impacts. DEP's Beaches Programs consist of the following: Beach Field Services, Coastal Engineering and Geology Group, the Coastal Construction Control Line Program, the Beaches and Inlets Ports Program and the Beaches Funding Group.

2.2 / Management Authority

Established by law, aquatic preserves are exceptional areas of submerged lands and associated waters that are to be maintained in their natural or existing conditions. The intent was to forever set aside submerged lands with exceptional biological, aesthetic, and scientific values as sanctuaries, called aquatic preserves, for the benefit of future generations.

The laws supporting aquatic preserve management are the direct result of the public's awareness of and interest in protecting Florida's aquatic environment. The extensive dredge and fill activities that occurred in the late 1960s spawned this widespread public concern. In 1966, the Board of Trustees of the Internal Improvement Trust Fund (the Trustees) created the first offshore reserve, Estero Bay, in Lee County.

In 1967, the Florida Legislature passed the Randall Act (Chapter 67-393, Laws of Florida), which established procedures regulating previously unrestricted dredge and fill activities on state-owned submerged lands. That same year, the Legislature provided the statutory authority (§253.03, F.S.) for the Trustees to exercise proprietary control over state-owned lands. Also, in 1967, government focus on protecting Florida's productive water bodies from degradation due to development led the Trustees to establish a moratorium on the sale of submerged lands to private interests. An Interagency Advisory Committee was created to develop strategies for the protection and management of state-owned submerged lands.

In 1968, the Florida Constitution was revised to declare in Article II, Section 7, the state's policy of conserving and protecting natural resources and areas of scenic beauty. That constitutional provision also established the authority for the Legislature to enact measures for the abatement of air and water pollution. Later that same year, the Interagency Advisory Committee issued a report recommending the establishment of 26 aquatic preserves.

The Trustees acted on this recommendation in 1969 by establishing 16 aquatic preserves and adopting a resolution for a statewide system of such preserves. In 1975, the state Legislature passed the Florida Aquatic Preserve Act of 1975 (Act) that was enacted as Chapter 75-172, Laws of Florida, and later became Chapter 258, Part II, F.S. This Act codified the already existing aquatic preserves and established standards and criteria for activities within those aquatic preserves. Additional aquatic preserves were individually adopted at subsequent times up through 1989.

In 1980, the Trustees adopted the first aquatic preserve rule, Chapter 18-18, Florida Administrative Code (F.A.C.), for the administration of the Biscayne Bay Aquatic Preserve. All other aquatic preserves are administered under Chapter 18-20, F.A.C., which was originally adopted in 1981. These rules apply standards and criteria for activities in the aquatic preserves, such as dredging, filling, building docks and other structures that are stricter than those of Chapter 18-21, F.A.C., which apply to all sovereignty lands in the state.

This plan is in compliance with the Conceptual State Lands Management Plan, adopted March 17, 1981 by the Board of Trustees of the Internal Improvement Trust Fund and represents balanced public utilization, specific agency statutory authority, and other legislative or executive constraints. The Conceptual State Lands Management Plan also provides essential guidance concerning the management of sovereignty lands and aquatic preserves and their important resources, including unique natural features, seagrasses, endangered species, and archaeological and historical resources.

Through delegation of authority from the Trustees, the DEP and ORCP have proprietary authority to manage the sovereignty lands, the water column, spoil islands (which are merely deposits of sovereignty lands), and some of the natural islands and select coastal uplands to which the Trustees hold title.

Enforcement of state statutes and rules relating to criminal violations and non-criminal infractions rests with the Florida Fish and Wildlife Conservation Commission law enforcement and local law enforcement agencies. Enforcement of administrative remedies rests with ORCP, the DEP Districts, and Water Management Districts.

2.3 / Statutory Authority

The fundamental laws providing management authority for the aquatic preserves are contained in Chapters 258 and 253, F.S. These statutes establish the proprietary role of the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund, as Trustees over all sovereignty lands. In addition, these statutes empower the Trustees to adopt and enforce rules and regulations for managing all sovereignty lands, including aquatic preserves. The Florida Aquatic Preserve Act was enacted by the Florida Legislature in 1975 and is codified in Chapter 258, F.S.

The legislative intent for establishing aquatic preserves is stated in Section 258.36, F.S.: "It is the intent of the Legislature that the state-owned submerged lands in areas which have exceptional biological, aesthetic, and scientific value, as hereinafter described, be set aside forever as aquatic preserves or sanctuaries for the benefit of future generations." This statement, along with the other applicable laws, provides a foundation for the management of aquatic preserves. Management will emphasize the preservation of natural conditions and will include lands that are statutorily authorized for inclusion as part of an aquatic preserve.

Management responsibilities for aquatic preserves may be fulfilled directly by the Trustees or by staff of the DEP through delegation of authority. Other governmental bodies may also participate in the management of aquatic preserves under appropriate instruments of authority issued by the Trustees. ORCP staff serves as the primary managers who implement provisions of the management plans and rules applicable to the aquatic preserves. ORCP does not “regulate” the lands per se; rather, that is done primarily by the DEP Districts (in addition to the Water Management Districts) which grant regulatory permits. The Florida Department of Agriculture and Consumer Services through delegated authority from

the Trustees, may issue proprietary authorizations for marine aquaculture within the aquatic preserves and regulates all aquaculture activities as authorized by Chapter 597, Florida Aquaculture Policy Act, F.S. Staff evaluates proposed uses or activities in the aquatic preserve and assesses the possible impacts on the natural resources. Project reviews are primarily evaluated in accordance with the criteria in the Act, Chapter 18-20, F.A.C., and this management plan.

Comments of ORCP staff, along with comments of other agencies and the public are submitted to the appropriate permitting staff for consideration in their issuance of any delegated authorizations in aquatic preserves or in developing recommendations to be presented to the Trustees. This mechanism provides a basis for the Trustees to evaluate public interest and the merits of any project while also considering potential environmental impacts to the aquatic preserves. Any activity located on sovereignty lands requires a letter of consent, a lease, an easement, or other approval from the Trustees.

Florida Statutes that authorize and empower non-ORCP programs within DEP or other agencies may also be important to the management of ORCP sites. For example, Chapter 403, F.S., authorizes DEP to adopt rules concerning the designation of “Outstanding Florida Waters" (OFWs), a program that provides aquatic preserves with additional regulatory protection. Chapter 379, F.S., regulates saltwater fisheries, and provides enforcement authority and powers for law enforcement officers. Additionally, it provides similar powers relating to wildlife conservation and management. The sheer number of statutes that affect aquatic preserve management prevents an exhaustive list of all such laws from being provided here.

2.4 / Administrative Rules

Chapters 18-18, 18-20 and 18-21, F.A.C., are the three administrative rules directly applicable to the uses allowed in aquatic preserves specifically and sovereignty lands generally. These rules are intended to be cumulative, meaning that Chapter 18-21 should be read together with Chapter 18-18 or Chapter 18-20 to determine what activities are permissible within an aquatic preserve. If Chapter 18-18 or Chapter 18-20 are silent on an issue, Chapter 18-21 will control; if a conflict is perceived between the rules, the stricter standards of Chapter 18-18 or Chapter 18-20 supersede those of Chapter 18-21. Because Chapter 18-21 concerns all sovereignty lands, it is logical to discuss its provisions first.

Originally codified in 1982, Chapter 18-21, F.A.C., is meant “to aid in fulfilling the trust and fiduciary responsibilities of the Board of Trustees of the Internal Improvement Trust Fund for the administration, management and disposition of sovereignty lands; to insure maximum benefit and use of sovereignty lands for all the citizens of Florida; to manage, protect and enhance sovereignty lands so that the public may continue to enjoy traditional uses including, but not limited to, navigation, fishing and swimming; to manage and provide maximum protection for all sovereignty lands, especially those important to public drinking water supply, shellfish harvesting, public recreation, and fish and wildlife propagation and management; to insure that all public and private activities on sovereignty lands which generate revenues or exclude traditional public uses provide just compensation for such privileges; and to aid in the implementation of the State Lands Management Plan.”

To that end, Chapter 18-21, F.A.C., contains provisions on general management policies, forms of authorization for activities on sovereignty lands, and fees applicable for those activities. In the context of the rule, the term “activity” includes “construction of docks, piers, boat ramps, boardwalks, mooring pilings, dredging of channels, filling, removal of logs, sand, silt, clay, gravel or shell, and the removal or planting of vegetation” (Rule 18-21.003, F.A.C.). In addition, activities on sovereignty submerged lands must be not contrary to the public interest (Rule 18-21.004, F.A.C.). Chapter 18-21 also sets policies on aquaculture, geophysical testing (using gravity, shock wave and other geological techniques to obtain data on oil, gas or other mineral resources), and special events related to boat shows and boat displays. The rule also addresses spoil islands, preventing their development in most cases.

Chapters 18-18 and 18-20, F.A.C., apply standards and criteria for activities in the aquatic preserves that are stricter than those of Chapter 18-21. Chapter 18-18 is specific to the Biscayne Bay Aquatic Preserve and is more extensively described in that site's management plan. Chapter 18-20 is applicable to all other aquatic preserves. It further restricts the type of activities for which authorizations may be granted for use of sovereignty lands and requires that structures that are authorized be limited to those necessary to conduct water dependent activities. Moreover, for certain activities to be authorized, "it must be demonstrated that no other reasonable alternative exists which would allow the proposed activity to be constructed or undertaken outside the preserve" (Paragraph 18-20.004(1)(g), F.A.C.).

Chapter 18-20, F.A.C., expands on the definition of "public interest" by outlining a balancing test that is to be used to determine whether benefits exceed costs in the evaluation of requests for sale, lease, or transfer of interest of sovereignty lands within an aquatic preserve. The rule also provides for the analysis of the cumulative impacts of a request in the context of prior, existing, and pending uses within the aquatic preserve, including both direct and indirect effects. The rule directs management plans and resource inventories to be developed for every aquatic preserve. Further, the rule provides provisions specific to certain aquatic preserves and indicates the means by which the Trustees can establish new or expand existing aquatic preserves.

Aquatic preserve management relies on the application of many other DEP and outside agency rules. Perhaps most notably, Chapter 62-302, F.A.C., concerns the classification of surface waters, including criteria for OFW and the designation of the aquatic preserve as an OFW. An OFW designation provides for the state's highest level of protection for water quality. All aquatic preserves contain OFW designations. No activity may be permitted within an OFW that degrades ambient water quality unless the activity is determined to be in the public interest. Once again, the list of other administrative rules that do not directly address ORCP's responsibilities but do affect ORCP-managed areas is so long as to be impractical to create within the context of this management plan.

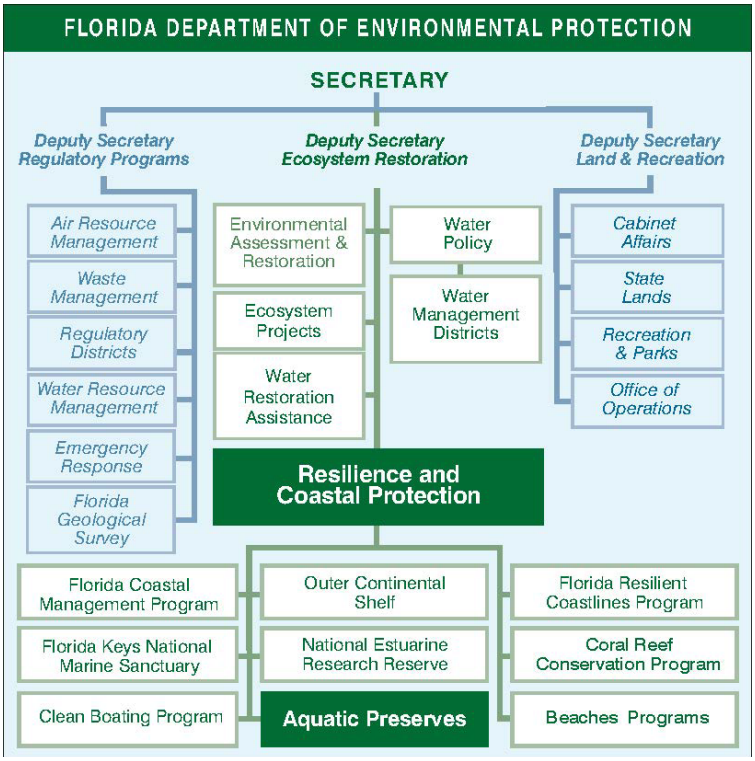


Figure 1| State management structure

The aquatic preserves conserve wildlife habitat in an urban landscape.

Chapter 3 / Pinellas County and Boca Ciega Bay Aquatic Preserves

3.1 / Historical Background

The first evidence for human populations in the Pinellas County area date back as early as the Paleoindian period, 10,000 to 8,500 B.C. During this time, sea level was hundreds of feel lower than it is today, so these populations lived in an upland environment, hundreds of miles from the coast. The earliest inhabitants maintained forager lifeways, hunting the local animals, gathering important resources, and living near streams and springs. As sea level rose and eventually reached modern levels, people began focusing on marine resources, likely adopting a less mobile occupational pattern while living in villages along the coast, on rivers, and near springs. By 2,000 B.C., the populations living in the region began creating pottery and using other new technologies, such as the bow and arrow. They also developed more complex social structures and lived in larger, less ephemeral settlements. The type site for the Weeden Island culture, located in Pinellas County near the edge of Pinellas County Aquatic Preserve (PCAP), shows evidence for new cultural adaptations from 200 to 800 A.D. The archaeological deposits at this site and many others in the region are commonly referred to as the Manasota culture. They show evidence for the region's first permanent villages, new forms of decorative pottery, and a wide range of complex cultural behaviors. Manasota culture shared many adaptations with the Weeden Island culture further north, and during the late Weeden Island period beginning ~700 A.D., the mix of Manasota and Weeden Island archaeological materials is extensive (Milanich, 1994).

By 900 A.D., the late Weeden Island culture developed into the Safety Harbor cultural complex. These artifacts and behaviors are documented when Spanish first arrived, providing written historical details for the archaeological remains in the area. Archaeological investigations of the Safety Harbor-type site, located next to PCAP, and many other sites, show that by 1,000 A.D. Safety Harbor peoples lived in a chieftain-based social system and made and used new forms of pottery. Meanwhile, they continued many of the same practices associated with late Weeden Island culture, including their burial and ceremonial systems. Safety Harbor peoples occupied both the inland and coastal environments, but archaeological records suggest that the most densely populated villages were located along the coasts of the Tampa Bay area, likely organized into regional bands (Milanich, 1994).

Pánfilo de Narvaez was the first Spanish explorer to arrive along the Pinellas peninsula in 1528. The native populations were almost completely decimated by war with Spanish colonists looking for treasure and the introduction of new diseases. By the end of the 17th century, native populations in this region of Florida had dwindled, leaving large portions of the landscape devoid of people. In 1539, Hernando de Soto landed along the county's coasts and explored much of Tampa Bay searching for gold. Neither explorer found any such treasure, and both perished shortly after they arrived. Permanent European settlements were not established until the 1800s due to the constant conflict with the natives. The only lasting influence from that period resides in the name "Pinellas" which came from the Spanish phrase punta pinal, or point of pines (Pinellas County Planning Department, 2008). The Spanish lost control of Florida to the British in 1763 during the Seven Years War but took over again after the Revolutionary War in 1783 (Smith, Sullivan, & Reed, 2008). During the 18th century, Native American populations of the Seminole tribe from the north moved into the empty lands of South Florida, including Pinellas County. In many ways, the history of Tampa Bay's aquatic preserves reflects the history of similar trends on a statewide and national level. The Boca Ciega Bay Aquatic Preserve (BCBAP) and Pinellas County Aquatic Preserve (PCAP) were established in response to concerns about the extensive coastal development of Tampa Bay in the first half of the 1900s. Early settlers had been attracted to some of the state's most productive and attractive coastal areas, and by the 1960s concern about the impacts of unchecked dredge-and-fill was widespread. The Riparian Act of 1856 had given landowners adjacent to the state's submerged lands the right to claim ownership of those lands through activities like dredging, filling and building docks. The Riparian Act remained in effect until 1957 (MacGrady, 1973). Similar riparian rights also were conveyed by the Butler Act of 1921. As a result, impacts to coastal habitats went largely unchecked for decades.

The Bulkhead Act of 1957 was an early attempt to limit dredge-and-fill activities. Unfortunately, a great deal of latitude in setting "bulkhead lines," seaward of which, dredge and fill activities were prohibited, provided a major loophole in that legislation. Local municipalities set their bulkhead lines far from shore. The Florida Legislature eventually conveyed ownership of any submerged lands that were not already privately owned to the state and established the Board of Trustees of the Internal Improvement Trust Fund, consisting of the governor and cabinet, to oversee them (MacGrady, 1973).

By the late 1960s, there was considerable concern about protecting remaining coastal resources in Pinellas County. In 1969, the Florida Legislature established BCBAP. By 1972, legislation was passed to protect the submerged lands of the remainder of the county as PCAP. The Aquatic Preserve Act of 1975 and subsequent legislative actions brought more aquatic preserves on board around the state.

3.2 / General Description

International/National/State/Regional Significance

While Pinellas County may be densely urbanized, the conservation and resource management measures afforded by the designations of BCBAP and PCAP are significant locally, as well as beyond the Tampa Bay area. Despite many decades of development, spectacular submerged resources, such as seagrass

beds, hardbottom corals and sponge beds, account for much of the underwater acreage of the aquatic preserves, and the aquatic preserves' islands serve important roles in an otherwise urban landscape.

Conservation was not always a high priority in the Tampa Bay area, so many of today's scattered natural areas either were not developed because they were pockets of habitat that would have been relatively expensive to develop or they have been reclaimed after initially being impacted by development. As a result, the past half-century has seen numerous national, state and local agencies and organizations cobble together this patchwork of "habitat islands," most not exceeding a few hundred acres in size, across Pinellas County. These can be literal islands or natural areas surrounded by development, and the aquatic preserves help provide a connection between them for some species. Because it is interwoven with the county's most developed shorelines, PCAP faces special challenges for resource protection. However, PCAP's proximity to populated areas also offers special opportunities for engaging the community in the continued improvement of the system's ecological integrity.

BCBAP and PCAP are also of statewide significance as essential components of Florida's aquatic preserve network. Groups of individual marine protected areas are increasingly managed as networks worldwide (Laffoley, et al., 2008).The network of aquatic preserves has led to more effective management of Florida's aquatic resources and the individual sites have benefitted in many ways from their inclusion in a larger network. This allows staff of different sites to compare management strategies and methodologies.

The Tampa Bay area is also geographically significant. Tampa Bay is Florida's largest open-water estuary and is in a climatic transition zone between the temperate climate of the northern Gulf of Mexico and the subtropical climate of south Florida. This geographic setting has made the waters and coastal uplands of BCBAP and PCAP, as well as the ongoing management and monitoring programs they support, invaluable resources for scientists focused on ecology and biogeography in a changing environment.

Studies focused on issues of both state and national importance have included documentation of long-term range shifts of cold-tolerant coastal vegetation, the effects of the area's transitional climate on limiting the ranges of invasive nonnative plants and biogeography of hard and soft corals in the offshore waters of PCAP. Initiatives like the United States Geological Survey "Tampa Bay Study" in the early to mid-2000s are also reflective of the substantial research value of the habitats protected by BCBAP and PCAP.

An additional aspect of the biogeographical significance of the area is that BCBAP and PCAP are situated along major flyways for birds migrating between northern latitudes and southern latitudes. Birds like the red knot (*Calidris canutus rufa*) depend on patches of habitat where they can rest and feed as their migration takes them across urban landscapes like Tampa Bay. Such considerations help guide the strategies of the Tampa Bay Aquatic Preserves (TBAP) office in restoring and managing habitats in these important conservation areas.

Because of interest in the health of Tampa Bay beyond the local community, the Tampa Bay National Estuary was designated by the U.S. Congress in 1990. Eight years later, local governments, in partnership with the US Environmental Protection Agency transitioned the program to the more local Tampa Bay Estuary Program. Regarding Pinellas County waters, the Tampa Bay Estuary Program focuses more on the Tampa Bay side of the peninsula.

Location/Boundaries

PCAP includes all state-owned submerged lands within the boundary of Pinellas County as established in Chapter 7.52, F.S. Pinellas County is a peninsula that forms the western side of Tampa Bay, and, as such, it is surrounded on the east, west and south side by PCAP. The aquatic preserve boundary begins in the northwest at the Pasco County line and extends southward along the Pinellas Peninsula, following

the offshore limit of state waters (nine miles out in the Gulf of Mexico). At the southern end of the Pinellas Peninsula, the boundary follows the shoreline at a distance as close as 100 yards off Mullet Key. The boundary then runs northward through Tampa Bay, along the Tampa Port Authority's easement for the Tampa Ship Channel. The boundary follows the Pinellas County line north to the Pasco County line and then west.

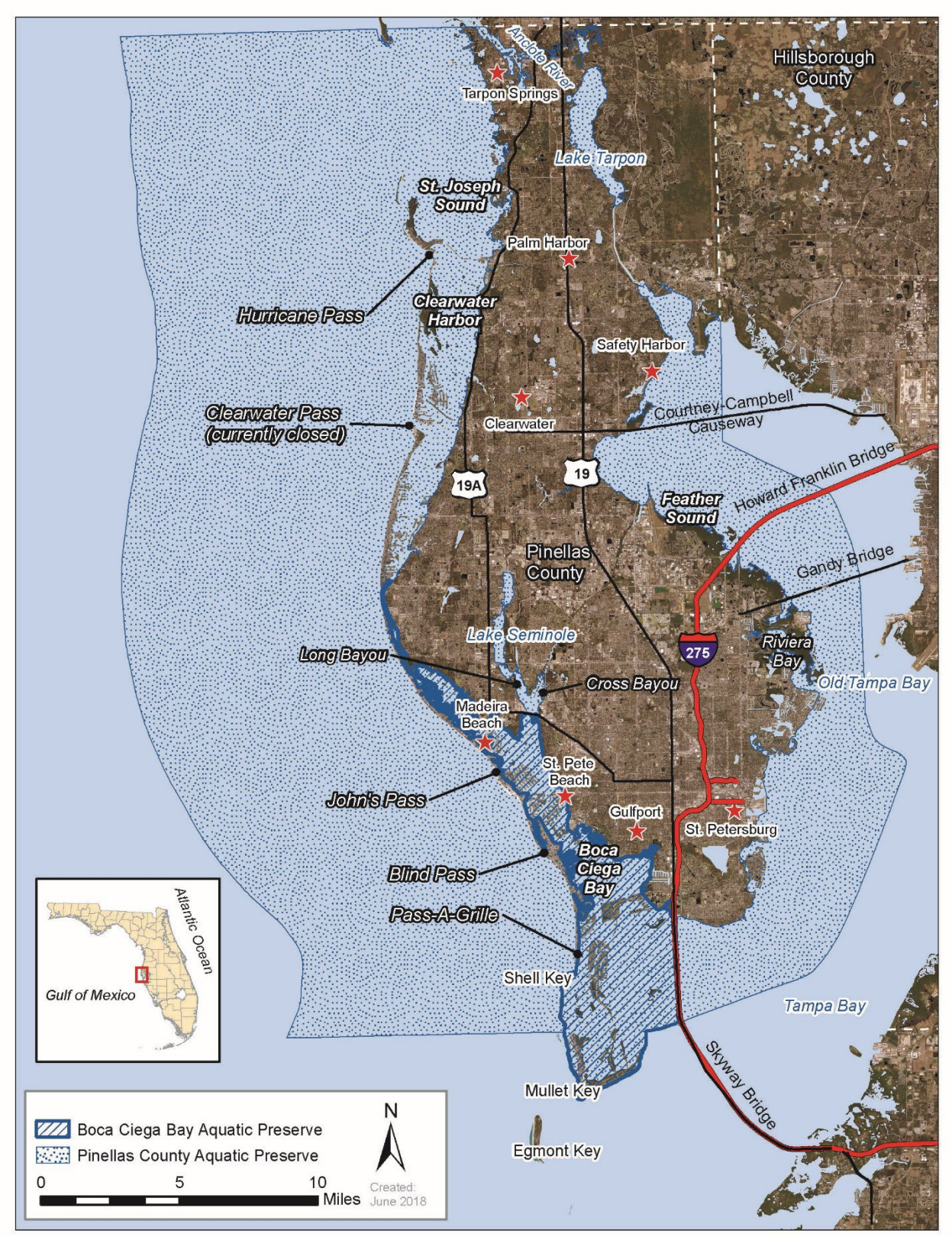
The BCBAP boundary is described in Chapter 258, F.S. It follows the mean high water line along the shores of Boca Ciega Bay northward through the Narrows, and it ends at the southernmost extent of South Clearwater Harbor. It extends southward around Mullet Key, with the southern part bordering Pass-A-Grille to the west and the northern approach to the Skyway Bridge to the east. At the northeastern branch of Boca Ciega Bay, the aquatic preserve extends into Long Bayou, but not into Cross Bayou. BCBAP is situated completely within the boundary of PCAP.

The state-owned submerged lands within PCAP include those in freshwater areas, and this statutory inclusion is relatively uncommon among Florida's coastal aquatic preserves. As a result, large portions of Lake Tarpon and Lake Seminole, as well as other freshwater bodies are part of the aquatic preserve. Major estuarine basins include the Anclote River, St. Joseph Sound, Clearwater Harbor, Boca Ciega Bay, southwestern Tampa Bay, Riviera Bay, Feather Sound and the western side of Old Tampa Bay.

In addition to freshwater areas, the aquatic preserve has the statutory distinction, also not found in all aquatic preserves, of including state-owned islands. These islands include natural mangrove islands, as well as the dredged material (i.e., spoil) islands along the Intracoastal Waterway of St. Joseph Sound, Clearwater Harbor and Boca Ciega Bay. Islands in the Anclote River appear to be naturally formed alluvial islands to which dredged material may have been added.

As Florida's most densely urbanized county, Pinellas County includes several major cities and a number of smaller municipalities that lie along the shore of the aquatic preserves. Clearwater is the largest city in the northern part of the county, with smaller communities like Tarpon Springs, Safety Harbor and Palm Harbor also playing major roles in the history of the area's relationship with the coast. Toward the southern end of the peninsula, St. Petersburg is the largest city, but smaller communities, like Gulfport, St. Pete Beach and Madeira Beach all rely heavily on the resources of the aquatic preserves.

Communities within the county connect with each other and with those in other counties by an extensive transportation network. U.S. Highway19 (US-19) is the major thoroughfare connecting the northern part of the county with the southern part. Interstate 275 (I-275) connects the county with Tampa via the Howard Frankland Bridge. Both I-275 and US-19 connect Pinellas County with Manatee County to the south via the Skyway Bridge. Two other east-west bridges are the Gandy Bridge, which connects St. Petersburg to South Tampa and the Courtney-Campbell Causeway, which connects Clearwater to a more northern part of Tampa. The St. Petersburg/Clearwater Airport provides direct air service to and from Pinellas County, but much of the air traffic serving the county is through Tampa International Airport, which is a short drive across one of the east-west bridges.



Map 2 | Pinellas County and Boca Ciega Bay aquatic preserves.

3.3 / Resource Description

Surrounding Population Data and Future Projected Changes

Pinellas County's population has dramatically increased over the last 130 years. The permanent population has grown from 601 in 1890 to an estimated 966,933 in 2025, and it is now the most densely populated county in Florida (University of Florida, 2025). This increase may have major implications for coastal development, water quality, and water-related activities within PCAP and BCBAP – both negative and positive. An increasing population puts more strain on the natural resources and increases competition to use those resources. However, areas are being redeveloped in a manner that offers opportunities to replace older infrastructure and retrofit with more modern and environmentally friendly approaches, such as septic to sewer conversions.

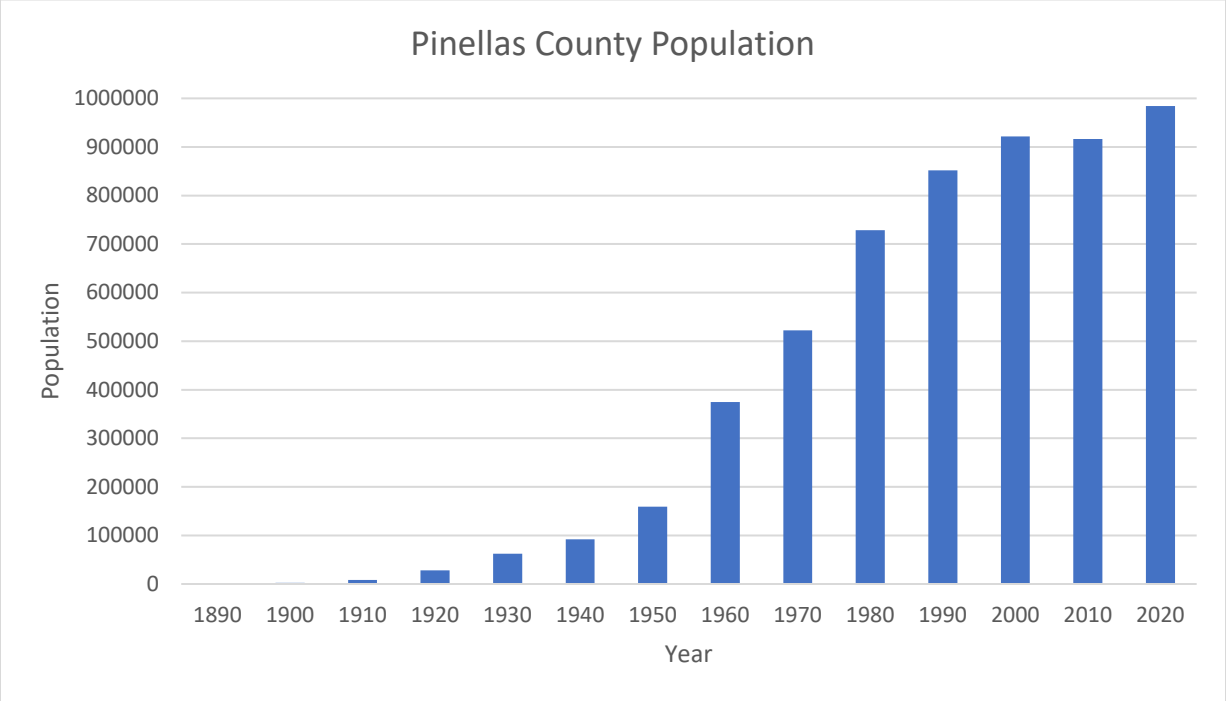
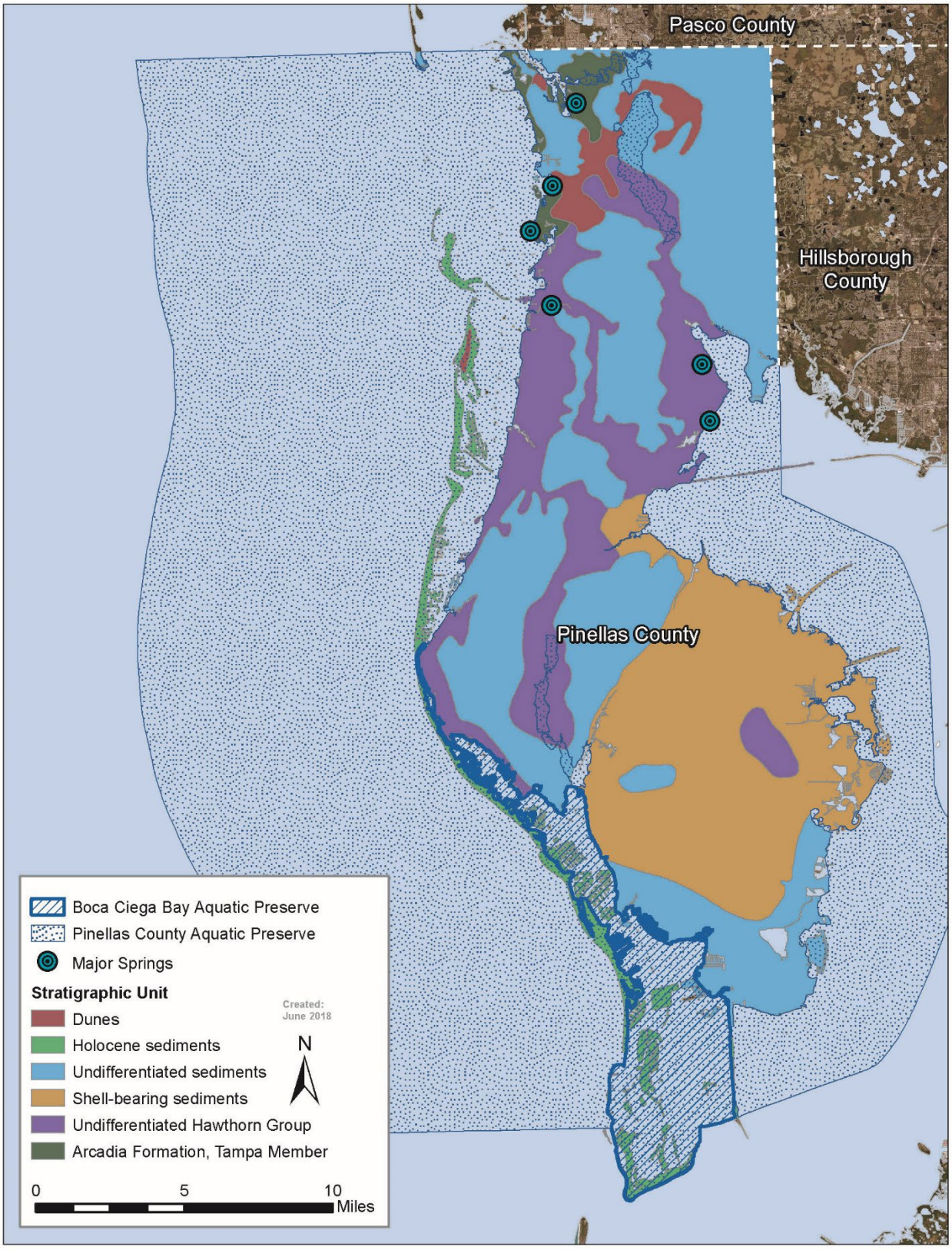


Table 1 / Pinellas County population statistics.

Topography and Geomorphology

Topography is the configuration of a surface including its relief and the position of its natural and man-made features. Geomorphology is a science that deals with the relief features of the earth. As previously described, Pinellas County is a peninsula surrounded on the south, east and west by water. Elevations range from sea level to a maximum elevation of 34m (110 ft) above sea level near Clearwater. As with most of coastal Florida, Pinellas County is relatively flat, with two higher areas related to underlying limestone along the Pinellas Ridge in the northern part of the county and the St. Petersburg Platform in the southern part of the county (Hine, et al., 2003). On the western side, 11 barrier islands with 35 miles of sandy beaches separate the mainland from the Gulf of Mexico. These islands provide protection from storms and the inlets between the islands allow water to flow in from the Gulf and back out from freshwater sources. They are structured by waves, currents, and erosion, as well as by hurricanes which can completely alter the coastline and form new inlets such as the case with John's Pass. The bodies of water lying between the islands and the mainland include Clearwater Harbor and Boca Ciega Bay. Spoil islands from dredging characterize these waters. Many of the islands now undergo beach nourishment projects to maintain the coastline and protect coastal development.



Map 3 | Geomorphology of Pinellas County and Boca Ciega Bay aquatic preserves.

Geology

Pinellas County sits atop a complex series of Oligocene and Miocene limestone layers whose geological history is part of the overall history of the carbonate Florida Shelf. These layers dip toward the south and consist of at least two recognized geological formations. The Oligocene Suwannee Limestone is deeply buried (100-250 feet) and does not have surficial exposures in Pinellas County, but it is overlain by the late Oligocene/early Miocene Tampa Member of the Arcadia Formation which outcrops in several locations. Much of the surficial geology of Pinellas County consists of undifferentiated Quaternary sediments, including Pleistocene and Holocene clays, sands and shell beds. Sea level changes from the Pleistocene Epoch to the present time eroded levels of this limestone, and stillstands in sea level left eroded platforms. While limestone layers are relatively well-known on the surface of exposed land, there does not appear to be much published information on the outcrops observed offshore. Given the depths of limestone layers, it is believed that Suwanee Limestone remains deep enough that it would not be exposed until farther north of the Tampa Bay area. Locally, the Tampa Member of the Arcadia Formation and undifferentiated Arcadia Formation, both of the Hawthorn Group, make up outcrops in PCAP, as they also make up the Pinellas Ridge to the north of the county, and the St. Petersburg Platform toward the southern end of the county. The Tampa Member has been reported near the sediment surface at the northernmost extent of the Pinellas Peninsula, but it rapidly dips to depths greater than 100 feet below the surface toward the southern end of the peninsula. Arcadia limestone may be found both over and under the Tampa Member, so much of the limestone that forms consolidated substrate in PCAP likely is undifferentiated Arcadia Formation of the Hawthorne Group (Scott, 1988).

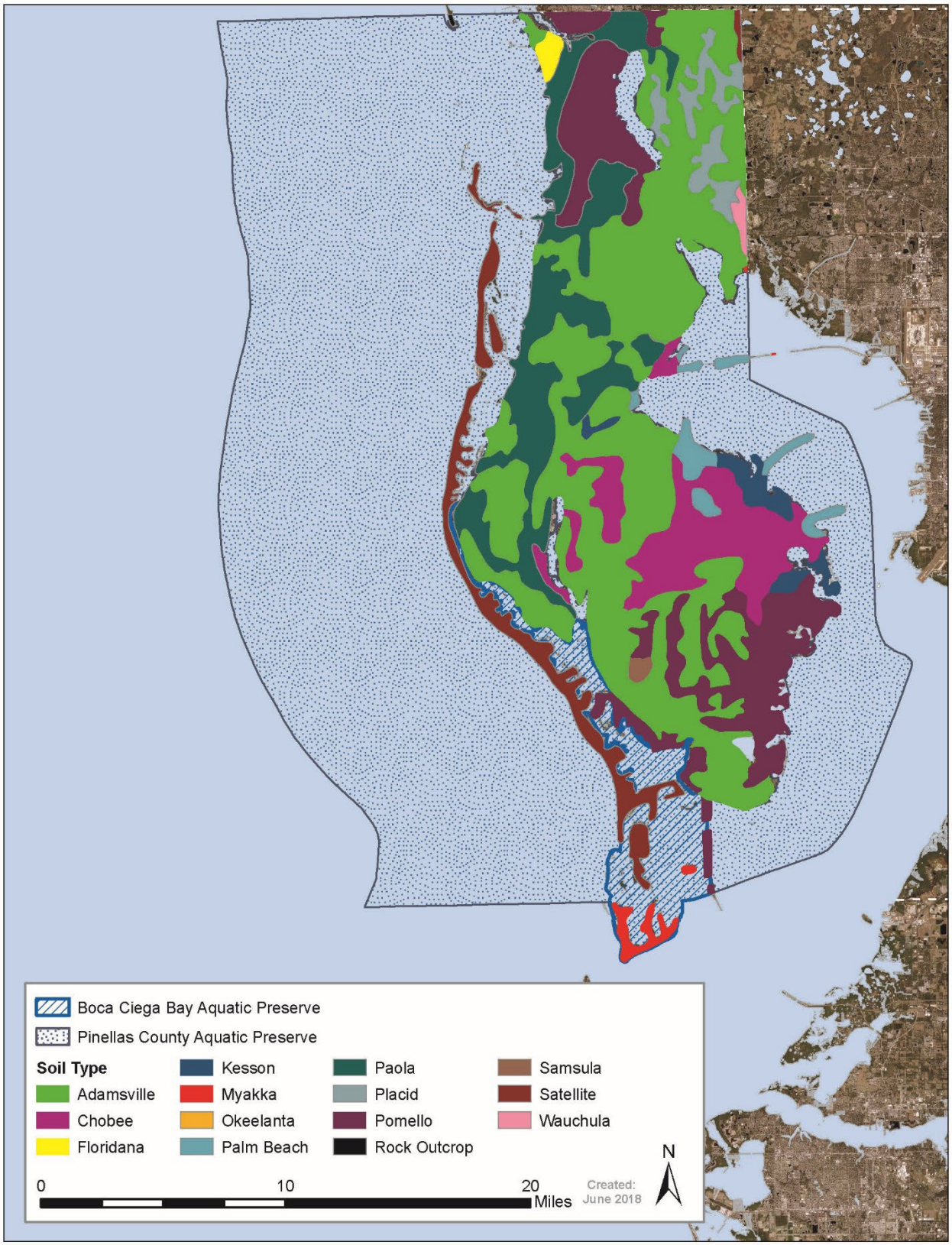
The last soil survey done in Pinellas County was in 2002. Sea level changes and periods of constant sea level, known as stillstands, have left the county covered by sand from a variety of marine terraces. Soils farther south in the county have higher clay content that impeded percolation, relative to the more permeable soils in the northern part of the county. For that reason, higher percolation in the northern part of the county appears to be connected to higher limestone dissolution rates and more sinkhole formation.

While extensive soil surveys have been done of the upland peninsula, relatively little is known regarding the sediments of submerged lands of Pinellas County. The submerged lands are known to contain limestone outcrops, however these have not been mapped in detail. Dominant northern Pinellas County soils include Adamsville, Paola and Pomello types while the southern county is primarily comprised of Adamsville, Pomello and Chobee soils. However, the soil survey from 2002 suggests that there may be a higher presence of Myakka soils throughout the county than what was previously recorded. The freshwater Lake Tarpon is surrounded by Pomello and Adamsville soils and the county's barrier islands contain Satellite soils.

There are no known mineral resources in Pinellas County or Boca Ciega Bay aquatic preserves.

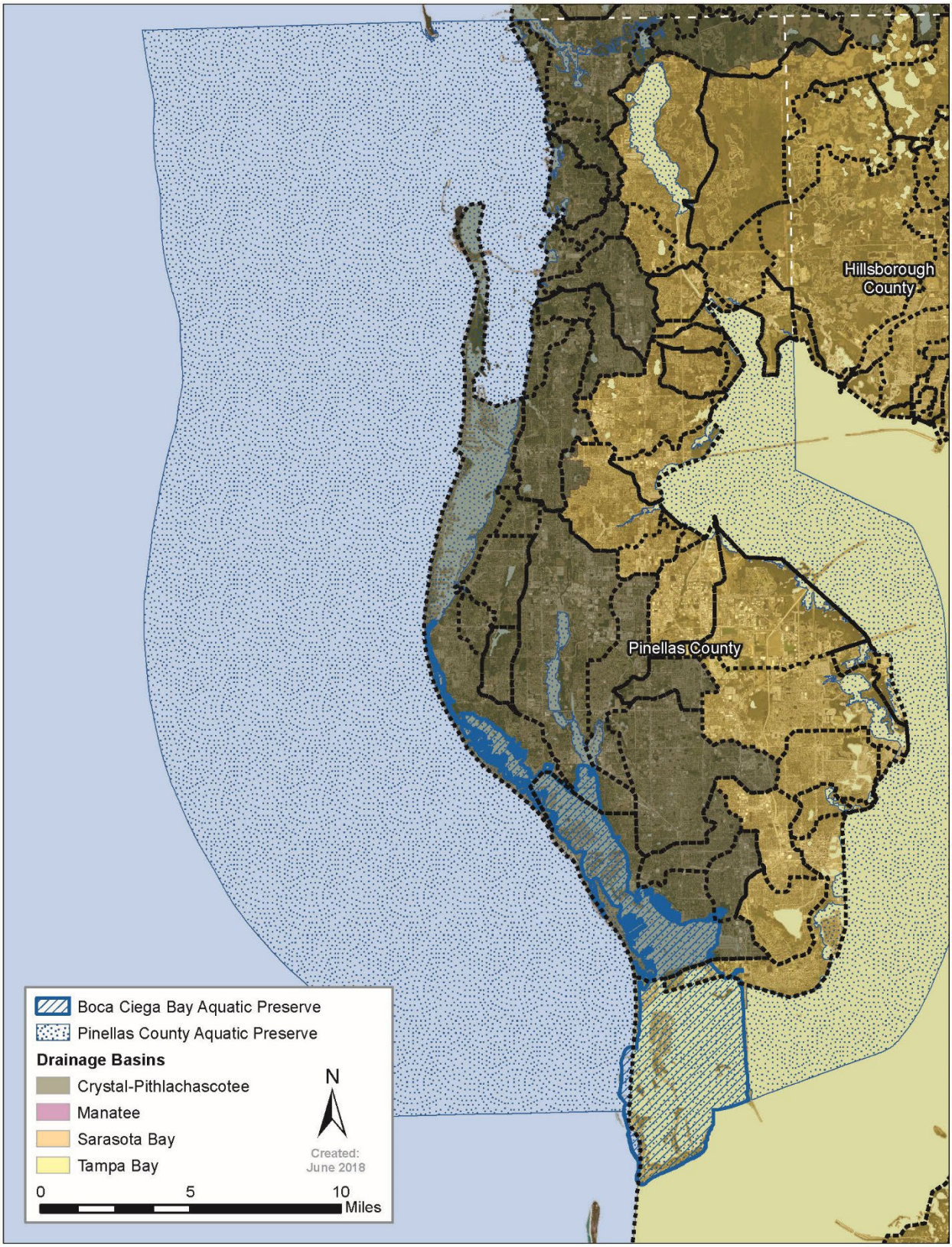
Hydrology and Watershed

The shoreline around the peninsula is incised with bayous and other embayments. On the western side of the peninsula, the mainland shoreline is mostly protected by a series of barrier islands that form a series of natural harbors between the Gulf of Mexico and the mainland. The most prominent of these, from north to south, are the Anclote River, St. Joseph Sound, Clearwater Harbor, and Boca Ciega Bay. Dynamic tidal connections between these embayments and the open Gulf include Hurricane Pass, Clearwater Pass (currently closed), John's Pass, Blind Pass and Pass-A-Grille. Nearly all of these passes are sites of frequent scouring, shoaling and other processes that demand periodic regulatory attention. Some of the prominent smaller features in these areas behind the barrier islands include Stevenson Creek, Hurricane Hole and Clam Bayou. Because of surrounding development, most of these embayments have had water quality issues that are in some stage of mitigation through habitat creation



Map 4 | Soils associated with Pinellas County and Boca Ciega Bay Aquatic Preserves.

Map 5 | Hydrologic features associated with Pinellas County and Boca Ciega Bay aquatic preserves.



Map 6 | Drainage basins of Pinellas County and Boca Ciega Bay aquatic preserves.

or other restorative measures. On the eastern side of the peninsula, mangrove-vegetated shorelines lie immediately adjacent to open, albeit shallow waters of Tampa Bay. Other, more inland, waterbodies include Lake Tarpon, Lake Seminole and Lake Maggiore, and areas of these lakes with state-owned submerged lands are included in PCAP.

The uplands of densely-urbanized Pinellas County are extensively altered. Roads, ditches and other linear features impede and channelize historic sheet flows, and extensive development of buildings, roads and parking lots impedes percolation of surface waters and enhances local flooding from storm events. Countless storm drains conduct runoff, including sediment, debris and other pollutants, into coastal waters with little treatment.

Most large waterbodies like Lake Tarpon and Lake Seminole have tidal histories, but, for the most part, they have been isolated from tidal connections in recent decades. In the case of Lake Tarpon, a subterranean cave system that connected it with estuarine waters in Tarpon Springs has been isolated from the lake with a manmade berm. There are sinkholes scattered over Pinellas County, and they also may be found in the shallow surrounding waters. Those located on land often exist as isolated freshwater ponds or cypress domes.

The Upper Floridan Aquifer lies below most of Pinellas County, and is part of a three-layer hydro-geologic system. The Aquifer consists of limestones and dolomites and is separated into four permeable zones within the county (Broska & Barnette, 1999). Brackish waters are found from 100 to 500 feet below land surface.

Climate

PCAP and BCBAP lie in the subtropics between Tampa Bay and the Gulf of Mexico, surrounded by water on all sides. The mean annual temperature of 72.7 ° Fahrenheit (F) is buffered by the coastline, preventing temperatures from reaching extremely high or low values (World Media Group, LLC., n.d.). The area receives typically wet, hot summers with an average eight inches of rainfall per month, compared to the winter when precipitation is less than four inches per month and average temperatures reach a low of 70° F. This allows species sensitive to the cold to thrive in this region, such as the mangroves and the gumbo limbo tree (*Bursera simaruba*). The aquatic preserves are also affected during the hurricane season, when tropical cyclones produce heavy rains and destroy coastlines and submerged habitats.

Natural Communities

The natural community classification system used in this plan was developed by the Florida Natural Areas Inventory (FNAI) and the Florida Department of Natural Resources (now the Florida Department of Environmental Protection (DEP)), and updated in 2010. The community types are defined by a variety of factors, such as vegetation structure and composition,

hydrology, fire regime, topography and soil type. The community types are named for the most characteristic biological or physical feature (FNAI, 2010). FNAI also assigns Global (G) and State (S) ranks to each natural community and species that FNAI tracks. These ranks reflect the status of the natural community or species worldwide (G) and in Florida (S). Lower numbers reflect a higher degree of imperilment (e.g., G1 represents the most imperiled natural communities worldwide, S1 represents the most imperiled natural communities in Florida).

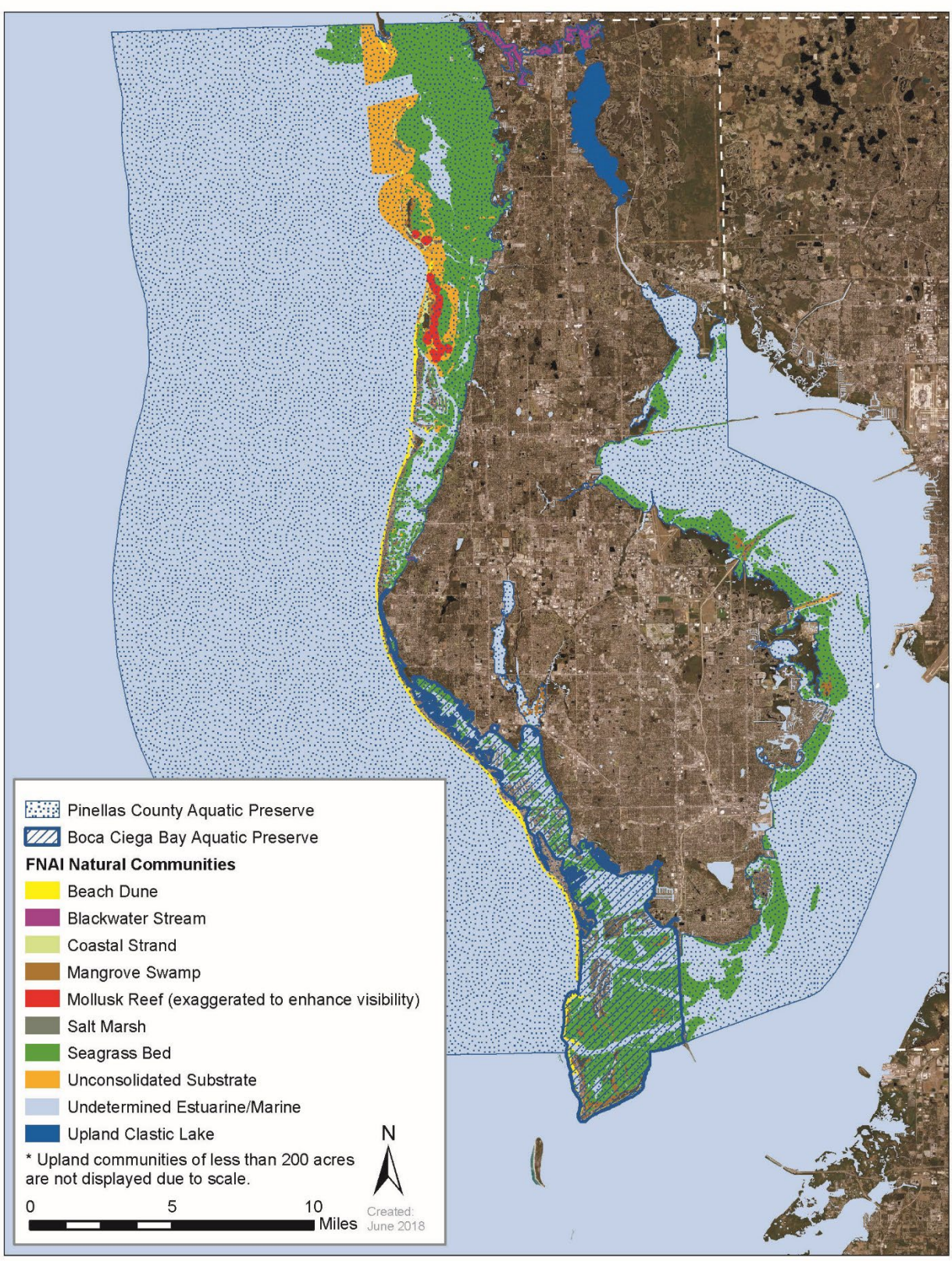
Data used to produce a map delineating the major natural community types found on PCAP and BCBAP were developed by the FNAI. The descriptions of the natural community types found on PCAP and BCBAP have been adapted from the Guide to the Natural Communities of Florida (FNAI, 2010).

Shorelines of BCBAP and PCAP offer great nesting habitat for sea turtles.

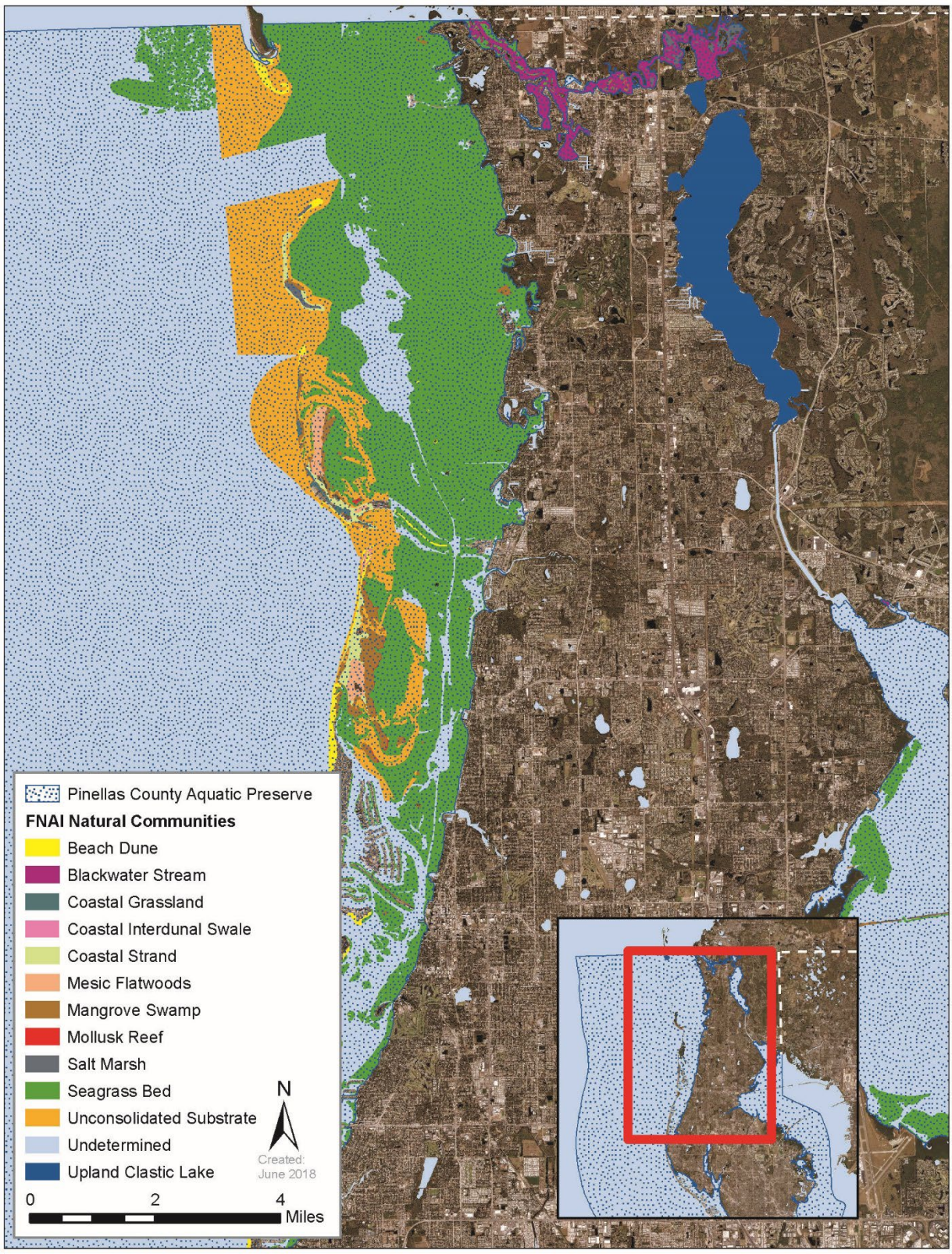
Beach Dune - Beach dune is a predominantly herbaceous community of wide-ranging coastal specialist plants on the vegetated upper beach and first dune above the beach (foredune). This community is usually built by sea oats (*Uniola paniculata*), a perennial rhizomatous grass, whose stems trap the sand grains blown off the beach, building up the dune by growing upward to keep pace with sand burial. Camphorweed (*Heterotheca subaxillaris*) often grows with sea oats where sand burial is absent or moderate and beach elder (*Iva imbricata*), a succulent subshrub, is found at the seaward base of the foredune. These species may also occupy the seaward face and crests of taller backdunes or recent storm overwash plains where the sand is not stabilized by vegetation. The upper beach area seaward of the foredune is a less stable habitat, being disturbed annually by high spring tides or storm tides, and is continually re-colonized by annuals such as saltbush (*Baccharis halimifolia*), and dixie sandmat (*Chamaesyce bombensis*), by trailing species, such as beach morning glory (*Ipomoea macrantha*) and railroad vine (*Ipomoea pes-caprae* ssp. *brasiliensis*), and by the salt- tolerant grasses, seashore paspalum (*Paspalum vaginatum*) and seashore dropseed (*Sporobolus virginicus*) (FNAI, 2010).

Beach dune plant assemblages cover considerable acreage on barrier islands that are state-owned, and sometimes part of the BCBAP and/or PCAP but not managed directly by TBAP. Smaller clusters of plants from this community can be found on areas of the dredged material islands in Clearwater Harbor and St. Joseph Sound, as well as on some of the alluvial islands near the mouth of the Anclote River. A varied assemblage of dune plants has been recruiting to the new island that has formed in Bunces Pass.

The largest dune plant assemblages are on state-owned islands managed by other entities. Shell Key's dune plant community has benefitted from active management by Pinellas County. Although some areas are being lost to erosion, other areas on Shell Key are experiencing a growth in sand dune coverage as a result of sand migration and accretion. Other notable dune assemblages can be found at Caladesi Island State Park, Honeymoon Island State Park, Three Rooker Bar and Anclote Key. All of these are in good condition, as the Florida Park Service has taken steps to limit foot traffic and has maintained an ongoing invasive plant removal program.



Map 7 | Florida Natural Areas Inventory natural communities in Pinellas County and Boca Ciega Bay aquatic preserves



Map 8 | Florida Natural Areas Inventory natural communities on select islands in Pinellas County and Boca Ciega Bay aquatic preserves.

Coastal Berm - Coastal berm is a short forest or shrub thicket found on long, narrow, storm-deposited ridges of loose sediment formed by a mixture of coarse shell fragments, pieces of coralline algae, and other coastal debris. These ridges parallel the shore and may be found on the seaward edge or landward edge of the mangroves or further inland, depending on the height of the storm surge that formed them. They range in height from 1 to 10 feet. Structure and composition of the vegetation is variable depending on height and time since the last storm event. The most stable berms may share some tree species with rockland hammocks, but generally have a greater proportion of shrubs and herbs. Some of the most common tree species include gumbo limbo and seagrape (*Coccoloba uvifera*). There are many characteristic tall shrub and short tree species such as the Spanish stopper (*Eugenia foetida)* and short shrubs and herbs including the rouge plant (*Rivina humilis*). More seaward berms or those more recently affected by storm deposition may support a suite of plants similar to beaches, including shoreline seapurslane (*Sesuvium portulacastrum*), saltgrass (*Distichlis spicata*), and seashore dropseed, or scattered to dense shrub thickets with buttonwood (*Conocarpus erectus*), stunted black, red, and white mangroves (*Avicennia germinans*, *Rhizophora mangle*, and *Laguncularia racemosa*), bay cedar (*Suriana maritima*), and bushy seaside oxeye (*Borrichia frutescens*) (FNAI, 2010).

Coastal berm plant assemblages can be found naturally on a few PCAP islands, like Garden Island in St. Joseph Sound. Much of TBAP's island upland acreage at coastal berm elevations has been covered by invasive plants, but TBAP has made some progress in removing invasives and planting coastal berm species at the appropriate elevations.

Coastal Grassland - Coastal grassland is a predominantly herbaceous community occupying the drier portions of the transition zone between beach dunes on the immediate coast and communities dominated by woody species, such as coastal strand or maritime hammock, further inland. It occurs primarily on the broader barrier islands and capes along the sandy coasts of Florida. The specialized dune building grasses of the beach dune community, sea oats and saltmeadow cordgrass (*Spartina patens*), are usually present, along with a variety of other herbaceous species typically found on more stable soils, such as bluestem grasses (*Andropogon* spp.), camphorweed, and earleaf greenbrier (*Smilax auriculata*) (FNAI, 2010). The coastal grassland of PCAP is within Honeymoon Island State Park and is in good condition. There are also coastal grassland plant assemblages on other islands that grade into other natural communities.

Coastal Strand - Coastal strand is an evergreen shrub community growing on stabilized coastal dunes, often with a smooth canopy due to pruning by salt spray. It usually develops as a band between dunes dominated by sea oats along the immediate coast, and maritime hammock, scrub, or mangrove swamp communities further inland. On broad barrier islands or prograding coasts, it may also occur as patches of shrubs within a coastal grassland matrix.

In Tampa Bay, tropical species are prevalent, including seagrape nearest the coast, joined further inland by Florida swampprivet (*Forestiera segregata*), myrsine (*Rapanea punctata*), buttonsage (*Lantana involucrata*), white indigoberry (*Randia aculeata*), snowberry (*Chiococca alba*), Spanish stopper, wild lime (*Zanthoxylum fagara*), coco plum (*Chrysobalanus icaco*), coinvine (*Dalbergia ecastaphyllum*), yellow necklacepod (*Sophora tomentosa* var. *truncata*), and nickerbean (*Caesalpinia bonduc*).

In Pinellas County, coastal strand often grades into adjacent communities with very subtle ecotones. While much of this community has been lost to development, healthy and intact examples persist on public conservation lands of the barrier islands and on spoil islands.

Coastal Interdunal Swale - Coastal interdunal swales are marshes, moist grasslands, dense shrubs, or damp flats in linear depressions formed between successive dune ridges as sandy barrier islands, capes, or beach plains build seaward. Dominant species are quite variable depending on local hydrology, substrate, and the age of the swale. Wetter areas are often dominated by sawgrass (*Cladiumjamaicense*), cattail (*Typha* spp.), or needle rush (*Juncus roemerianus*), while shallower areas

have a diverse mixture of herbs, including broomsedges (*Andropogon virginicus*, *A. glomeratus*). Atlantic St. John's Wort (*Hypericum reductum*) forms clumps in shrubby areas on the low flats in the more stable portions of the barrier islands. Moist grasslands may be dominated by hairawn muhly (*Muhlenbergia capillaris*), lovegrass (*Eragrostis* spp.), sand cordgrass (*Spartina bakeri*) or saltmeadow cordgrass.

Nearer the shore, where swales are exposed to occasional salt water intrusion, they may be dominated by halophytic species such as seashore paspalum and marsh fimbry (*Fimbristylis spadicea*). Hurricanes and tropical storms can flood swales with salt water, after which they are colonized for a time by more salt-tolerant species such as needle rush, Gulf Coast spikerush (*Eleocharis cellulosa*), and yellow spikerush (*E. flavescens*). Loose, blowing sand prevalent after storms favors the spread of saltmeadow cordgrass which tolerates burial better than the other grass species.

Maritime Hammock - Maritime hammock is a predominantly evergreen hardwood forest growing on stabilized coastal dunes lying at varying distances from the shore. Species composition changes from north to south, and south of Pasco County, tropical trees found in the canopy include gumbo limbo, strangler fig (*Ficus aurea*), seagrape, and Spanish stopper; tropical shrubs include wild coffee (*Psychotria nervosa*). Maritime hammock occurs on deep well- drained acid quartz sands or well-drained, moderately alkaline quartz sands mixed with shell fragments (FNAI, 2010).

Few natural islands in the aquatic preserves have elevations suitable for maritime hammock species. Some of the dredged material islands in Boca Ciega Bay, Clearwater Harbor, and St. Joseph Sound, as well as alluvial islands near the mouth of the Anclote River have suitable elevations at which maritime hammock could occur but are presently occupied by invasive nonnative plants. Efforts are underway to replace these nonnatives with native maritime hammock species where appropriate.

Shell Mound - Shell mounds are small hills, usually in coastal locations, composed entirely of shells (clams, oysters, whelks) discarded by generations of Native Americans which support an assemblage of calciphilic plant species. Archaeological evidence indicates many mounds were occupied for hundreds to thousands of years, up to the point of European contact. Other shell mounds were abandoned before European arrival, some of which are likely preserved offshore within PCAP and BCBAP waters. Several are now surrounded by mangroves, evidence that they were built when sea level was lower than today. Originally there were many such shell mounds along coastal lagoons and at the mouths of rivers, but most were destroyed for road building in the early part of the last century.

A rich calcareous soil develops on the deposited shells which supports a diverse hardwood forest on undisturbed mounds. Central Florida mounds are often characterized by tropical species occurring north of their normal range. In the Tampa Bay area, the species composition of shell mound forests tends to be more strictly tropical than that of maritime hammocks on sandy substrates in the same region, with white stopper (*Eugenia axillaris*), Florida privet, strangler fig and gumbo limbo being the most commonly encountered woody species (FNAI, 2010).

While shell mounds are not known on the islands of BCBAP or PCAP, some higher, well-drained areas of dredged material islands, which have large amounts of limestone in the soil, may successfully support natural communities typically found on shell mounds.

Upland Hardwood Forest - Upland hardwood forest is a well-developed, closed-canopy forest dominated by deciduous hardwood trees on mesic soils in areas sheltered from fire. It typically has a diverse assemblage of deciduous and evergreen tree species in the canopy and midstory, shade-tolerant and a sparse groundcover. Characteristic canopy trees include southern magnolia (*Magnolia grandiflora*), sweetgum (*Liquidambar styraciflua*), Florida maple (*Acer saccharum* ssp. *floridanum*), live oak, and laurel oak (*Quercus hemisphaerica*). The midstory layer is composed of younger canopy species as well as small trees, and tall shrubs, such as red bay. The groundcover is composed of shade-

FNAI Natural Community	Acreage	Global Rank	State Rank	Comments
Algal Bed	unknown	G3	S2	Not mapped.
Aquatic and Terrestrial Cave	unknown	G3	S2	Not mapped.
Beach Dune	1403	G3	S2	
Blackwater Stream	747	G4	S2	
Clastic Upland Lake	2544	G3	S2	
Coastal Berm	unknown	G3	S2	Found on spoil islands and mixed among other coastal communities, but not formally mapped.
Coastal Grassland	72	G3	S2	Honeymoon Island State Park
Coastal Interdunal Swale	19	G3	S2	Honeymoon Island State Park and Caladesi Island State Park
Coastal Strand	303	G3	S2	
Consolidated Substrate	unknown	G3	S3	Not mapped.
Floodplain Marsh	14	G3	S3?	
Hydric Hammock	<1	G4	S4	Adjacent to the aquatic preserves in many natural areas
Mangrove Swamp	1768	G5	S4	
Maritime Hammock	103	G3	S2	
Mesic Flatwoods	173	G4	S4	
Mesic Hammock	18	G3	S3?	
Mollusk Reef	28	G3	S3	Not completely mapped. Additional acreage may be within the undetermined Estuarine/Marine category.
Octocoral Bed	unknown	G2	S1	Not mapped.
Salt Marsh	198	G4	S4	
Seagrass Bed	33,744	G2	S2	
Shell Mound	<1	G2	S2	Caladesi Island State Park
Sponge Bed	unknown	G2	S2	Not mapped.
Unconsolidated Substrate	5002	G5	S5	Not completely mapped. Additional acreage may be within the undetermined Estuarine/Marine category.
Undetermined Estuarine/Marine	302283			Not a natural community.
Upland Hardwood Forest	145	G2	S2	

Table 2 | Summary of Florida Natural Areas Inventory natural communities in Pinellas County and Boca Ciega County Bay aquatic preserves.

tolerant herbs, graminoids, and vines, such as Virginia creeper (*Parthenocissus quinquefolia*), and many species of sedges (*Carex* spp.) (FNAI, 2010).

Upland hardwood forest occurs on rolling mesic hills, slopes above river floodplains, in smaller areas on the sides of sinkholes, and occasionally on rises within floodplains. Limestone or phosphatic rock may be near the surface. Soils are generally sandy clays or clayey sands with substantial organic and sometimes calcareous components. These soils have higher nutrient levels than the sandy soils prevalent in most of Florida. The moisture retention properties of clays and layers of leaf mulch conserve soil moisture and create decidedly mesic conditions. The dense canopy and multiple layers of midstory vegetation restrict air movement and light penetration, which maintains high relative humidity within the community (FNAI, 2010). Intact upland hardwood forest is very scarce within the boundaries of the aquatic preserves, but component species can be found, and/or have been planted on some dredged material islands in the aquatic preserves.

Hydric Hammock - Hydric hammock is an evergreen hardwood and/or palm forest with a variable understory typically dominated by palms and ferns occurring on moist soils, often with limestone very near the surface. While species composition varies, the community generally has a closed canopy of oaks and palms, an open understory, and a sparse to a moderate groundcover of grasses and ferns. The canopy is dominated by live oak with varying amounts of cabbage palm, red cedar, red maple (*Acer rubrum*), and sugarberry (*Celtis laevigata*). Cabbage palm is a common to dominant component of hydric hammock throughout most of Florida. Loblolly pine (*Pinus taeda*) may be frequent in some areas, but slash pine (*Pinus elliottii*) is less frequently encountered. In addition to saplings of canopy species, the understory may contain a number of small trees and shrubs. Vines may be frequent and diverse; common species are greenbriers (*Smilax* spp.) and muscadine (*Vitis rotundifolia*). Herb cover, when present includes mostly graminoids and ferns as well as sedges. Epiphytes increase in frequency to the south along with other more subtropical shrubs such as wild coffee (FNAI, 2010).

Species composition is mainly influenced by flooding patterns. In saturated and frequently flooded environments, hydrophytic trees such as swamp tupelo (*Nyssa sylvatica* var. *biflora*) become more abundant. Frequency and depth of inundation have a pronounced effect on oak canopy composition as well, with saturated soils supporting more swamp laurel oak, and areas of infrequent flooding supporting more live oak. Increased salinity is a factor often limiting certain species. Rises in terrain as well as ecotones to mesic hammock and upland hardwood forest induce a greater cover of upland species, specifically southern magnolia and saw palmetto (FNAI, 2010).

Hydric hammock occurs on low, flat, wet sites where limestone may be near the surface and soil moisture is kept high mainly by rainfall accumulation on poorly drained soils. Periodic flooding from rivers, seepage, and spring discharge may also contribute to hydric conditions. Soils are variable, usually somewhat acidic to slightly alkaline with little organic matter, and in all cases, alkaline materials are available in the substrate. Hydric hammock is inundated only for short periods following heavy rains. The normal hydroperiod is seldom more than 60 days per year. Fire may be rare or occasional depending on several factors including how often the surrounding community burns and hammock size (FNAI, 2010).

Hydric hammock assemblages may be found adjacent to freshwater areas of PCAP, but only minimal acreage of these species is found within the aquatic preserve. Nevertheless, they may have considerable impacts, like supplying allochthonous material to the aquatic preserve.

Floodplain Marsh - Floodplain marsh is a wetland community occurring in river floodplains and dominated by herbaceous vegetation and/or shrubs. Sand cordgrass and sawgrass are common dominants, but various other herbs may be found distributed along a hydrologic gradient. Broadleaf emergents and floating plants occupy the deepest, most frequently flooded sites, and mixed herbaceous stands are found in the somewhat higher portions of the marsh. In wetter sites, coastalplain willow or

common buttonbush (*Cephalanthus occidentalis*) may form shrub thickets. The highest part of the marsh is often a drier, wet prairie-like zone with a large diversity of graminoids and forbs. While the progression from high to low marsh occurs generally from the upland edge to the river edge, these vegetation patches may also be scattered throughout the marsh, which provides a diversity of habitats beneficial to wildlife. Additional herbs can include tickseeds (*Coreopsis* spp.), fimbries (*Fimbristylis* spp.), flatsedges (*Cyperus* spp.), and marsh pennywort (*Hydrocotyle umbellata*). Other than occasional thickets, woody vegetation is generally sparse, although some marshes can be dominated by coastalplain willow, and/or wax myrtle (*Myrica cerifera*). Occasionally, cabbage palm and other flood tolerant trees are widely scattered in floodplain marsh, becoming more concentrated in the ecotone to adjacent hydric hammocks (FNAI, 2010).

Most floodplain marshes are freshwater (salinity less than 0.5 parts per thousand); however, saltwater may influence marshes near the mouths of rivers (freshwater tidal marsh variant) and in areas where there is upwelling groundwater that is partly saline. In these situations, dominant species are those tolerant of brackish conditions, particularly sawgrass, sand cordgrass, perennial glasswort (*Sarcocornia perennis*), seashore dropseed, and shoreline seapurslane (FNAI, 2010).

Floodplain marshes are found along rivers and streams from just below the headwaters to the freshwater portions of tidally influenced river mouths. They also occur in river overflow channels and lakes with both input and output of river flow. Floodplain approximately 120 to 350 days per year. Soils are typically sand or a thin to thick organic layer over sand and may be saturated for most of the year. Floodplain marsh may burn periodically depending on dominant vegetation (FNAI, 2010).

Floodplain marsh is common around some of the larger freshwater bodies of the PCAP, like Lake Tarpon and Lake Seminole. Its condition varies from relatively intact to highly impacted by shoreline development and by the introduction of invasive species. It also is found upstream in the Anclote River (PCAP). In addition to the native flora, nonnative species of a number of the genera, like *Utricularia*, have been observed by TBAP staff and volunteer botanists.

Floodplain Swamp - Floodplain swamp is a closed-canopy forest of hydrophytic trees occurring on frequently or permanently flooded hydric soils adjacent to stream and river channels and in depressions and oxbows within floodplains. Trees are often buttressed, and the understory and groundcover are sparse. The canopy is sometimes a pure stand of bald cypress (*Taxodium distichum*), but more commonly bald cypress shares dominance with tupelo. The “knees” arising from the root systems of both cypress and tupelo are common features in floodplain swamp. Other canopy trees capable of withstanding frequent inundation may be present but rarely dominant, including overcup oak (*Quercus lyrata*), red maple, and swamp laurel oak (*Q. laurifolia*). Pond cypress (*T. ascendens*) is sometimes present in backswamps and depressions of the more hydrologically isolated areas of the floodplain. Floodplain swamp can often occur within a complex mixture of communities including alluvial forest, bottomland forest, and baygall.

TBAP also manages a floodplain swamp adjacent to PCAP at Lake Tarpon.

This produces a variable assemblage of canopy and subcanopy species, with less flood tolerant trees and shrubs found on small hummocks and ridges within the swamp. Shrubs and smaller trees such as cabbage palm may be present. A groundcover of flood tolerant ferns and herbs are found in some floodplain swamps, including false nettle (*Boehmeria cylindrica*), royal fern (*Osmunda regalis* var. *spectabilis*), and string lily (*Crinum americanum*). Swamps with stagnant water typically have a mixture of floating aquatics such as duck weeds (*Lemna* spp.) and Florida mudmidget (*Wolffiella gladiata*). Eastern poison ivy (*Toxicodendron radicans*) is a frequent vine (FNAI, 2010).

Floodplain swamp is located within floodplains of any permanently moving stream or river. It ranges from narrow strips of cypress along primary and secondary streams to expansive stands along large rivers to tidally influenced freshwater swamps near river mouths. Often, floodplain swamps immediately border the stream or river channel. In many cases, however, floodplain swamps are isolated from the main channel by riverbank levees and restricted to oxbows, overflow channels, old stream beds, and expansive flats commonly called backswamps. Soils are variable mixtures of alluvial and organic materials, sometimes with layers of sand in the subsoil. Inundation is seasonal and usually prolonged, restricting the growth of most shrubs and herbs and leaving most of the ground surface open or thinly mantled with leaf litter (FNAI, 2010).

Floodplain swamp sometimes extends onto aquatic preserve areas of freshwater bodies like Lake Tarpon, Lake Seminole and some freshwater creeks, but more often it approaches the edge of the waterbodies and has considerable ecological effects, like contributing allochthonous material to those waterbodies. Much of the floodplain swamp adjacent to the aquatic preserves has been filled in, but relict tracts still exist and are generally in good condition.

Clastic Upland Lake - Clastic upland lakes are shallow to relatively deep, irregularly shaped depressions or basins occurring in uplands on clay substrates. They are lentic water bodies with surface inflows but often without significant outflows. Water is generally dissipated through evaporation and transpiration, but it may also disappear, especially during prolonged droughts, through sinks that connect with the aquifer (FNAI, 2010).

Vegetation varies substantially in clastic upland lakes. Some portions of the water's edge may be dominated by hydrophytic shrubs, such as common buttonbush, wax myrtle and eastern swampprivet (*Forestiera acuminata*). Other shorelines may be vegetated with sedges, grasses (Poaceae), and rushes (*Juncus* spp.); or they may be dominated by hydrophytic trees, such as bald cypress, laurel oak, red bay, sweetgum, red maple, and blackgum. Shallow water zones of clastic upland lakes are generally densely vegetated by concentric bands of emergent, floating, and submersed aquatics, including pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* spp.), and yellow waterlily (*Nymphaea mexicana*) (FNAI, 2010).

Typical animals include Florida gar (*Lepisosteus platyrhincus*), threadfin shad (*Dorosoma petenense*), golden shiner (*Notemigonus crysoleucas*), least killifish (*Heterandria formosa*), brook silverside (*Labidesthes sicculus*), American alligator (*Alligator mississippiensis*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), white ibis (*Eudocimus albus*) and belted kingfisher (*Megaceryle alcyon*) (FNAI, 2010).

Clastic upland lakes generally have clay and organic substrates. Their water is characteristically clear to colored, circumneutral to slightly acidic, and soft with a low mineral content (particularly sodium, chloride, and sulfate). Clastic upland lakes may be oligo-mesotrophic, with relatively low nutrient levels, to eutrophic, with very high nutrient levels, depending upon their geologic age and nutrient supplements from the surrounding uplands. Clastic upland lakes are important breeding areas for many terrestrial and semi-aquatic amphibians. They are frequently very important feeding and nesting areas for many wading birds, ducks, reptiles, and fish. Clastic upland lakes are vulnerable to hydrological manipulations which permanently lower the water levels and hasten successional processes, and those which prevent

periodic dry-downs and hasten eutrophication. They are also vulnerable to various activities in the surrounding uplands. Land clearing and timber harvests on the adjacent uplands generally increase sedimentation rates and, therefore, successional processes. Residential, agricultural, and industrial development within a lake's drainage basin generally increases pollution levels and accelerates eutrophication, which could be extremely detrimental to fish and other aquatic organisms. Human-related manipulations and activities within the drainage basin must be adequately controlled to avoid detrimental repercussions to these important communities (FNAI, 2010).

Some of the lakes and ponds in PCAP with state-owned bottomlands can be considered clastic upland lakes. Some that now are lined with clastic sediments originated as karst limestone sinkholes which became inactive and accumulated clastic sediments over time. Shoreline development, eutrophication from lawn nutrients and pesticides, and buildups of fine sediments have negatively affected the habitat value of many of these waterbodies.

Blackwater Stream - Blackwater Streams are perennial or intermittent seasonal watercourses originating deep in sandy lowlands where extensive wetlands with organic soils function as reservoirs, collecting rainfall and discharging it slowly to the stream. The tea-colored waters of Blackwater Streams are laden with tannins, particulates, and dissolved organic matter and iron derived from drainage through swamps and marshes. They generally are acidic (pH = 4.0 - 6.0), but may become circumneutral or slightly alkaline during low-flow stages when influenced by alkaline groundwater. Water temperatures may fluctuate substantially and are generally correlated with seasonal fluctuations in air temperature. The dark- colored water reduces light penetration and, thus, inhibits photosynthesis and the growth of submerged aquatic plants. Emergent and floating aquatic vegetation may occur along shallower and slower moving sections, but their presence is often reduced because of typically steep banks and considerable seasonal fluctuations in water level. Typical plants include goldenclub (*Orontium aquaticum*), smartweed (*Polygonum* spp.), sedges, and grasses. Typical animals include longnose gar (*Lepisosteus osseus*), gizzard shad (*Dorosoma cepedianum*), threadfin shad, redfin pickerel (*Esox americanus americanus*), ironcolor shiner (*Notropis chalybaeus*), channel catfish (*Ictalurus punctatus*), banded topminnow (*Fundulus cingulatus*), western mosquitofish (*Gambusia affinis*), redear sunfish (*Lepomis microlophus*), river frog (*Rana heckscheri*), American alligator, common snapping turtle (*Chelydra serpentina*), river cooter (*Pseudemys concinna*), Florida cooter (*P. floridana*), peninsula cooter (*P. peninsularis*), common musk turtle (*Sternotherus odoratus*), Florida banded water snake (*Nerodia fasciata pictiventris*).

Aquatic Cave - Aquatic caves are characterized as underwater cavities below the surface of the ground in karst areas of the state. The limestone aquifers that underlie all of Florida could be considered vast aquatic cave communities. Troglobites (also called phreatobites) are organisms specially evolved to survive in deep cave habitats. The occasional observation of various species of troglobites in deep water wells from several regions in the state suggests that this community could be widespread. However, the dependence of troglobites on detrital inputs and other nutrients imported from the surface generally limits the distribution of well-developed aquatic cave communities to karst areas with surface connections (FNAI, 2010).

Animals inhabiting subterranean natural communities are generally divided into three groups according to their cave adaptations, but only troglobites are likely to be found in the underwater caves of PCAP. Troglobites are obligatory cave dwellers with special adaptations for living in complete darkness. Cave crayfish (*Procambarus* spp.), cave amphipods (*Crangonyx* sp.), and cave isopods (*Caecidotea* sp.) are typical troglobites in Florida's aquatic caves.

Even though they never leave their cave environments, troglobites depend on outside energy sources, such as detritus that washes in through sinkholes and other cave entrances. Without these energy subsidies, the troglobitic elements could not exist (FNAI, 2010).

Two geologic processes are predominantly responsible for the development of caves: phreatic and vadose. Phreatic processes occur below the aquifer's surface where ground water is confined and subjected to hydrostatic pressure. Vadose processes occur at the top of or above the aquifer, where air enters the passageways and water flows freely under the influence of gravity. In both processes, the dissolution and corrosion of limestone play active roles in enlarging cave passageways. These forces differ primarily in the slopes of the passageways which result. Phreatic passageways are generally circular or elliptic, while vadose passageways are more triangular with the broad base of the triangle at the bottom. All limestone caves begin development under phreatic conditions in the aquifer. As water tables drop, vadose conditions eventually replace phreatic conditions. If the water table then rises, another reversal of processes occurs. Because water tables have fluctuated substantially with fluctuating sea levels during the Pleistocene and other geologic epochs, most caves in Florida exhibit both phreatic and vadose characteristics (FNAI, 2010).

Subterranean natural communities are extremely fragile. Their faunas are adapted to very stable environments and have a limited ability to survive even minor environmental perturbations (FNAI, 2010). Alterations in or around cave entrances will often upset detrital input levels and may also induce significant changes in air circulation patterns and the cave microclimate. Aquatic caves are threatened by pollution of ground and surface waters from agricultural, industrial, and residential sources, as well as by disturbances from divers. The unique troglobitic species generally have very low population levels and can be severely impacted by overcollection or by changes in nutrient input levels that result from surface manipulations or hydrological alterations. Thus, special precautions and management procedures must be invoked to protect these unique, fragile communities from deleterious activities (FNAI, 2010).

The hydrodynamics of caves in Pinellas County appear to be influenced by such factors as rainfall, tidal height and connections to the aquifer. While some caves exhibit considerable freshwater outflow, others appear to be tidal, with outflow at low tide or with local rainfall and suctioning at higher tides and with lower rainfall input. There is still much to learn about the connectivity and dynamics of the area's caves.

Because Pinellas County sits on a karst landscape, subterranean and subaqueous caves are common. Only a few are known to open into the waters of aquatic preserves. The best-known cave opens off Crystal Beach and is known as a "boiling spring" on nautical charts. It has been explored for more than a mile under the shore, and it hosts cave crayfish in its freshwater areas. TBAP staff have observed another area of considerable spring flow into the aquatic preserve farther to the north in St. Joseph Sound, but there is not much information on the cave, as it is likely not easily accessible to cave divers. Another well-known cave system in the area opens into St. Joseph Sound just north of Howard Park. A cave system also runs from Tarpon Springs to Lake Tarpon, but the Lake Tarpon end is isolated from the lake by a manmade dike. Due to the limited accessibility of these aquatic caves, little is known about the condition of this natural community.

Finally, these caves may also contain invaluable archaeological materials associated with pre-Columbian populations that lived in the region. Prehistoric populations made use of caves for a myriad of reasons including shelter, art, burial, butchering, etc. Artifacts may be associated with these uses and be well preserved in the caves. This potential is not limited to terrestrial caves. Caves that are currently underwater may have been dry prior to 5,000 years ago, thousands of years after populations entered the PCAP and BCBAP region. In this case, artifacts may be well preserved in ideal underwater conditions.

Consolidated Substrate - Marine and estuarine consolidated substrates are mineral-based natural communities generally characterized as expansive, relatively open areas of subtidal, intertidal, and supratidal zones which lack dense populations of sessile plant and animal species. Consolidated substrates are solidified rock or shell conglomerates and include coquina, limerock or relic reef materials. These communities may be sparsely inhabited by sessile, planktonic, epifaunal, and pelagic

plants and animals but house few infaunal organisms (i.e., animals living within the substrate). The three kinds of consolidated substrate communities occurring in Florida are of limited distribution. Coquina, which is a limestone composed of broken shells, corals and other organic debris, occurs primarily along the east coast, in marine areas in the vicinity of St. Johns and Flagler counties (FNAI, 2010).

Limerock substrates occur as outcrops of bedded sedimentary deposits consisting primarily of calcium carbonate. This consolidated substrate is more widespread than coquina substrate and can be found in a patchy distribution under both marine and estuarine conditions from north Florida to the lower-most Keys in Monroe County. Relic reefs, the skeletal remains of formerly living reefs, are more limited in distribution than limerock outcrops but more common than coquina substrate (FNAI, 2010).

Consolidated substrates are important in that they form the foundation for the development of other marine and estuarine natural communities when conditions become appropriate. Consolidated substrate communities are easily destroyed through siltation or placement of fill, and deliberate removal by actions such as blasting or nondeliberate destruction by forces such as vehicular traffic.

Another type of disturbance involves the accumulation of toxic levels of heavy metals, oils, and pesticides in consolidated substrates. Significant amounts of these components in the sediments will kill the infauna, thereby eliminating a food source for certain fishes, birds and other organisms. A film of pollutants engulfing consolidated substrates can render these areas unsuitable for colonization by marine and estuarine flora and fauna. Such problems occur in some of the major port cities, in areas where there is heavy industrial development, and along major shipping channels where oil spills are likely to occur (FNAI, 2010).

Natural outcrops of consolidated substrate are commonplace in the offshore Gulf of Mexico part of PCAP. Overall the vertical relief of these features appears to increase northward in the aquatic preserve. Considerable natural low-relief hardbottom patches have been discovered east of Pinellas County in Tampa Bay. Neither the offshore hardbottom nor the Tampa Bay hardbottom in PCAP waters has been mapped comprehensively, and as a result, little is known about the condition of this natural community However, several projects are attempting to map limited footprints within these areas. Most species data for these hardbottom communities has come from mapping done for proposed linear features, and some offshore surveys have been done in the search for sand borrow areas (Dial Cordy and Associates, Inc., 2003). Within St. Joseph Sound, most hardbottom is seen on the limestone rubble around manmade dredged material islands. A variety of macroalgae, molluscs, sponges, the colorful sea whip (*Leptogorgia virgulata*), and at least three species of hard corals, belonging to the genera *Siderastrea, Occulina and Phyllangia*, have been observed on these subtidal island perimeters.

Unconsolidated Substrate - Marine and estuarine unconsolidated substrates are mineral based natural communities generally characterized as expansive, relatively open areas of subtidal, intertidal, and supratidal zones which lack dense populations of sessile plant and animal species. Unconsolidated substrates are unsolidified material and include coralgal, marl, mud, mud/sand, sand or shell. This community may support a large population of infaunal organisms as well as a variety of transient planktonic and pelagic organisms (e.g., tube worms, sand dollar, mollusks, isopods, amphipods, burrowing shrimp, and an assortment of crabs) (FNAI, 2010).

In general, marine and estuarine unconsolidated substrate communities are the most widespread communities in the world. However, unconsolidated substrates vary greatly throughout Florida, based on surrounding parent material. Unconsolidated sediments can originate from organic sources, such as decaying plant tissues (e.g., mud) or from calcium carbonate depositions of plants or animals (e.g., coralgal, marl and shell substrates). Marl and coralgal substrates are primarily restricted to the southern portion of the state. The remaining four kinds of unconsolidated substrate (mud, mud/sand, sand, and shell) are found throughout the coastal areas of Florida. The type most frequently found in PCAP and BCBAP is sand with pockets of silt or clay. While these areas may seem relatively barren, the densities of

infaunal organisms in subtidal zones can reach the tens of thousands per meter square, making these areas important feeding grounds for many bottom feeding fish, such as red drum (*Sciaenops ocellatus*), southern flounder (*Paralichthys lethostigma*), spot (*Leiostomus xanthurus*), and sheepshead (*Archosargus probatocephalus*). The intertidal and supratidal zones are extremely important feeding grounds for many shorebirds and invertebrates (FNAI, 2010).

Unconsolidated substrates are important in that they form the foundation for the development of other marine and estuarine natural communities when conditions become appropriate. Unconsolidated substrate communities are associated with and often grade into beach dunes, salt marshes, mangrove swamps, seagrass beds, coral reefs, mollusk reefs, worm reefs, octocoral beds, sponge beds, and algal beds (FNAI, 2010).

Unconsolidated substrate communities which are composed chiefly of sand (e.g., sand beaches) are the most important recreational areas in Florida, attracting millions of residents and tourists annually. This community is resilient and may recover from recreational disturbances. However, this community is vulnerable to compaction associated with vehicular traffic on beaches and disturbances from dredging activities and low dissolved oxygen levels, all of which can cause infaunal organisms to be destroyed or to migrate out of the area. Generally, these areas are easily recolonized either by the same organisms or a series of organisms which eventually results in the community returning to its original state once the disturbance has ceased. In extreme examples, such as significant alterations of elevation, there is potential for serious long-term impacts from this type of disturbance (FNAI, 2010).

Another type of disturbance involves the accumulation of toxic levels of heavy metals, oils, and pesticides within unconsolidated substrates. Significant amounts of these compounds in the sediments will kill the infaunal organisms, thereby eliminating a food source for certain fishes, birds, and other organisms. Such problems occur in some of the major port cities, in areas where there is heavy industrial development, and along major shipping channels where oil spills are likely to occur (FNAI, 2010).

Unconsolidated substrate, primarily sand with some pockets of silt and clay, is found throughout the CPAP and BCBAP. While there are large areas in which unconsolidated substrates do not appear to have been altered by human activity, dredge and fill activities, largely done prior to the aquatic preserve designations, have produced persistent changes in depth and sediment bulk properties (grain size distribution, porosity, and permeability) in many areas. Beach renourishment continues to alter topography and sediment bulk properties within the longshore transport system of the Gulf island beaches. In some more limited areas, alterations from events like directional drilling frac-outs have dramatically altered sediment bulk properties. Offshore surveys have indicated that unconsolidated substrate often alternates with consolidated substrate as one moves offshore. In shallow water, unconsolidated substrate often is vegetated with seagrass. Several past proposals to mine offshore sand pockets for beach renourishment have been discouraged, because these sand patches are an integral part of the ecological landscape. In a few cases, dredging of ebb-tide shoals has been permitted as a sand source.

Due to the importance of unconsolidated substrate for many marine organisms and other natural communities, it is necessary to monitor the health and trends within the communities as human disturbances continue. To assess the current state of these communities in the Tampa Bay region, Pinellas County has an ongoing Environmental Monitoring and Assessment Program which analyzes water, sediment and benthic macroinvertebrates. The county's most recent report covers a twenty-five-year trend from 1993-2017, indicating that the benthic communities in the region are improving (Karlen et al., 2020).

Mollusk Reef - Marine and estuarine mollusk reefs are faunal-based natural communities typically characterized as expansive concentrations of sessile mollusks occurring in intertidal and subtidal zones to a depth of 40 feet. In Florida, the most developed mollusk reefs are generally restricted to estuarine

areas and are dominated by the Eastern oyster (*Crassostrea virginica*). Numerous other sessile and benthic invertebrates live among, attached to, or within the collage of mollusk shells. Most common are burrowing sponge, anemones, mussels, clams, lightning whelk (*Sinistrofulgur perversum*), polychaetes, oyster leech (*Stylochus* sp.), barnacles, blue crab (*Callinectes sapidus*), mud crab, stone crab (*Menippe mercenaria*), amphipods, and starfish. Several fish also frequently occur near or feed among mollusk reefs, including cownose ray (*Rhinoptera bonasus*), gulf menhaden (*Brevoortia patronus*), gafftopsail catfish (*Bagre marinus*), pinfish (*Lagodon rhomboides*), spotted seatrout (*Cynoscion nebulosus*), and striped mullet (*Mugil cephalus*). Mollusk reefs that are exposed during low tides are frequented by a multitude of shorebirds, wading birds, raccoons (*Procyon lotor*), and other vertebrates (FNAI, 2010).

Reef-building mollusks require a hard (consolidated) substrate on which the planktonic larvae (i.e., spat) settle and complete development. The spat dies if it settles on soft (unconsolidated) substrates, such as mud, sand or grass. Hard substrates include rocks, limestone, wood and other mollusk shells. Hard substrates are often limited in estuarine natural communities because of the large amounts of silt, sands and muds that are deposited around river mouths. Once established, however, mollusk reefs can generally persist and often expand by building upon themselves (FNAI, 2010).

The most common kind of mollusk reef, oyster reefs, occur in water salinities from just above fresh water to just below full-strength sea water, but develop most frequently in estuarine water with salinities between 15 and 30 parts per thousand. Their absence in marine water is largely attributed to the many predators, parasites, and diseases of oysters that occur in higher salinities. Prolonged exposure to low salinities (less than two parts per thousand) is also known to be responsible for massive mortality of oyster reefs. Thus, significant increases or decreases in salinity levels through natural or unnatural alterations of freshwater inflow can be detrimental to oyster reef communities (FNAI, 2010).

Mollusk reefs occupy a unique position among estuarine invertebrates and have been an important human food source since prehistoric times. They present a dynamic community of estuarine ecology, forming refugia, nursery grounds, and feeding areas for a myriad of other estuarine organisms (FNAI, 2010).

The major threats to mollusk reefs continue to be pollution and substrate degradation. Mollusks are filter feeders, and individuals of some species can filter up to 100 gallons of water a day. In addition to filtering food, they also filter and accumulate toxins from polluted waters. Sources of these pollutants can be from considerably distant areas but are often more damaging when nearby. Substrate degradation occurs when silts, sludge and dredge spoils cover and bury mollusk reefs. Declining oyster and other mollusk reef populations can be expected in coastal waters that are being dredged or are receiving chemicals mixed with rainwater flowing off the land, or from drainage of untreated residential or industrial sewage systems (FNAI, 2010).

No comprehensive oyster reef map is available for the aquatic preserves, but most estuarine basins in BCBAP and PCAP have oyster reefs in some areas, with distributions largely dependent on local salinities. Especially on the western side of the peninsula, considerable oyster acreage can be found in Boca Ciega Bay, Long Bayou, and Cross Bayou. Sizeable oyster reef structures can also be found adjacent to some of the dredged material islands in St. Joseph Sound. Many of these reefs appear to be healthy, with a diverse assemblage of associated fauna.

Octocoral Bed - Marine and estuarine octocoral beds are soft faunal-based natural communities characterized as large populations of sessile invertebrates of the Class Anthozoa, Subclass Octocorallia, Orders Gorgonacea and Pennatulacea. The dominant animal species are soft corals such as gorgonians, sea fans (Gorgonacea), sea feathers and sea plumes (*Pseudopterogorgia* spp.), sea fingers (*Briareum asbetinum*), sea pansies (*Renilla* spp.), sea rods (*Plexaura* spp.), and sea whips (*Leptogorgia* spp.). This community is confined to the subtidal zone since the sessile organisms are highly susceptible to desiccation. Other sessile animals typically occurring in association with these soft corals are sea

anemones (Actiniaria). An assortment of non-sessile benthic and pelagic invertebrates and vertebrates [e.g., sponges, mollusks, tube worms, burrowing shrimp, crabs, isopods, amphipods, sand dollars, and fishes] are associated with octocoral beds. Sessile and drift algae can also be found scattered throughout octocoral beds (FNAI, 2010).

Octocoral beds require hard bottom (consolidated) substrate (i.e., coquina, limerock, relic reefs) on which to anchor. Hard bottom substrate occurs sparsely throughout Florida in marine and estuarine areas however, and soft corals prefer the warmer waters of the southern portion of the state, severely limiting their distribution. Octocoral beds may grade into other marine and estuarine hard bottom subtidal, intertidal, and supratidal communities, as well as soft bottom communities (FNAI, 2010).

Management considerations should include locating all true octocoral beds within the state, thought to be more prevalent off the Southeast coast, and providing protection for them from external degradation. Primary threats to octocoral beds include siltation from beach “nourishment” or “restoration” projects, anchor damage by nautical craft, trawling by commercial fishermen, collecting for tourist-oriented trade, and water pollution, particularly oil spills (FNAI, 2010).

While there are considerable numbers of the colorful sea whip on rocky areas near the dredged material islands of St. Joseph Sound, more diverse octocoral assemblages are more likely to be found in the offshore Gulf of Mexico area of the PCAP. Some areas of hardbottom have already been identified along the Gulf Coast beaches during beach nourishment project surveys, but offshore areas still need further investigation (Craft, Suthard, & Kruempel, 2007). As various hardbottom mapping projects are completed, it is hoped that octocoral beds will also be mapped, and information obtained about their condition.

Sponge Bed - Marine and estuarine sponge beds are soft faunal based natural communities characterized as dense populations of sessile invertebrates of the phylum Porifera, Class Demospongiae. The dominant animal species are sponges such as branching candle sponge (*Verongia longissima*), Florida loggerhead sponge (*Spheciospongia vesparium*) and sheepswool sponge (*Hippiospongia lachne*). Although concentrations of living sponges can occur in marine and estuarine intertidal zones, sponge beds are confined primarily to subtidal zones. Other sessile animals typically occurring in association with these sponges are stony corals (Scleractinia), sea anemones, mollusks, tube worms, isopods, amphipods, burrowing shrimp, crabs, sand dollars (*Mellita tenuis*), and fishes. Sessile and drift algae can also be found scattered throughout sponge beds (FNAI, 2010).

Sponge beds require hardbottom (consolidated) substrate (i.e., coquina, limerock, relic reefs) on which to anchor. Hardbottom substrate occurs sparsely throughout Florida in marine and estuarine areas however, and sponges prefer the warmer waters of the southern portion of the state, significantly limiting their distribution. Sponge beds may grade into other marine and estuarine hardbottom subtidal, intertidal and supratidal communities as well as soft bottom communities (FNAI, 2010).

Tarpon Springs is known for the sponge industry that once thrived on local sponge beds. While there are a number of sponge species within St. Joseph Sound wherever suitable unconsolidated substrate offers attachment, more extensive sponge beds are found in the offshore Gulf of Mexico part of the PCAP. Data specific to sponge bed health is lacking, but past water quality issues likely affected these filter feeding communities and “sponge blight” diseases are part of the history of the sponge industry. Monitoring of these communities could provide valuable insights into the health of the overall ecosystem.

Algal Bed - Marine and estuarine algal beds are floral based natural communities characterized as large populations of nondrift macro or micro algae. The dominant plant species include star algae *Caulerpa*, *Cladophora*, *Dictyota*, *Gracilaria*, *Halimeda*, shaving brush (*Penicillus capitatus*), and *Sargassum*. This community may occur in subtidal, intertidal, and supratidal zones on soft and hard bottom substrates. Vascular plants (e.g., seagrasses) may occur in algal beds associated with soft bottoms. Sessile animals

associated with algal beds will vary based on bottom type. For algal beds associated with hard bottom substrate (lithophytic), faunal populations will be similar to populations associated with octocoral beds and sponge beds. Those associated with soft bottom substrate (psammophytic) may have similar benthic and pelagic species in addition to infauna species (FNAI, 2010).

Lithophytic algal beds are thought to be less widespread within Florida than psammophytic algal beds. The precise distribution of both kinds is not known; however, the distribution is thought to be less than for seagrass beds. The location of major beds must be determined before this natural community can be managed adequately. Existing state dredge and fill laws provide specific protection for seagrass beds but not for algal beds. The correction of this deficiency could prove to be the most effective management tool available (FNAI, 2010).

The primary threats to algal beds are dredging and filling activities which physically remove or bury the beds. Other damage occurs from increased turbidity in the water column which reduces available light; pollution, particularly from oil spills; and damage from boats (FNAI, 2010).

Diverse algal taxa, including *Halimeda*, *Penicillium*, *Padina* and others can be found on underwater rocky substrates in St. Joseph Sound. Dozens of algal species can be found on areas just offshore in the Gulf, but little is known about the full coverage or condition of this natural community within PCAP.

Seagrass Bed - Marine and estuarine seagrass beds are floral based natural communities typically characterized as expansive stands of vascular plants. This community occurs in subtidal (rarely intertidal) zones, in clear, coastal waters where wave energy is moderate. Seagrasses are not true grasses. The three most common species of seagrasses in Florida are turtle grass (*Thalassia testudinum*), manatee grass (*Syringodium filiforme*), and shoal grass (*Halodule wrightii*). Nearly pure stands of any one of these species can occur, but mixed stands are also common (FNAI, 2010).

Attached to the seagrass leaf blades are numerous species of epiphytic algae and invertebrates. Together, seagrasses and their epiphytes serve as important food sources for manatees (*Manatus trichcechus latirostris*), marine turtles, and many fish, including spotted seatrout, spot, sheepshead, and red drum. The dense seagrasses also serve as shelter or nursery grounds for many invertebrates and fish, including marine snails, clams, scallops, polychaete worms, blue crab, starfish, sea urchins, tarpon (*Megalops atlanticus*), bonefish (*Albula vulpes*), seahorses (*Hippocampus* spp.), Florida pompano (*Trachinotus carolinus*), permit (*Trachinotus falcatus*), striped mullet, great barracuda (*Sphyraena barracuda*), and long-horned cowfish (*Lactoria cornuta*) (FNAI, 2010).

Seagrass beds occur most frequently on unconsolidated substrates of marl, muck or sand, although they may also occur on other unconsolidated substrates. The dense blanket of leaf blades reduces the wave-energy on the bottom and promotes settling of suspended particulates. The settled particles become stabilized by the dense roots and rhizomes of the seagrasses. Thus, seagrass beds are generally areas of soil accumulation (FNAI, 2010).

Other factors affecting the establishment and growth of seagrass beds include water temperature, salinity, wave energy, tidal activity, and available light. Generally, seagrasses are found in waters with temperatures ranging between 20° and 30°C (68°-86°F). Seagrasses occur most frequently in areas with moderate current velocities, as opposed to either low or high velocities. Although seagrass beds are most commonly submerged in shallow subtidal zones, they may be exposed for brief periods of time during extreme low tides. One of the more important factors influencing seagrass communities is the water clarity. In general, the water must be fairly clear because turbidity blocks essential light necessary for photosynthesis. The rapid growth rate of seagrass under optimum conditions rivals that of most intensive agricultural practices, without energy input from humans.

Seagrass beds are extremely vulnerable to human impacts. Many have been destroyed through dredging and filling activities or have been damaged by sewage outfalls and industrial wastes. In these

instances, the seagrass beds are either physically destroyed, or succumb as a result of decreased solar radiation resulting from increased water turbidity (FNAI, 2010).

Seagrass beds are also highly vulnerable to oil spills. Low concentrations of oil are known to greatly reduce the ability of seagrasses to photosynthesize. Extreme high temperatures also have adverse impacts on seagrass beds. The area surrounding power plant outfalls, where water temperatures may exceed 35°C (95°F), has been found to be lethal to seagrasses. Seagrass beds are susceptible to long term scarring cuts from boat propellers, anchors and trawls. Such gouges may require many years to become revegetated. When protected from disturbances, seagrasses have the ability to regenerate and recolonize areas. Additionally, some successful replantings of seagrass beds have been conducted. However, the best management is to preserve and protect seagrass beds in their natural state (FNAI, 2010).

Seagrass habitat is generally abundant both in Tampa Bay and on the west side of the Pinellas Peninsula. Bi-annual mapping conducted by the Southwest Florida Water Management District shows fluctuations by year and specific region. There were recent acreage increases from the latest mapping effort in 2024, but it is still below the baywide target of 40,000 acres (Explore the Bay, 2025). Despite the extensive acreage of seagrass, the cumulative effects of chronic prop scarring likely cause an important reduction of the ecosystem services provided by the grassbeds. There appears to have been a disappearance of seagrass beds in the northern offshore part of St. Joseph Sound, but other areas of the sound, Clearwater Harbor and Boca Ciega Bay have seen increases in seagrass acreage. The Shell Key Preserve and the waters protected by Mullet Key at Fort De Soto also have extensive seagrass beds.

Salt Marsh - Salt marsh is a largely herbaceous community that occurs in the portion of the coastal zone affected by tides and seawater and protected from large waves, either by the broad, gently sloping topography of the shore, by a barrier island, or by location along a bay or estuary. The width of the intertidal zone depends on the slope of the shore and the tidal range. Salt marsh may have distinct zones of vegetation, each dominated by a single species of grass or rush. Saltmarsh cordgrass (*Sporoborus alterniflorus*) dominates the seaward edge and borders of tidal creeks, areas most frequently inundated by the tides. Needle rush dominates higher, less frequently flooded areas. Other characteristic species include Carolina sea lavender (*Limonium carolinianum*), marsh fimbry, and shoreline seapurslane. The landward edge of the marsh is influenced by freshwater influx from the uplands and may be colonized by a mixture of high marsh and inland species, including needle rush, sawgrass, saltmeadow cordgrass, Gulf cordgrass (*S. spartinae*), and sand cordgrass, among others. A border of salt-tolerant shrubs, such as saltbush, marshelder (*Iva frutescens*), and christmasberry (*Lycium carolinianum*), often marks the transition to upland vegetation or low berms along the seaward marsh edge (FNAI, 2010).

Salt marsh soils range from deep mucks with high clay and organic content in the deeper portions to silts and fine sands in shallower areas. The organic soils have a high salinity, neutral reaction, and high sulfur content; soil properties of salt flats on higher portions of the marsh are little studied (FNAI, 2010).

Persistent salt marsh is scarce in the aquatic preserves, as it is in Tampa Bay, in general. This likely is due to a warmer climate in recent years that has been conducive to overgrowth of cordgrass by mangroves (Rabbe, Roy & McIvor, 2012). Cordgrass does recruit in some areas after a disturbance, and stands of cordgrass persist along some shores in St. Joseph Sound, which is toward the northern extent of the range of red mangroves. Salt marsh also can be found in the upper parts of Old Tampa Bay in areas like Mobbly Bayou. Remaining salt marsh is highly fragmented by development, but the plants often appear healthy within remaining patches.

Previously, this beautiful high marsh habitat was full of invasive non-native plants. Only a few stumps remain.

Mangrove Swamp - Mangrove swamp is a dense forest occurring along relatively flat, low wave energy, marine and estuarine shorelines. The dominant plants of mangrove swamp are red mangrove, black mangrove, white mangrove, and buttonwood. These four species can occur either in mixed stands or often in differentiated, monospecific zones that reflect varying degrees of tidal influence, levels of salinity, and types of substrate. Red mangrove often dominates the lowest (or deep-water) zone, followed by black mangrove in the intermediate zone, and white mangrove and buttonwood in the highest, least tidally-influenced zone. Buttonwood often occupies an ecotone, or transition zone, to the adjacent upland community (FNAI, 2010).

The density and height of mangroves and the diversity of associated herbaceous species can vary considerably within a mangrove swamp. Mangroves typically occur in dense stands but may be sparse, particularly in upper tidal reaches where salt marsh species predominate. Mangroves may range from trees more than 80 feet (25 m) tall to dwarf shrubs growing on solid limestone rock, but most commonly exist at intermediate heights of 10 to 20 feet tall (3 to 7 m). Mangrove swamps often exist with no understory, although shrubs such as seaside oxeye, vines including nickerbean, and herbaceous species such as saltwort (*Batis maritima*) and perennial glasswort, occur most commonly in openings and along swamp edges (FNAI, 2010).

Mangrove swamp occurs in flat coastal areas along saline or brackish portions of rivers, the edges of low-energy estuaries, and the seaward fringes of salt marshes and rockland hammocks. Soils are generally anaerobic and are saturated with brackish water at all times, becoming inundated during high tides. Mangrove swamp occurs on a wide variety of soils, ranging from sands and mud to solid limestone rock. Soils in South Florida are primarily calcareous marl muds or calcareous sands and, along the Central Florida coastline, siliceous sands. In older mangrove swamps containing red

mangroves, a layer of peat can build up from decaying plant material (mostly red and black mangrove roots), covering the soil (FNAI, 2010).

Mangroves do especially well farther south in TBAP, but even the more cold-sensitive red mangroves can be found into the northern part of the peninsula. Distribution of mangrove stands in Pinellas County likely is more related to patterns of development than it is to natural patterns of recruitment and persistence. Although the aquatic preserves are highly-urbanized, this natural community is in good health where it persists.

Native Species

The species listed in Appendix B3 include more than 150 species of plants, more than 1100 species of invertebrates, nearly 200 species of fishes and more than 250 species of birds. Even though TBAP has tried to limit the list to species closely associated with the aquatic preserves, this list is by no means comprehensive. The list is biased toward marine and estuarine databases, and it certainly underrepresents the flora and fauna associated with freshwater areas of PCAP. In addition, as has been pointed out in other parts of this plan, and by Ash and Runnels (2004), the biota of hardbottom in the Tampa Bay area are poorly understood. Hundreds, if not thousands, of additional species could likely be added if extensive surveys of hardbottom epifauna and endolithic fauna were conducted.

Tube-dwelling anemones are beautiful inhabitants of shallow waters in the aquatic preserve.

Listed Species

According to data from the Audubon Society's monitoring program, PCAP and BCBAP host at least 17 imperiled bird species (National Audubon Society, n.d.). While much of the original habitat of these species has been lost or altered, islands and pockets of habitat on the mainland still offer some nesting, loafing and foraging opportunities. A rookery island in St. Joseph Sound is especially productive for colonial waterbird nesting, and there are some smaller island rookeries scattered throughout the PCAP and BCBAP. Ground nesting species often nest on rooftops, as many of the natural islands they historically depended on have been developed. Ground nesting still occurs on barrier islands, including Anclote Key, Three Rooker Bar, the Honeymoon Island sand spit and Shell Key. Human disturbance will likely inhibit nesting success as islands accrete toward the mainland and become more accessible to predators like raccoons.

At least seven species of endangered or threatened reptiles, including four species of sea turtles, may be found within the preserves. The American alligator is abundant in freshwater parts of PCAP, and at least one occurrence of the American crocodile (*Crocodylus acutus*) has been documented in Lake Tarpon.

At least one endangered fish species, the Atlantic sturgeon (*Acipenser oxyrinchus*) can be found in the coastal waters of the aquatic preserves.

The area's most well-known threatened species, the West Indian manatee, is spotted fairly often in warmer weather, and can be found in larger aggregations near warm power plant cooling water outflows in the winter months. Manatees sometimes are seen hanging around in marinas, presumably attracted by freshwater discharges.

Invasive Non-native and/or Problem Species

Florida is second only to Hawaii in the number of established invasive species (Simberloff, 1994). An invasion of a non-native species has been classified as “the second most important threat to native species, behind habitat destruction” (Ecological Society of America, 2004). Introductions of non-native marine invertebrates and seaweeds to coastal habitats in the United States have increased one hundred-fold in the last 200 years (Jacoby, Walters, Baker, & Blyler, 2003).

By virtue of their geographic position, which spans a climatic gradient, BCBAP and PCAP host a variety of nonnative species, and some of these have proven to be invasive to the extent that they upset native ecological communities and ecosystems. For instance, the Asian green mussel (*Perna viridis*) is well-established within Tampa Bay, and it may form dense mats that preempt native hard substrate species. It does not appear to be as much of a problem on the western side of the Pinellas Peninsula, where salinities or other physical parameters may not be as suitable. Another example is the red lionfish (*Pterois volitans*) which is a concern offshore, but it does not appear to frequent nearshore waters or habitats within the bay. Many more examples can be found in a 2004 report published by the Tampa Bay Estuary Program on known nonnative species in the Tampa Bay area, including a list of other likely nonnative future recruits (Baker, Baker, & Fajans, 2004).

As with conservation areas on the mainland and on islands of the state parks, nonnative plants are the most prominent invasives in PCAP and BCBAP. Species that displace natives on a large scale include Brazilian pepper (*Schinus terebinthifolia*), Australian pine (*Casuarina* sp.), and, more recently, carrotwood (*Cupaniopsis anacardioides*). Guinea grass (*Panicum maximum*) also competes with native plants on islands, but it typically grows in island restoration areas where developing tree canopy does not yet outcompete it for sunlight.

Archaeological and Historical Resources

Historic resources, including archaeological sites, historic structures, and shipwrecks, are protected under Chapter 267, F.S., and are not to be disturbed unless prior permission is granted from the Division of Historical Resources. Additionally, human remains and unmarked burials are protected under Chapter 872, F.S. Disturbing or moving human remains without permission is a felony under Florida Statute. The Florida Division of Historical Resources has documented evidence for people within or adjacent to the aquatic preserve boundaries as early as ~10,000 B.C. The evidence for people in the region is extensive and is continuous through the historic period.

In total, 187 archaeological sites and historic resources are documented by Florida Department of State’s Division of Historical Resources as within or adjacent to PCAP and BCBAP. These sites include prehistoric camps, settlements, villages, shell middens, mounds, and burial sites, and total 4,902 acres. Historic resources include ships, a shipwreck, roads, earthworks, forts, structures, camps, and other resources. Additionally, 41 historic bridges, and 901 historic buildings are associated with the aquatic preserve and its boundaries. The list of cultural resources associated with the preserves precludes an exhaustive description here; however, a select number of exceptional resources are described to illustrate the important resources in the region.

Weeden Island (Site PI00001): The first Pinellas County site listed in the Florida Master Site File, Weeden Island is on the National Register of Historic places and is the type site for the Weeden Island culture. This culture dominated the period from 200-900 A.D. across much of north and central Florida. The Weeden Island site, however, has a much more extensive archaeological record. Evidence for human occupation on the site extends into the Archaic period, perhaps as far back as 8,500 B.C. Later materials include Manasota, Weeden Island, Swift Creek, and Safety Harbor ceramics, faunal remains, shell, and other associated artifacts. This site also contains habitation mounds and burial mounds. Additionally, historic period earthworks, refuse, and a homestead are associated with the site. It was originally

excavated in 1924 and has been repeatedly investigated, monitored, and otherwise studied since that time. The entire site area is encompassed by the Weedon Island Preserve save a small area of land to the northeast and a road running through the site.

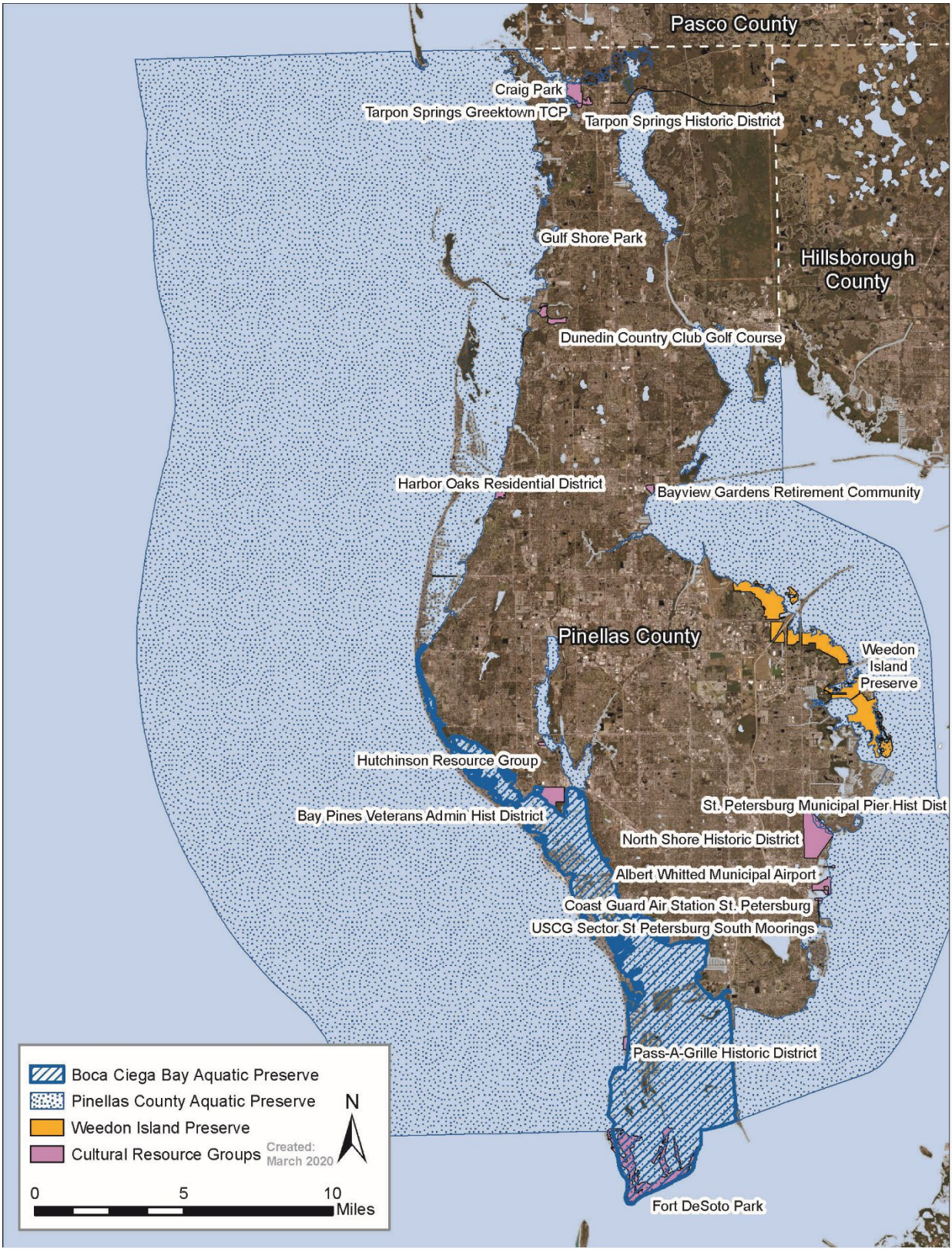
Safety Harbor (Site PI00002): The second Pinellas County site listed on the Florida Master Site File, Safety Harbor is a National Historic Landmark listed in 1966. It is the type site for the Safety Harbor culture, first excavated in 1929. The site was revisited in 1949 and has been subject to monitoring and investigation since. The archaeological record at the site extends from ~1,000 A.D. through the early Spanish Period. There is also evidence for other historic period materials. The site primarily consists of a single component documenting the presence of Safety Harbor people before and after Spanish colonization began. It originally included a burial mound, two shell mounds, and a large structure mound, though these have been impacted and damaged by excavation and pot hunting. The site has not been evaluated for placement on the National Register of Historic Places, through is likely to be a good candidate.

Hog Island Mound (Site PI00009): Hog Island Mound is an undated burial mound located on Caladesi Island State Park. It contains evidence for an Archaic population predating the advent of pottery. Originally excavated in 1903, it contained 33 human burials in a sand and shell mound. Other than a single shell plummet, no diagnostic or worked materials were observed on the site in association with the burials. The mound's exact location was unknown for decades until it was rediscovered in 2013. The potential for site destruction and erosion of any remaining human burials or artifacts is extensive due to its location.

Shoreline Canoe (Site PI11624): The Shoreline Canoe was found in 2006 located on the northern edge of the Weedon Island Preserve, along the shoreline, just waterward of the mangroves. After an initial visit with a local informant, the canoe was recorded in 2007 by professional archaeologists. The canoe was measured and documented during low tide, while a small sandbag coffer-dam kept the bay waters off the artifact. Two radiocarbon samples date the canoe between 740-1060 A.D. This associates it with the late Weeden Island and early Safety Harbor cultural period. In 2011, archaeologists and TBAP staff fully excavated and recovered the canoe for preservation and display. At 12.17 meters long, it is the largest prehistoric canoe documented in Florida, the first open water canoe associated with salt-water environments, and is invaluable for understanding prehistoric waterway transport.

Mary Disston (Site PI09633): The Mary Disston is a historic shipwreck located just offshore in BCBAP, south of Gulfport. The ship is a side wheel steam ship built in Pittsburg in 1885. She was 83 feet long with an 18.5-foot beam and had a 3.8-foot draft. The ship caught fire in 1892 and was set adrift, apparently coming to rest within the aquatic preserve. The shipwreck is currently covered in sand and protected from immediate impacts. The integrity of the vessel is unknown at this time and requires further visual inspection. Any major erosion or ground disturbance events are likely to impact the site.

Fort Desoto Batteries (Site PI00048): The Fort Desoto Batteries site is the remains of a gun battery named Battery Bigelow that has been placed on the National Register of Historic Places. The battery is at the southern end of BCBAP and extends offshore into 0-1 meters of water. The structure was built in 1901 in response to the Spanish American War. Efforts were attempted to maintain the fort through the early 20th century. Beginning in 1919, continuous erosion has damaged and ultimately collapsed the structure into the Gulf of Mexico. The US Army Corp of Engineers has deposited sand at the site to limit further erosion of the concrete and wall.



Map 9 | Historical and archaeological sites associated with Pinellas County and Boca Ciega Bay aquatic preserves.

Coast Guard Air Station St. Petersburg (Site PI11959): The St. Petersburg Coast Guard Air Station, eligible for placement on the National Register of Historic Places, began construction in 1934 as part of the regular Coast Guard presence in the city. Prior to that year, the regional Coast Guard had relied mostly on ships and boats. Additionally, before 1933 much of the local Coast Guard's duties focused on controlling and guarding against the import of alcohol through regional ports. Construction of the Air station was completed by 1937. The station including slips and docks for boats as well as a landing strip. The size and resources at the station increased during the buildup to war beginning in 1938, and once the US entered WWII, the coast guard was responsible for security, rescue, and, primarily, anti-submarine activities. Buildup and expansion of the Coast Guard continued through the cold war, through responsibilities largely focusing on rescue once the threat of submarines receded after WWII. In 1976, the air station moved to the St. Petersburg/Clearwater International Airport along with the group station. Now, the area is primarily used as auxiliary dock space for the Coast Guard.

These historic resources represent the range of sites associated with PCAP and BCBAP. Their importance to the cultural heritage of Florida is undeniable. In addition, most of the submerged lands within the preserves has not been surveyed or tested for archaeological resources. There is high likelihood for preserved, submerged sites, including shipwrecks, historic ship debris, prehistoric vessels, and prehistoric sites such as shell mounds, habitations sites, and burial grounds. For example, archaeologists have identified shell middens within Tampa Bay and an offshore burial site was identified off nearby Manasota Key by Florida Bureau of Archaeological Research staff in 2016.

Other Associated Resources

The most spectacular natural feature of PCAP may be the hardbottom outcrops in the offshore area of the aquatic preserve in the Gulf of Mexico. Little is known about the distribution of these habitats, but surveys for proposed linear features and beach nourishment surveys have revealed a rich biota including dozens of hard and soft coral species. From an ecological and biological perspective, these features growing on relict limestone and not accreting coral reefs are very interesting. However, most residents and visitors have never seen them because submerged resources are not readily visible. The Tampa Bay side of the aquatic preserve includes natural resources like underwater beds of brachiopods and interesting pre-Columbian settlement sites at places like Philippe Park and Weedon Island.

Aesthetically, Pinellas County has a number of spectacular features for residents and visitors. Beaches at Caladesi Island and Fort De Soto routinely get high rankings nationally and internationally. A spectacular sunset can be observed from most beaches on the Gulf side of the peninsula. The drive across Tampa Bay on the Courtney Campbell Causeway has been designated as a National Scenic Highway.

One of the most amazing overall features of the county and its aquatic preserves is the contrast between different areas. When on the water, adjacent to cypress and tupelo shorelines at Lake Tarpon, it can be difficult to believe that one is in the same county as the equally spectacular, but dramatically different surroundings of mangroves farther south.

3.4 / Values

The southwest coast of Florida is a subtropical paradise full of beaches and resorts and is characterized by a variety of ecosystems that support a high level of biodiversity and act as nurseries for many environmentally and commercially important species. The area is sustained by its marine resources and tourism brought in by the abundant natural beauty of Pinellas County. Rapid population growth and the consequent increasing use of coastal waterways and coastline modification threaten the natural resources in this region. Population growth is a pressing issue for maintaining and restoring our coastal resources. The continued ability of the PCAP and BCBAP to provide protection against environmental degradation is essential as the demographics of the region continue to change.

Productive aquatic preserve waters are excellent foraging sites for shorebirds.

Tourism is a major driving force for the county's economy with more than 15.4 million visitors in 2025, bringing in $11.2 billion (Visit St. Pete/Clearwater, 2025). The numbers have been steadily increasing over the years. Tourists come from all over the country, and internationally, to see the white sand beaches and enjoy the warm sunny climate. St. Petersburg, nicknamed the "Sunshine City" for its average 361 days of sunshine a year, is becoming a top U.S. destination. Fort De Soto County Park (2005), Caladesi Island State Park (2008), and Clearwater Beach (2016, 2018, and 2019) were all named the No. 1 beaches in the nation ((Bayles, 2005; McCartney, 2008, Visit St. Pete-Clearwater, n.d.). According to UF (2023) "about 1.5 million watercraft visited Pinellas County AP during the 2022-2023 study year and resulted in over 3.9 million total visits during the year". Visitors come to enjoy water sports including parasailing, canoeing, kayaking, boating, and fishing. The Clearwater Aquarium and sunset dolphin cruises are popular daytime excursions. Divers can enjoy offshore artificial reefs and tournaments such as the Annual Lionfish Safari. Manmade islands within Boca Ciega Bay are friendly spots for kayakers, fisherman, and campers.

Due to the extensive use of our coastal environments, and with the projected population growth in mind, impacts to the aquatic preserves are anticipated. It is essential to educate residents and visitors on the proper use of our natural environment if society is to continue to benefit from the natural beauty that has been laid down at our fingertips.

3.5 / Citizen Support Organization

Citizen Support Organizations (CSOs) are recognized by statute as citizen-led organizations with a special connection to the managed area they support. CSOs may support parks, research reserves and aquatic preserves. Some CSOs support specific managed areas, while others are formed to support groups or systems of managed areas. CSOs for specific sites typically start off with enthusiasm which must be sustained through specific goals for each specific geographic area.

In 2014, a group of Florida citizens formed a CSO called the Aquatic Preserve Society, Inc. Since then, the Aquatic Preserve Society has gained 501(c)3 status, and it also has been given statutory authority to accept funds on behalf of aquatic preserves to be applied to their management needs. The present CSO strategy of TBAP is to rely on the Aquatic Preserve Society to receive funds donated or otherwise designated for TBAP projects. To date, funds for several public interest projects in Pinellas County have been deposited with the Aquatic Preserve Society for disbursement, as needed, for those specific projects.

Over the years, TBAP has occasionally analyzed the need and likely viability of an independent CSO. While the geographic extent of Tampa Bay's aquatic preserves poses some logistical challenges to maintain a cohesive local CSO, citizen enthusiasm has supported the sort of community engagement that increases the viability and purpose of such an organization. In 2020, a steering committee of local citizens incorporated the "Friends of Tampa Bay Aquatic Preserves," and the organization obtained 501(c)3 status. The organization has established a formal agreement with the state to serve as the official CSO for Tampa Bay's Aquatic Preserves. The new organization has assembled a board of directors, has appointed officers and has been supporting TBAP through volunteers and public outreach.

The Friends of Tampa Bay Aquatic Preserves has become an important component of TBAP's public engagement strategy. In addition to providing people familiar with the TBAP program to help staff event exhibits, the CSO has provided additional public engagement through newsletters, social media posts and their meetings.

When the TBAP program moved to Clearwater, Florida to lease office space from the Clearwater Historical Society, the Friends of Tampa Bay Aquatic Preserves began a productive collaboration with the board of the historical society, The two organizations have partnered on several public events that included a showing of the "Living Waters" aquatic preserves photo exhibition at the historical society's museum. This partnership between the two nonprofits has been a very nice surprise.

3.6 / Adjacent Public Lands and Designated Resources

Pinellas County has many public sites adjacent to PCAP and BCBAP, and most play a role in conservation and/or public access related to the ecosystem of the aquatic preserves. Other than the submerged lands and islands of the aquatic preserves themselves, TBAP only manages one adjacent upland property. In 1989, nearly 80 acres of floodplain swamp on the southeastern shore of Lake Tarpon was donated to the state as mitigation for nearby residential developments, due to its proximity to the freshwater part of the PCAP in Lake Tarpon.

However, the parcel was unmanaged until 2016, when TBAP secured a lease to manage the parcel as a buffer preserve (Chapter 18-23, Florida Administrative Code). In addition to the parcel's importance as a floodplain, it serves as a refuge for plants and wildlife that have lost habitat in Pinellas County from development. The parcel is not managed as aquatic preserve, but, rather, it is managed by the TBAP program under the buffer preserve rule.

Immediately south of the buffer preserve property on Lake Tarpon is John Chesnut Senior Park. The park provides public access with trails, wetland boardwalks and a boat ramp. On the other shore of Lake

Tarpon, A.L. Anderson Park also offers boat and hiking access to the lake. Both Chesnut and Williams parks are managed by Pinellas County.

Brooker Creek Preserve, the land to the east of Lake Tarpon, is also managed by the county under the Department of Environmental Management's Environmental Lands Division. The preserve was established in the early 1990s and is the largest natural open space in Pinellas (Pinellas County Department of Environmental Management, 2008). It consists of a mix of upland and wetland communities, including pine flatwoods, hammocks, cypress domes, and marshes.

Lake Seminole also has extensive freshwater resources in PCAP. Lake Seminole Park, located on the southeastern shore of Lake Seminole, offers boat and shoreline access. It is managed by Pinellas County, and, like its counterparts on Lake Tarpon, it serves as a vegetated upland buffer between the aquatic preserve waters and developed areas.

The estuarine and marine shorelines of PCAP include several large parks and preserves of regional significance, as well as, smaller local parks and preserves. Anclote River Park is just north of PCAP, but boats that launch into the river from the park almost immediately cross the county line into aquatic preserve waters. TBAP maintains a partnership with the Pasco County managers of this park to make conservation information available at a boat ramp kiosk in the park.

Howard Park, near Tarpon Springs, sits atop a long, filled causeway and T-head landmass that extends out into St. Joseph Sound. It does not offer boat ramp access, but kayaks can be launched. It also has an engineered beach area. The park includes acreage on the adjacent mainland shore that preserves natural shoreline.

Wall Springs Park, near Palm Harbor, protects freshwater input into the aquatic preserve from the park's namesake freshwater spring. The original park area preserves natural shoreline along PCAP, and a more recent addition of land on the park's northern side, purchased with funds from the Florida Community Trust, is composed of altered shorelines. TBAP and park management have discussed strategies for returning those shorelines to a more natural state.

One of the most significant public areas in PCAP consists of several large islands under the management of the Florida Park Service - Anclote Key, Three Rooker Bar, Honeymoon Island, and Caladesi Island.

Although Honeymoon Island and Caladesi Island have considerable infrastructure for visitors, all of these islands play an important role as refuges for coastal plant communities and nesting beaches for shorebirds and sea turtles. Through formal management planning, routine interactions and project collaborations, TBAP works with the park service to ensure that park management goals complement aquatic preserve management goals. Honeymoon Island also serves as a venue for outreach for the aquatic preserve at events like "Honeymoon Island Earth Days."

Along the chain of Pinellas County's barrier islands, there are a number of public lands, ranging from open beaches to county and municipal parks. As relatively undeveloped areas within an urban landscape, each one offers habitat and public access. TBAP has collaborated with management authorities to encourage environmentally-friendly activities, such as the use of porous parking surfaces, pet waste pickup stations and monofilament line receptacles.

Near the south end of the Pinellas Peninsula, Pinellas County has taken a very active role in managing conservation and recreation lands. The Shell Key Preserve is a conglomeration of state and county-owned lands that the county has integrated under a single management plan, last updated in 2019. This preserve was established in 2000 at the county's request, to manage ongoing environmental issues related to intense public use. using the county's on-site environmental and law enforcement resources.

TBAP played an important role in the establishment of the Shell Key Preserve and continues to give input as appropriate.

To the east of Shell Key and the Pinellas Bayway is the Pinellas National Wildlife Refuge, consisting of several islands that were established as breeding grounds for colonial bird species (U.S. Fish and Wildlife Service, n.d.-a). The refuge includes Indian and Tarpon Keys and hosts numerous nesting species, including herons, egrets and brown pelicans. Tarpon Key hosts the largest brown pelican rookery in Florida. These islands are closed to the public to protect the birds and the surrounding seagrass beds.

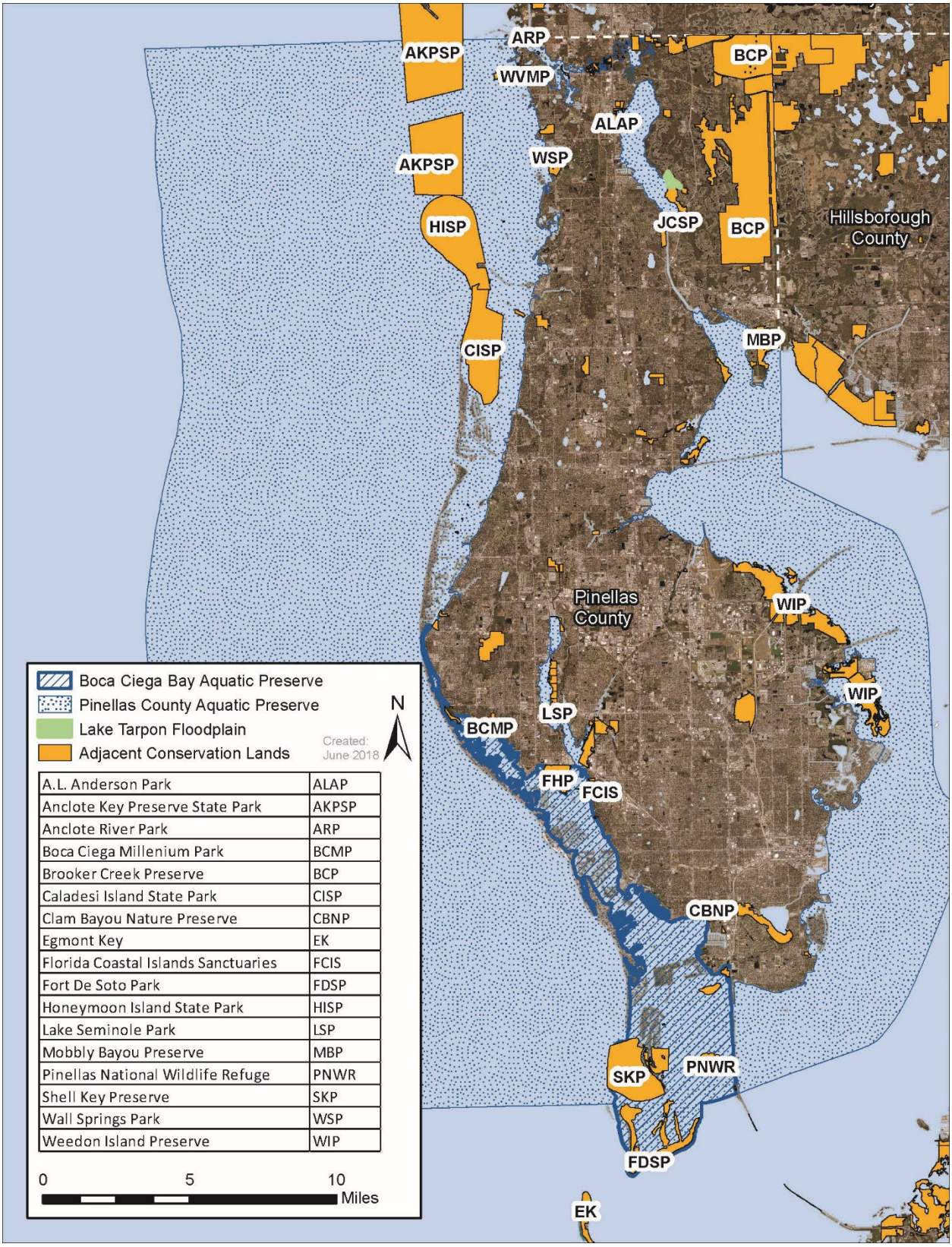
Fort De Soto Park is located at the very southern end of the county, on Mullet Key at the end of the Pinellas Bayway. Like the Shell Key Preserve, this area is surrounded by both BCBAP and PCAP. This popular destination includes campsites, a top-rated beach and an officially-designated dog beach. Additional public access at the park includes kayak rentals and the county's largest multi-lane boat ramp, with fairly direct access to offshore waters of the Gulf of Mexico.

Just below the county line is Egmont Key, which was established as a National Wildlife Refuge in 1974. The island is managed by the U.S. Fish and Wildlife Service and the Florida Park Service to protect the plant and animal communities that dominate the island, including coastal berm, coastal grassland and beach dune, and species such as gopher tortoises, sea turtles and laughing gulls (U.S. Fish and Wildlife Service, n.d.-a). Egmont Key also hosts the Fort Dade lighthouse at the northern end of the island for visitors to explore. Most of the southern and eastern portions are closed to the public for the refuge and bird sanctuaries. In addition to its natural resources, Egmont Key is an important historical site in relation to the Seminole Wars and Florida history. The key contains many important and protected historical resources, including human burials.

Like the Shell Key Preserve, the Weedon Island Preserve, located on the eastern shore of the peninsula along Tampa Bay, includes considerable state-owned acreage for which the county has a formal management agreement with the state that undergoes periodic state management reviews. Weedon Island may be best known for its archaeological resources. The pre-Columbian Weeden Island-type site is named for the island despite the spelling difference. However, this preserve's wealth of natural resources make it an important part of the Tampa Bay side of PCAP. Extensive mangrove forests, oyster reefs and island hammocks make up one of the county's most diverse and complex ecological landscapes. Additionally, the preserve has a visitor center that has served as a venue for outreach efforts by TBAP and others.

Along the Tampa Bay side of PCAP, there are a number of other sites at which the county, the Southwest Florida Water Management District and others have been working to enhance habitat value. Much of the work has centered on filling certain mosquito ditches to reestablish tidal sheet flow and to reduce the ditching spoil piles as refuges for invasive plants. The Gateway Tract and Coopers Bayou are two such sites. At the northeastern part of PCAP, near Oldsmar, the county's Mobbly Bayou Preserve has also undergone restoration work to undo some of the past alterations of its landforms.

As has been mentioned, there are numerous smaller public lands around PCAP and BCBAP. Many of these were purchased with the help of state funds administered through DEP, Southwest Florida Water Management District and the Florida Communities Trust. Over the years, TBAP often has been called upon to give input on habitat and sustainable public access aspects of these smaller areas.



A.L. Anderson Park	ALAP
Anclote Key Preserve State Park	AKPSP
Anclote River Park	ARP
Boca Ciega Millenium Park	BCMP
Brooker Creek Preserve	BCP
Caladesi Island State Park	CISP
Clam Bayou Nature Preserve	CBNP
Egmont Key	EK
Florida Coastal Islands Sanctuaries	FCIS
Fort De Soto Park	FDSP
Honeymoon Island State Park	HISP
Lake Seminole Park	LSP
Mobbly Bayou Preserve	MBP
Pinellas National Wildlife Refuge	PNWR
Shell Key Preserve	SKP
Wall Springs Park	WSP
Weedon Island Preserve	WIP

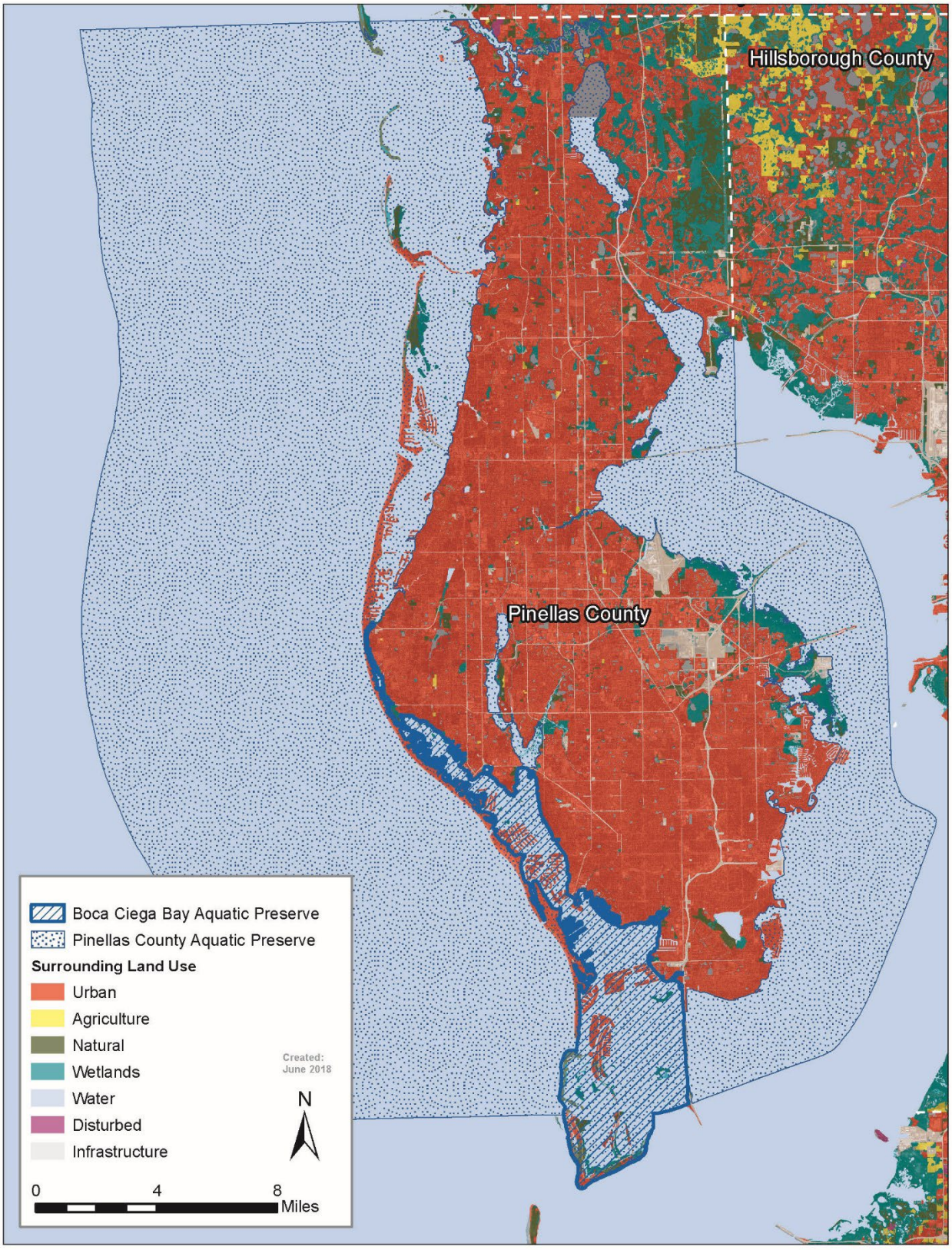
Map 10 | Conservation lands adjacent to Pinellas County and Boca Ciega Bay aquatic preserves.

3.7 / Surrounding Land Use

As previously mentioned, the upland land mass of Pinellas County is extensively altered. Pervasive development is mostly residential and retail commercial. Because of a lack of mass transit, other than buses, transportation is heavily reliant on cars, and as a result, roadways often are multi-lane. In the northern part of the county, non-developed conservation areas, like Brooker Creek Preserve and Mobbly Bayou Preserve stand out on the land use map, as they are surrounded by developed land. Connections, like the one between the north and south areas of Brooker Creek Preserve, are especially valuable ecologically. The Stauffer superfund site on the north side of the Anclote River, also stands out as a large open space, although restoration efforts are needed before it provides a conservation value. Floodplains and cypress swamps are found near waterbodies, but their footprint has been greatly reduced by urban sprawl in recent decades.

Toward the southern end of the county, residential areas and the St. Petersburg occupy most of the upland. Weedon Island Preserve, Riviera Bay, and the southernmost part of the county around Fort De Soto and Shell Key stand out in sharp contrast to the surrounding developed areas.

Aside from islands designated as parks and preserves discussed in this plan, most barrier islands are covered by residences, shops, hotels and roads. TBAP has been part of discussions about light rail or other mass transit infrastructure to reduce vehicle traffic and roads on the barrier islands, but it would be difficult to reconfigure the present patterns of development.



Map 11 | Land use surrounding Pinellas County and Boca Ciega Bay aquatic preserves.

Because of the close proximity of shoreline development to natural resources, intact shoreline vegetation and other resiliency-enhancing features are especially important.

Chapter 4 / Pinellas County and Boca Ciega Bay Aquatic Preserves Management Programs and Issues

The work performed by the Florida Department of Environmental Protection's (DEP) Office of Resilience and Coastal Protection (ORCP) is divided into components called management programs. In this management plan all site operational activities are explained within the following four management programs: Ecosystem Science, Resource Management, Education and Outreach, and Public Use.

The hallmark of Florida's Aquatic Preserve Program is that each site's natural resource management efforts are in direct response to and designed for unique local and regional issues. When issues are addressed by an aquatic preserve, it allows for an integrated approach by the staff using principles of the Ecosystem Science, Resource Management, Education and Outreach, and Public Use Programs. This complete treatment of issues provides a mechanism through which the goals, objectives and strategies associated with an issue have a greater chance of being met. For instance, an aquatic preserve may address declines in water clarity by monitoring levels of turbidity and chlorophyll (Ecosystem Science - research), planting eroded shorelines with marsh vegetation (Resource Management - habitat restoration), creating a display or program on preventing water quality degradation (Education and Outreach), and offering training to municipal officials on retrofitting stormwater facilities to increase levels of treatment (Education and Outreach).

Issue-based management is a means through which any number of partners may become involved with an aquatic preserve in addressing an issue. Partnering is a necessity, and by bringing issues into a broad public consciousness, partners are able to ensure that a particular issue receives attention from angles that the aquatic preserve may not normally address.

This section will explore issues that impact the management of Pinellas County Aquatic Preserve (PCAP) and Boca Ciega Bay Aquatic Preserve (BCBAP) directly or are of significant local or regional importance that the aquatic preserve's participation in them may prove beneficial. While management focal points may be the same for each preserve, the goals, objectives and strategies employed to address the focus may vary depending on the ecological and socioeconomic conditions present within and around a particular aquatic preserve's boundary. In this management plan, PCAP and BCBAP will characterize each of its issues and delineate the unique goals, objectives and strategies that will set the framework for meeting the challenges presented by the issues. Beneficial project proposals that were initially developed as Gulf Restoration Priority Projects are identified in Appendix D.4, in case opportunities become available to support those projects in the ten-year span of this management plan.

Each issue will have associated goals, objectives, and strategies. Goals are broad statements of what the organization plans to do and/or enable in the future. Goals should address identified needs and advance the mission of the organization. Objectives are a specific statement of expected results that contribute to the associated goal, and strategies are the general means by which the associated objectives will be met. Appendix D contains a summary table of all the goals, objectives and strategies associated with each issue.

4.1 / The Ecosystem Science Management Program

The Ecosystem Science Management Program supports science-based management by providing resource mapping, modeling, monitoring, research and scientific oversight. The primary focus of this program is to support an integrated approach (research, education and stewardship) for adaptive management of each site's unique natural and cultural resources. ORCP ensures that, when applicable, consistent techniques are used across sites to strengthen the Florida's ability to assess the relative condition of coastal and freshwater resources. This enables decision-makers to more effectively prioritize restoration and resource protection goals. In addition, by using the scientific method to create baseline conditions of aquatic habitats, the Ecosystem Science Management Program allows for objective analyses of the changes occurring in the state's natural and cultural resources.

4.1.1 / Background of Ecosystem Science at Pinellas County and Boca Ciega Bay Aquatic Preserves

Tampa Bay Aquatic Preserves (TBAP) has been active in helping with the planning, implementation logistics, interpretation and application of results of research with a variety of governmental, non-governmental and academic partners. In some cases where TBAP has seen informational needs that were not being addressed, the program has assumed the lead in research and monitoring efforts.

While understanding the status and trends of the resources of BCBAP and PCAP is complicated by the aquatic preserves' urban location, there are benefits in the availability of research and monitoring data. Readily-available data on seagrasses, biota, water quality and other critical parameters of the aquatic preserves' ecosystems allow TBAP to focus more on connecting this knowledge base with the numerous issues like proposed projects that would impact the aquatic preserves. A partial list of the monitoring efforts and organizations conducting these programs is included in Table 3.

Program Type	Monitoring Organization
Water Quality	Tampa Bay Estuary Program
Water Quality	National Oceanic and Atmospheric Administration
Water Quality	Southwest Florida Water Management District
Water Quality	Florida Fish and Wildlife Research Institute
Water Quality	The University of South Florida
Water Quality	Pinellas County
Water Quality	Florida Department of Agriculture and Consumer Services - Division of Aquaculture
Water Quality	Florida Department of Environmental Protection - Division of Environmental Assessment and Restoration
Seagrasses	Tampa Bay Estuary Program
Seagrasses	Pinellas County
Seagrasses	Florida Fish and Wildlife Research Institute
Seagrasses	Hillsborough County Environmental Protection Commission
Bird Rookeries	Audubon Coastal Islands Sanctuaries
Fisheries	Florida Fish and Wildlife Research Institute
Benthic Macroinvertebrates	Pinellas County
Benthic Macroinvertebrates	Hillsborough County Environmental Protection Commission

Table 3 | Monitoring programs in Pinellas County and Boca Ciega Bay aquatic preserves.

TBAP has an excellent seagrass monitoring program on both sides of the Pinellas Peninsula. On the Tampa Bay side, seagrass monitoring is coordinated by the Tampa Bay Estuary Program, and on the west side of the peninsula, it is coordinated by Pinellas County, and a variety of agencies and organizations provide trained participants to work the transects. At a minimum, Braun-Blanquet sampling is done on an annual basis (Yarbro & Carlson, 2016). The Tampa Bay Estuary Program has released publications with methodologies for their seagrass monitoring and summaries of their findings over the years (Johansson, 2016). Seagrass monitoring is complemented by mapping seagrass acreage using aerial imagery flown by Southwest Florida Water Management District (SWFWMD) every two years. Overall trends in seagrass coverage, as well as species and depth changes, are tracked by these programs.

Water quality monitoring is completed by a number of entities according to specific investigations. Overall trends for basins are monitored under the coordination of the Tampa Bay Estuary Program within Tampa Bay and by Pinellas County on each side of the Pinellas Peninsula. Other entities with specific informational needs do more specific monitoring. The Florida Department of Agriculture and Consumer Service's Division of Aquaculture performs testing to detect coliforms and other pollutants that can contaminate shellfish harvesting areas and the Florida Department of Health monitors bacteria on a bi-weekly basis as part of the Healthy Beaches Program, reporting data online to the public about the bacterial conditions of local beaches.

Map 12 | Seagrass beds of Pinellas County and Boca Ciega Bay aquatic preserves.

In aggregate, the monitoring of endangered and/or threatened biota in the aquatic preserves completed by a variety of public, private and academic entities is fairly comprehensive. TBAP is fortunate that the Audubon Society's Coastal Islands and Sanctuaries statewide program is based in Tampa and has been active in the area for decades. Along with the St. Petersburg and Clearwater Audubon chapters, the Coastal Islands and Sanctuaries program maintains a thorough database of nesting activities on the rookery islands managed by TBAP.

While the Florida Fish and Wildlife Conservation Commission (FWC) provides overall monitoring of manatees and fishes, monitoring of other taxa often depends on the proximity of interested volunteers and site managers (Meylan, Mosier, Moody, Kendall, & Foley, 1996). Sea turtle nesting in Pinellas County is conducted through four permitted organizations – Clearwater Marine Aquarium, Sea Turtle Trackers, Marine Turtle Beach, and Fort De Soto Park, and it often involves volunteers recruited by those entities. Horseshoe crab (*Limulus polyphemus*) monitoring was recently initiated by a citizen in the northern part of Pinellas County with guidance from FWC and TBAP. This monitoring program fills an important data gap, using similar protocols to those in other locations, like Port Canaveral. In time, statewide trends may be detected (FWC, n.d.-a).The horseshoe crab monitoring has begun in the northern part of Pinellas County, but TBAP will also encourage its expansion southward in the county and in other parts of Tampa Bay.

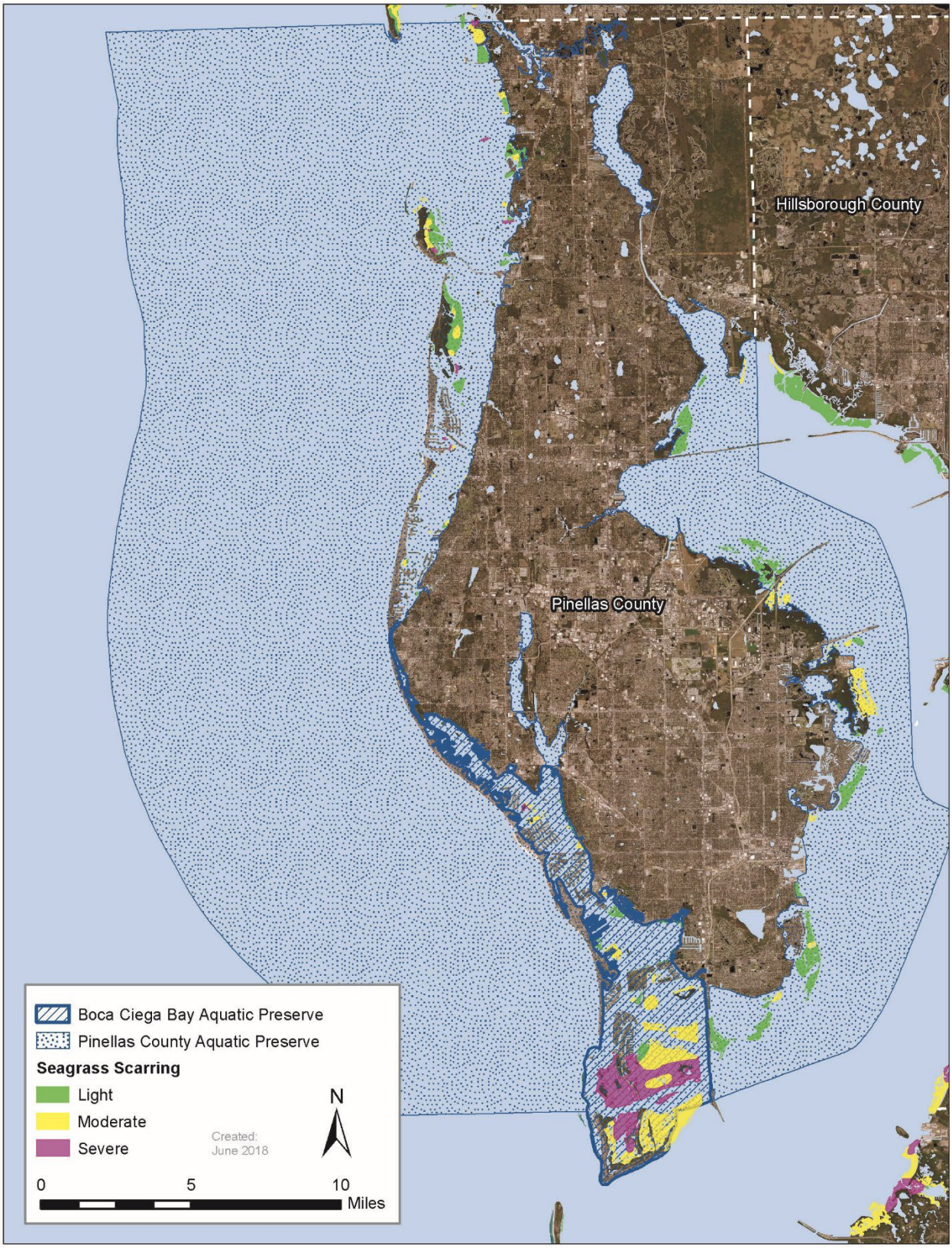
As previously mentioned, TBAP has engaged in research and monitoring where there is an outstanding need. In the early to mid-2000s, the program partnered with a plant ecologist to conduct a grant-supported survey of plants on 12 islands, to gather more information on local coastal plant distributions related to island topography and soil characteristics. The data from this survey were subjected to an ordination analysis that gave plant assemblage insights directly applicable to TBAP's island revegetation work (Restom-Gaskill, Wolf, & Runnels, 2009).

More recently, the formation of a new island in Bunce's Pass (PCAP, just outside BCBAP) created a unique opportunity to investigate the evolution of new islands. TBAP began an ongoing program to map the elevations and perimeter of the island, partnering with a plant ecologist to document the recruitment and dispersion of native plant species on the island. In 2019, the island had grown beyond TBAP's resources to monitor, but the program yielded valuable successional data. Like TBAP's hardbottom monitoring program, this new program allowed staff to create protocols and methodologies that can be applied to similar scenarios in the future. Historically, this diverse assortment of research and monitoring programs has served the informational needs of TBAP, and staff will be developing GIS-based tracking systems to manage monitoring programs and data moving forward.

4.1.2 / Current Status of Ecosystem Science at Pinellas County and Boca Ciega Bay Aquatic Preserves

As previously described, ongoing monitoring programs have, for the most part, been sufficient for TBAP's informational needs in the BCBAP and PCAP. Through input during the experimental design phase, TBAP has been able to enhance the decision support value of a number of specific research projects. Nevertheless, there are outstanding informational needs that likely will help guide the program's future direction in ecosystem science.

Despite the extensive seagrass mapping and monitoring and other programs described in the previous section, very little is known about the distribution and species composition of some of the aquatic preserves' other natural communities. This is especially true of the PCAP, which has extensive hardbottom outcrops offshore and considerable hardbottom acreage within Tampa Bay that is only recently being documented. Pinellas County has mapped some of the hardbottom along the county's Gulf Coast beaches, but there remains much more to be discovered (Craft, Suthard, & Kruempel, 2007).



Map 13 | Seagrass scarring of Pinellas County and Boca Ciega Bay aquatic preserves.

TBAP has worked with SWFWMD on the bay side and with other entities like Nova Southeastern University on the offshore side to develop mapping strategies and protocols, but these programs are limited in scope, with relatively small footprints and limited species identification.

Based on work in Terra Ceia Aquatic Preserve, TBAP is developing protocols and methods that are based on real-world applications to help encourage resource inventories that meet program needs. At present TBAP's in-house resource inventory capacity is geared toward project-specific mapping over limited areas for regulatory input, but staff are looking at ways to use GIS-connected towed video and acoustic remote sensing to map larger areas in the future.

In the Tampa Bay area, hardbottom monitoring is nonexistent, but TBAP has been developing an ongoing hardbottom monitoring program across the bay at Terra Ceia. The protocols and methods for this monitoring initiative could be applied in Pinellas County waters in the future, either through expanded program capacity or through collaboration with other programs.

With numerous academic and government entities based locally in Pinellas County, there are many opportunities for TBAP to influence research and monitoring to yield more useful information. TBAP is looking at ways to better track ongoing programs and to actively engage entities seeking to establish new initiatives in the aquatic preserves.

4.1.3 / Ecosystem Science Issue

Issue I: Protection of Submerged Resources

While the developed shorelines may appear to offer little habitat value, the submerged habitat includes valuable aquatic resources. To be effective in resource protection and habitat restoration priorities, TBAP must remain science-based and TBAP is uniquely suited to play a key role in connecting science to decision making. There are many informational gaps relevant to submerged resources in BCBAP and PCAP, staff have been involved in the design of research and monitoring programs with key agency and organization partners. TBAP must continue to engage these partners to ensure that experimental design reflects the needs of the program. TBAP can offer planning and logistical support and specialized equipment when needed to assist research or monitoring projects.

While Pinellas County waters within the bay offer few opportunities to create or expand seagrass beds, gains can be made with the offshore expansion of existing beds as water quality and functionality of existing beds improves. Restoration and repair of areas damaged by boat propeller scarring, a major source of regional impact to seagrass beds, can improve functionality and health. High-resolution aerial images reveal numerous prop scars in nearly any area shallow enough to support seagrass (Ehringer, 1994). The establishment of caution and restricted zones have proven to reduce prop scarring in the Fort De Soto Aquatic Management Area and Shell Key Preserve, and this technique may be a solution in other areas as well. Additional signs, markers and enforcement of such zones can help to further protect seagrass beds.

Mechanical damage also can be observed on large sponges and other biota in shallow hardbottom areas. Areas with high depth variability often have the most intense scarring. Thus, when projects are proposed that increase or alter the routes of boat traffic, the entire route to deep water and/or clearly-marked channels must be carefully planned to avoid causing new scarring hotspots. TBAP can support local agencies in planning marina expansions and new boat launch points to avoid damage to these precious resources.

Among Tampa Bay's aquatic preserves, PCAP and BCBAP require special consideration of the demographics or regional boaters. While the Terra Ceia Aquatic Preserve and the Cockroach Bay Aquatic Preserve on the other side of Tampa Bay have a high percentage of users with local knowledge of submerged resources, BCBAP and PCAP host many boaters who visit infrequently. These tourists

tend to be inexperienced at operating watercraft and do not understand the potential impacts to submerged resources form both propellers and jet drive systems operated in shallow waters.

When visitors are renting a boat, there is a very small window for education on submerged resources and their protection. Strategies for providing at least some small amount of resource education for rentals have been the subject of discussion over the years and TBAP staff continue to investigate the options for boater education.

This kiosk was designed specifically for Anclote Key.

TBAP has several options for raising awareness in the boating public. Signage at boat ramps directly targets the boaters with clear, concise messages. TBAP has taken a strategy of working with the managers of boat launch facilities to combine aquatic preserve information with theirs in multi-panel kiosks to keep the messages more concise and confusing signage to a minimum. The four-panel kiosk at Pasco County's Anclote River Park, on the northern boundary of the PCAP, is a good example of TBAP working with a local government to consolidate messages.

In addition to the direct messaging of boat ramp signage, TBAP also posts information on social media. Videos showing underwater resources can be particularly effective in impressing boaters and the general public about the sensitivity of the area's submerged habitats. Highlighting these videos, as well as distributing boater's guides and other educational materials are important goals of TBAP's displays at boat shows and other events. Finally, public speaking engagements with boating groups helps to remind boaters of the need to protect submerged resources and have led to grass-roots volunteer opportunities for spreading awareness.

Marinas are key partners in messaging about the protection of submerged resources, and Florida's Clean Boating Partnership has been an important means by which TBAP has reached marina operators and boaters. For more a decade, TBAP has worked with the non-regulatory Clean Boating Partnership to present clean marina workshops for marina operators and provide information on boating best practices. Recently, the Clean Boating Partnership has been placed under the administrative purview of the Office of Resilience and Coastal Protection, to encourage collaboration with all aquatic preserves.

TBAP staff regularly assist regulators and permitted looking for opportunities to restore impacted resources as mitigation for unavoidable impacts incurred as part of the regulatory process. Local site knowledge of staff helps to identify restoration locations and appropriate compensation for a given impact. Similarly, many regulatory projects in the aquatic preserves must add an additional "public interest" component to ensure that the project is clearly in the public interest, as required by chapter 18-20, F.A.C. TBAP maintains a database of possible projects that permit applicants can choose to submit with their application. Public interest projects can be completed by the applicant or their contractors, or the cost of the project can be provided to an approved citizen support organization to ensure that funds are provide for an approved mitigation project.

While a host of agencies and organizations monitor many aspects of the Tampa Bay environment, there is at least one potentially useful resource monitoring possibility that should be considered. Based on past experience, seasonal monitoring of some selected beaches might provide a baseline for understanding and protecting the sensitive, important and often underappreciated infaunal community that provides an important link in the food chain of these communities. Such monitoring would include seasonal beach elevation profiles and large-diameter infaunal core samples along beach profile transects. TBAP could work with others to facilitate a pilot project to work out the logistics and data expectations of a longer-term effort. The data generated from such a program would be especially valuable in the event of oil spills or other episodic perturbations of our ecologically and economically valuable beach systems.

There are also numerous cultural and historical sites associated with the aquatic preserves. However, most of the submerged lands within the preserves has not been surveyed or tested for archaeological resources. There is high likelihood for preserved, submerged sites, including shipwrecks, historic ship debris, prehistoric vessels, and prehistoric sites such as shell mounds, habitations sites, and burial grounds. Staff will update their Archaeological Resource Management training and will watch for unidentified cultural resources during other activities in the aquatic preserve. In addition, Division of Historic Resources, Bureau of Archaeological Research archaeologists will be invited to join them in the field.

Goal 1: Reduce damage to seagrass and other submerged resources.

Objective 1: Increase public awareness of the importance of seagrass and other submerged resources.

Integrated Strategies

- Seagrass and other submerged resource awareness/protection information is included at access points, like boat ramps and marinas.
- Information on the importance and protection of seagrass is included in exhibits, social media and other education/outreach materials.

Performance Measure

- Signage and exhibits are reviewed for information about conservation of seagrass, and other habitats when appropriate, at access points during visits.

Partners

- Local governments and other boat access facility managers
- Florida's Clean Boating Partnership
- Private boat clubs

Objective 2: Reduce damage to seagrass beds and other submerged resources.

Integrated Strategies

- Mark seagrass beds in high-traffic areas.
- Educate visitors who rent boats and personal watercraft about submerged resources, and how to avoid damage.
- Identify other activities that harm submerged resources and develop guidelines to reduce damage from those activities.
- Promote clean boating principles.

Performance Measures

- Seagrass beds in high traffic areas are marked, pending available funds.
- Educational package for boat rentals produced and provided to willing vendors.

- TBAP maintains active participation in local clean marina and clean boater workshops and events.

Partners

- DEP's Southwest District office
- Pinellas County
- Florida's Clean Boating Partnership
- Private boat clubs

Goal 2: Encourage and assist with restoration of damaged resources.

Objective 1: Identify "hotspots" of damaged submerged resources to target for restoration.

Integrated Strategies

- Use GIS to track areas impacted by vessel groundings, prop scarring hotspots and restoration sites.
- Use aerial imagery to look for impacts, like scarring, along trafficsheds.

Performance Measure

- TBAP's geodatabase is annually updated with hotspots of submerged resource damage.

Partners

- FWC's Fish and Wildlife Research Institute
- County environmental agencies

Objective 2: Recommend restorative measures for identified hotspots.

Integrated Strategy

- Create and maintain a database of possible mitigation and/or public interest projects that restore hotspots.

Performance Measure

- Public interest and mitigation project database for hotspots is created and maintained.

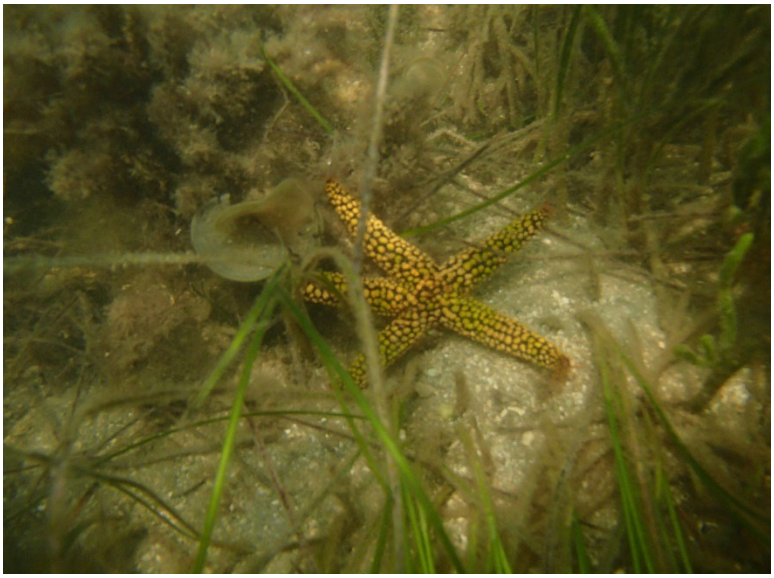
Partners

- DEP's Southwest Regulatory District Office
- Pinellas County
- SWFWMD's regulatory office
- NOAA's essential fish habitat program
  - Tampa Port Authority's environmental office
  - Non-profit organizations

Goal 3: Encourage and assist with submerged resource inventories and research.

Objective 1: Identify, encourage and assist third-party resource inventories in the aquatic preserves.

Integrated Strategies



Invertebrates and tropical algae provide an interesting underwater landscape.

- Compile and maintain a database of resource inventory projects in the aquatic preserves.
- Attend planning meetings for new resource inventory projects.
- Where needed, supply technical assistance for resource inventories.

Performance Measures

- Maintain a database of existing and proposed resource inventory projects.
- Establish TBAP protocols for resource inventory informational needs.

Partners

- Tampa Bay Estuary Program
- Florida Institute of Oceanography
- Colleges and universities with submerged mapping programs
- Florida Department of State, Division of Historical Resources

Objective 2: Identify, encourage and assist third-party research in the aquatic preserves.

Integrated Strategies

- Compile and maintain a database of research and monitoring projects in the aquatic preserves.
- Attend planning meetings for new research and monitoring projects.
- Where needed, supply technical assistance for research and monitoring projects.

Performance Measures

- A database of existing research related to the aquatic preserves is created.
- A "wish list" of TBAP informational needs is created, maintained and shared with research partners.

Partners

- Tampa Bay Estuary Program
- Florida Institute of Oceanography
- Colleges and universities with submerged mapping programs
- Florida Department of State, Division of Historical Resources

Goal 4: Provide regulatory review of projects that may impact submerged resources.

Objective 1: Provide training and coordinate with regulatory staff.

Integrated Strategies

- Provide regulatory classroom training on aquatic preserve boundaries.
- Provide regulatory classroom training on appropriate statutes and rules.
- Provide regulatory classroom training on assistance available from TBAP.
- Provide regulatory field training on habitats.
- Provide regulatory field assistance and coordination on applicable projects within the aquatic preserve boundaries.

Performance Measures

- Conduct at least one classroom training per year at the DEP regulatory office.
- Conduct at least one field training for regulatory staff per year.

Partners

- DEP's Southwest Regulatory District office
- SWFWMD's regulatory office

- Florida Department of State, Division of Historical Resources
- Pinellas County

Objective 2: Provide input on avoidance, minimization and mitigation, as appropriate, in the permitting process.

Integrated Strategies

  - Coordinate with regulatory staff and provide input on applications within the AP according to ORCP guidelines.
  - Conduct site visits in coordination with regulatory staff to provide local knowledge and resource and habitat expertise.
- Track actions taken to provide input.

Performance Measure

- A permit tracking database is maintained.

Partners

- DEP's Southwest Regulatory District office
- Pinellas County
- SWFWMD's regulatory office

Goal 5: Support assessment and protection of submerged historical and cultural resources.

Objective 1: Assess the knowledge and data gaps for historical and cultural sites in the aquatic preserves.

Integrated Strategies

- Discuss future possible information gathering with the Florida Department of State, Division of Historical Resources, Florida Public Archaeological Network and academia.
- Provide technical assistance (access, mapping, etc.) and assist with site visits where needed.
- Provide up-to-date training for TBAP staff when available and needed.

Performance Measures

- TBAP staff will be trained in Archaeological Resource Management.
- Management authority for all sites within the PCAP and BCBAP boundaries will be determined.
- TBAP staff will, in partnership with professional archaeologists and/or Division of Historical Resources, Bureau of Archaeological Research staff, or Florida Public Archaeological Network prioritize the inspection of known archaeological and cultural sites managed by TBAP each year.
- Staff will invite professional archaeologists on field visits to survey for sites and report findings to the Master Site File or as appropriate.

Partners

- Florida Department of State, Division of Historical Resources
- University of South Florida, Department of Anthropology
- Florida Public Archaeology Network
- Pinellas County Historic Preservation Board

4.2 / The Resource Management Program

The primary concept of PCAP and BCBAP Resource Management projects and activities are guided by ORCP's mission statement: "Conserving, protecting restoring, and improving the resilience of Florida's coastal, aquatic and ocean resources for the benefit of people and the environment." ORCP's sites

accomplish resource management by physically conducting management activities on the resources for which they have direct management responsibility, and by influencing the activities of others within and adjacent to their managed areas and within their watershed. Watershed and adjacent area management activities, and the resultant changes in environmental conditions, affect the condition and management of the resources within their boundaries. ORCP managed areas are especially sensitive to upstream activities affecting water quality and quantity. ORCP works to ensure that the most effective and efficient techniques used in management activities are used consistently within ORCP sites, throughout the program and, when possible, throughout the state. Focusing on Ecosystem Science, Education and Outreach and Public Use as guidance and support for Resource Management. These programs work together to provide direction to the various agencies that manage adjacent properties, partners and stakeholders. PCAP and BCBAP also collaborate with these groups by reviewing various protected area management plans. The sound science provided by the Ecosystem Science Program is critical in the development of effective management projects and decisions. The nature and condition of natural and cultural resources within PCAP and BCBAP are diverse. This section explains the history and current status of ORCP Resource Management efforts.

4.2.1 / Background of Resource Management at Pinellas County and Boca Ciega Bay Aquatic Preserves

The vast acreage of BCBAP and PCAP, historically, has necessitated a targeted approach to resource management. Relative to more remote aquatic preserves across the bay, the management of the aquatic preserves of Pinellas County typically has emphasized resource protection through regulatory input. The large volume of regulatory activity in this urban county often requires detailed site knowledge for sound decision-making during permit application review. The degree of activity of TBAP in the regulatory process has varied over the years, but there have been numerous benefits to review from TBAP.

Historically, TBAP has participated in the regulatory process in two ways. TBAP has provided stand-alone training for new regulatory staff on implementation of the aquatic preserves rule with resource conditions of permitted sites. A second aspect of TBAP's regulatory participation has been to offer field assistance to regulatory staff when a permit requires special site/resource knowledge or when avoidance and minimization, mitigation, public interest is review, or compliance investigations. TBAP will continue to support the regulatory process as needed, supporting DEP's regulatory office, SWFWMD's regulatory office and the Tampa Port Authority, which processes permits in the Cockroach Bay Aquatic Preserve.

While education is discussed in more detail later, it is worth emphasizing that TBAP's education and outreach program is a fully-integrated part of its resource management strategy. Because TBAP's resource management activities often require informed, engaged volunteers, outreach programs that recruit new volunteers and service-learning programs that help retain existing volunteers are integral to the resource management aspects of the on-the-ground presence in BCBAP and PCAP.

TBAP's operations within BCBAP and PCAP are wide-ranging and largely collaborative. To operate over such a large geographic area, TBAP has formed and maintained partnerships with many local governments, as well as with other local, state and national programs and non-governmental organizations. Fortunately, Pinellas County's government, over the years, has taken the lead on managing some areas of the aquatic preserves that have had high levels of public use. They still play an active role in managing areas like Shell Key in BCBAP and Weedon Island in PCAP. Pinellas County has been an active partner and has collaborated through the management planning and land management review processes. Likewise, TBAP has partnered with Florida Park Service, which manages considerable acreage and shorelines adjacent to the aquatic preserves.

TBAP's resource management field projects in recent years have focused mostly on island restoration and management. These operations require staging and transportation to get equipment, staff, and volunteers to islands and other remote work sites. A key aspect of this dynamic is partnerships with local

A combination of volunteers and contractors remove invasive plants from islands.

parks and marinas across the county, which often allow TBAP to stage boats, vehicles and other equipment out of their compounds. TBAP has even collaborated with the U.S. Coast Guard Clearwater Air Station to transport an 1800-pound wood chipper to an island (NCH-13) via U.S. Coast Guard helicopter. That operation, completed more than 20 years ago, began a process that has restored an island covered with Brazilian pepper to an island covered with native trees and shrubs.

4.2.2 / Current Status of Resource Management at Pinellas County and Boca Ciega Bay Aquatic Preserves

TBAP is maintaining islands from which invasive plants have been removed and facilitates the revegetation of these islands with native plants through planting and natural recruitment. As some islands reach a maintenance level, revegetation will begin on other islands.

In coordination with partners, TBAP is improving protection of submerged resources through marking and restoring submerged habitats and production of educational materials. TBAP also has plans to use technologies such as acoustic and photographic imaging for more efficient and accurate monitoring of these resources.

TBAP will continue to rely heavily on volunteers in its resource management activities. The use of volunteers expands the scope of activities that TBAP can achieve and assists with encouraging local stewardship. TBAP will continue to seek partnerships with existing organizations, as well as more work with assemblages of individual volunteers.

Natural and manmade disasters, like the Deepwater Horizon Oil Spill in 2010, Hurricane Irma in 2017, Hurricane Ian in 2022, and hurricanes Helene and Milton in 2024 are reminders that TBAP needs to anticipate for catastrophic events. Each of these past events has come with lessons learned that TBAP applies to contingency planning. TBAP is also adopting new technologies, such as the on-the-fly contour mapping that was used in the Hurricane Irma response, to enhance the resource management toolbox for both routine and episodic resource management needs.

4.2.3 / Resource Management Issues

Issue II: Island Management

As mentioned previously, the statutory description of PCAP includes state-owned islands. Additionally, islands created by stockpiling dredged material from state-owned submerged land are legally state-owned submerged lands, even when they require upland management strategies and techniques. While some of the larger state-owned islands, with high visitation, are managed by the state or county park services, many of the smaller islands are under the direct management of the TBAP program.

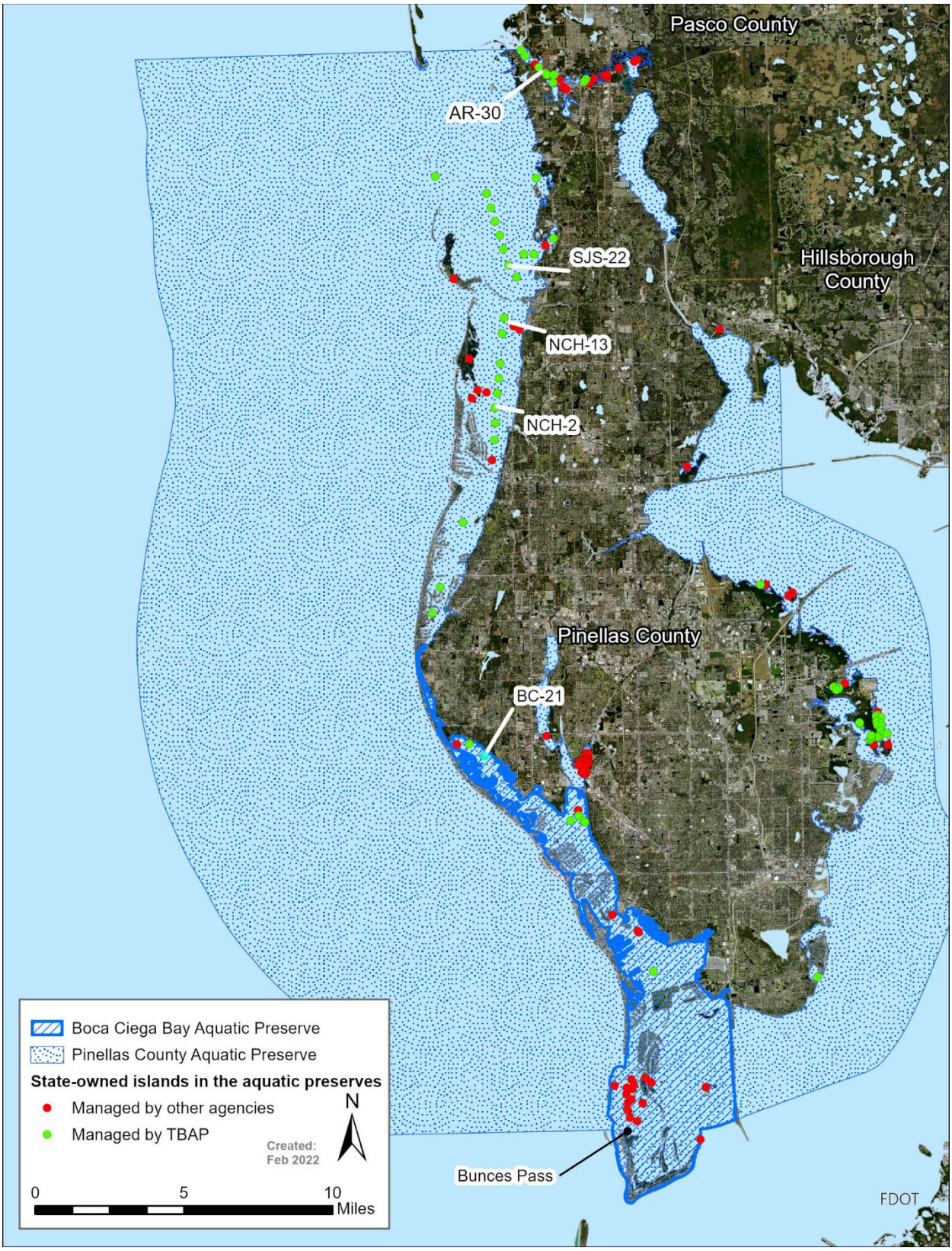
By the late 1990s, it became apparent that a more cohesive strategy was needed for management of smaller islands in the preserve. Grants were secured to hire temporary staff to identify the state-owned islands in the aquatic preserve and assess the habitat value, human usage and wildlife usage of each. The results of this assessment were compiled into an island management plan (DEP, 2002). Public input was solicited for this plan through a public meeting, and it was printed and made available to interested stakeholders.

Since the development of that plan, TBAP has continued to solicit input on island use from boaters, conservation groups and other stakeholders through occasional public presentations, interacting with stakeholders at boat shows and other events and posting contact information on island educational signage. The results of the 2002 assessment were revised and used for a statewide inventory in 2019.

Balancing wildlife use and public use of the aquatic preserve's islands requires attention to usage patterns and to the natural history of resident wildlife. While often manmade, the shallow, subtidal vegetated slopes surrounding the islands host a variety of species like horse conchs (*Triplofusus gigantea)*, lightning whelks (*Sinistrofulgur perversum*.), and channel whelk (*Busycotypus canaliculatus*), moon snails *(Polinices duplicatus*), and horseshoe crabs that come into the shallow waters in the spring to lay eggs. Some dredge spoil islands also have hardbottom species and/or oyster reefs.

Island uplands also are valuable wildlife habitat. Native plants harbor a resident insect community. These insects, as well as a variety of native seeds and berries produced by island vegetation provide abundant food for migratory neotropical songbirds. Osprey (*Pandion haliaetus*) and other local predatory birds have been observed on the islands with a fresh catch from nearby waters. In the spring, a variety of wading birds depend on the islands for nesting and raising their young. While a few islands support high concentrations of nesting colonial waterbirds, it is common to find nests of birds like yellow-crowned night herons (*Nyctanassa violacea*) in the trees and mating pairs of American oystercatchers (*Haematopus palliatus*) on the islands' sand spits.

One of the most urgent concerns for maintaining this biodiversity and improving the ecological condition of the islands is invasive species control. Most of the islands with significant upland elevations experience some encroachment on native plant communities by invasive exotic species. Some of the dredged material islands likely never had a dominant community of native plant species, as invasives, like Brazilian pepper and Australian pine often are the opportunistic recruits to disturbed areas. In recent years, carrotwood, which has been used in landscaping some local yards, has gained a foothold on some of the islands. TBAP staff have observed that natural islands with native plant assemblages can be relatively easy to maintain. However, islands dominated by invasive nonnative species, can require several years of intensive treatment to remove nonnative seed sources, deplete the soil seed bank and establish native seed sources. As a result, TBAP has focused on achieving maintenance condition on an island before implementing exotic treatment and revegetation on a new island. This gradual approach fits public use and wildlife use needs. Boaters have been generally supportive of replacing invasive plants with native species if TBAP does not remove all trees from an island at once. Likewise, Audubon and other conservation groups have pointed out that nonnative plants are better than no habitat. By taking a gradual approach to the revegetation process that only a long-term program can sustain,



Map 14 | State-owned islands within Pinellas County and Boca Ciega Bay aquatic preserves.

impacts to public enjoyment of the islands and to their critical function as habitat are minimized. In 2022, TBAP conducted intensive removal and retreatment efforts on SJS-22 and NCH-2. AR-30 and BC-21 represent a later stage of revegetation where maintenance needs have been reduced, and native plantings are underway.

In order to replace nonnative plants with native species in this gradual manner, TBAP relies on partnerships with volunteer groups. Local colleges and civic groups have supplied the assistance necessary to clear entire areas of invasive plants, and smaller groups to periodically maintain the previously cleared areas. One example of a key partnership has been with Ohio State University's Buck-I-Serv and MANRRS (Multicultural Students in Agriculture, Natural Resources, and Related Sciences) programs. Over the past 15 years, these two Ohio State University programs have sent more than three dozen volunteer groups, often with as many as 10 volunteers per group, to assist TBAP with invasive plant removal, planting native plants, and other activities. The cost of hiring contractors for such scattered work over such a long time would have been prohibitive. In turn, TBAP provides maximum benefit to the students through a strong service-learning component to the visits.

While many of the Australian pine trees on the islands have been removed, and continue to be removed, by TBAP staff, some, because of their location and/or size, are too dangerous or complicated to be removed by staff and volunteers. For these, funding sources like public interest funds should be applied to have skilled contractors remove those specific trees.

With increasing numbers of boaters and limited island destinations, human use of the islands likely will continue to increase. Therefore, TBAP focuses on education and awareness to promote stewardship. Signage informs people of sensitive resources on the islands, options to minimize impacts, and the opportunity to provide visitor feedback.

TBAP occasionally provides limited amenities in key areas of high public use as a positive way to promote that stewardship. For instance, over the years, TBAP has placed a few recycled plastic picnic tables in high-use areas of some islands and will continue to maintain these amenities as practicable. When TBAP initially began management activities on the islands, some had trash barrels that, apparently, had been placed on the islands by visitors. Without a regular service to remove this trash, the receptacles eventually overflow, creating marine debris. This practice led TBAP to adopt a policy of not having trash receptacles on the islands and to install "pack it in, pack it out" signs in high-use areas. TBAP staff also gives free collection bags to boaters to encourage them to remove their debris, and possibly, to remove debris left by others.

ORCP recognizes the public's desire to place memorials on ORCP-managed lands or water to commemorate individuals. However, these memorials placed on public lands may detract from the aesthetic value of the area, be offensive to some users, impede management of these lands, create maintenance responsibilities, and/or affect the area's wildlife or their habitat. As a preferred option, ORCP encourages memorial contributions to the local Citizen Support Organization (CSO) - Friends of Tampa Bay Aquatic Preserves -or placing a native tree in an appropriate location in memory of individuals. Those who donate in memory of individuals will receive a letter acknowledging the contribution from the site manager. For those individuals that prefer to erect a physical memorial on ORCP-managed lands, ORCP will consider the placement of such memorials on a case by case basis. Individuals should contact the aquatic preserve manager with their request. The aquatic preserve manager will determine if the proposed memorial conforms with the approved management plan or offer memorial alternatives. ORCP has authorization to remove memorials pursuant to Chapter 258.35-258.47, F.S.

In addition to controlling invasive species and debris, a few islands within PCAP and BCBAP serve as rookery habitat for what is otherwise a crowded urban environment. Unfortunately, curiosity often brings boaters very close to the shoreline, and disturbances to the nesting birds can be frequent. In sunny

weather, the absence of parents from a nest with eggs for even a short time can jeopardize the viability of the eggs. Thus TBAP is looking at ways to increase protection for nesting birds and their young during these critical spring months. There is adequate published research to guide the establishment of seasonal buffers around rookery islands.

A nesting island in St. Joseph Sound.

Rodgers and Smith (1997) studied 16 species of foraging and loafing waterbirds to determine flushing distances due to human disturbances. They recommended a buffer zone of 328 feet (100 meters) to minimize impacts for most species, including the great egret (*Ardea alba*) and little blue heron (*Egretta caerulea*). Rodgers and Schwikert (2002) suggested different sized buffers based on the species of bird to reduce disturbance from personal watercraft and outboard-powered boats. Recommended buffer zones range from 282 feet (86 meters) for the least tern (*Sternula antillarum*) to 600 feet (183 meters) for the brown pelican (*Pelecanus occidentalis*), Information from these studies along with local consultation of FWC staff can guide implementation of appropriate buffer zones to allow birds to forage and nest without disturbance. In consultation with FWC, ORCP has posted rookery islands with buoys and/or signs set off the shore of the island at a distance based on scientific information and approved by FWC. TBAP follows the management guidelines put forth by FWC in its Imperiled Species List and Species Action Plans.

Around 2015, a new natural island emerged from a shoaling area in the mouth of Bunces Pass (PCAP). This island began recruiting dune vegetation, as well as ground-nesting birds and boaters. TBAP staff began working on protocols to track changes in elevation and areal extent of the island. Protocols were designed with the goals of establishing an ongoing program to monitor this island's evolution and of establishing a monitoring program in the event another new island forms in the future. Additionally, TBAP provided GPS mapping and other logistical support to a plant ecologist to periodically monitor vegetation recruitment and changes on the island. Since the formation of the island, elevation and vegetation monitoring methods were modified into a fairly robust set of methods and protocols. In 2019, the island accreted to an extent too large to be effectively monitored.

Mapping elevations of islands can give insights into appropriate vegetation for restoration work

Goal 1: Continue native revegetation of islands.

Objective 1: Maintain existing native plant assemblages on islands and reduce nonnative coverage.

Integrated Strategies

- For invasive plant control done in-house (including with volunteers), prioritize removing invasives directly adjacent to native plant communities.
- Acquire funds to clear invasives on publicly-owned islands using contractors.
- Continue regular retreatment schedule on cleared islands.

Performance Measures

- Previously cleared areas are kept free of invasive recruits.
- Remove, and track using GIS, all invasive plants directly adjacent to native plant communities on actively managed islands. Australian pines will be strategically removed, based on funding and safety considerations.
- Additional publicly-owned islands, such as county-owned BC-22 are cleared of, and kept free from invasives.

Partners

- Florida Native Plant Society
- Environmental organizations (Sierra Club, Surfrider Foundation, etc.)
- Pinellas County
- College groups
- Civic groups

Objective 2: Continue to revegetate island areas presently occupied by invasive plant species.

Integrated Strategies

- Maintain areas in lower elevations (high marsh and below) free of exotics to allow the typically rapid, natural recruitment of natives.
- Plant native plants in higher elevations with volunteers or contractors.

Performance Measures

- High marsh and other low elevation areas on islands are maintained free of invasives to allow natives to recruit.
- Acreage re-planted with native species on higher elevations will be tracked on GIS.

Partners

- Florida Native Plant Society
- College groups
- Civic groups

Goal 2: Continue education and outreach efforts for islands.

Objective 1: Provide information about islands, their ecological importance and individual stewardship measures to the general public.

Integrated Strategies

- Provide information about islands at events, like local festivals, boat shows, etc.
- Provide information (e.g., existing boaters' guides) about islands through the CSO.

Performance Measure

- Track participation at outreach events to ensure that multiple user groups and regions are engaged.

Partners

- Pinellas County
- Friends of Tampa Bay Aquatic Preserves

Objective 2: Provide information on islands and their ecological importance at points of access and use.

Integrated Strategies

- Provide informational signage at boat ramps and other access points, including TBAP contact information and links to additional information such as DEP's website.
- Provide informational signage on islands in high-usage areas, including TBAP contact information and links to additional information such as DEP's website.

Performance Measures

- Signs are inventoried, maintained and replaced as needed at access points each year.
- Islands with signs are inventoried, maintained and replaced as needed each year.

Partners

- Local governments and other managers of boat access facilities

Goal 3: Improve public access on selected high-use islands.

Objective 1: Provide limited amenities in selected high-use areas.

Integrated Strategies

- Recycled plastic picnic tables are placed on appropriate islands.
- Stewardship signage is placed on islands with amenities.

Performance Measures

- Tables and signage are installed at key use areas on appropriate islands.
- Previously installed signs and tables are maintained.

Partners

- Boating groups
- Civic organizations
- College volunteer groups

Objective 2: Improve and maintain interpretive trail on island NCH-13.

Integrated Strategies

- Regularly maintain island interpretive trail on island NCH-13.
- Replace old and missing interpretive signs with new, site-specific ones.

Performance Measures

- New signs for major common native plants are printed and installed.
- The NCH-13 island interpretive trail and signs are maintained on an annual basis.

With the help of volunteers, TBAP maintains an interpretive trail on a Clearwater Harbor Island.

Partners

- Boating groups
- Civic organizations
- College volunteer groups

Goal 4: Seek ways to better protect rookery islands.

Objective 1: Bird rookery islands are more effectively posted.

Integrated Strategies

- Use outreach efforts to raise awareness of rookery islands.
- In consultation with FWC and appropriate agencies and organizations, maintain existing posted buffer areas around rookery islands during nesting season and adjust signage and buoys as needed.
- Participate in law enforcement workshops to better maintain protection of bird rookeries.

Performance Measure

- Buoys with signage are posted seasonally at bird rookery islands, pending approval by FWC and other appropriate agencies.

Partners

- FWC
- Audubon Society
- Boating organizations
- U.S. Coast Guard
- SWFWMD
- U.S. Army Corps of Engineers

Issue III: Shoreline Alterations

Zones where one habitat grades into another, known as ecotones, are one of the most important components of an ecological landscape. Organisms often use more than one habitat during the course of the day or at different times in their life history. Their ability to cross these transitional zones can be critical to their survival. Shorelines are important ecotones in any coastal system. Many organisms, like wading birds, need the shallow, productive waters to forage for food. Others, like mollusks and some arthropods need the shallow waters to enhance their chance of finding a mate, and many deposit eggs in shallow areas where waves can aerate them.

Intact shoreline vegetation not only provides food and protection for a host of estuarine species, but it also can reduce loss of life and property during catastrophic events (Kathiresan & Rajendran, 2005). In areas like Pinellas County, many waterfront property owners do not recognize the important role that vegetation plays and the detriment caused by alteration of coastal vegetation. At the same time that sea level rise and severe weather drives short- term alterations to natural shorelines, these alterations may negatively affect coastal resilience over the long term.

In 2024, two tropical weather systems, hurricanes Helene and Milton, affected shorelines in the preserves by depositing vessels and other major debris in shoreline habitats and by altering coastal geoforms in certain areas. While the alteration of shoreline features is largely a natural process, Removal of anthropogenic debris is necessary. Since vessels and other large debris that came in on a storm surge often cannot be removed easily on normal tides, unique approaches, often specific to each case, must be employed to remove debris without doing additional damage to habitats. With Hurricane Irma in 2017 an ESF-10 command structure was established for the US Coast Guard to work directly with contractors

and Resource Advisors to evaluate each removal. That command structure has not been implemented in subsequent Florida storms, and, with less direct oversight, other means are necessary to ensure that contractors work with best management practices that protect mangroves, seagrasses, oyster beds and other habitats. To this end, TBAP has provided training for contractors. Based on experience, TBAP should encourage the use of Resource Advisors whenever possible, and the program should be proactive in maintaining Resource Advisor training among staff and agency partners.

Several approaches are required to protect and improve the habitat and protective qualities of Pinellas County shorelines. First, as alluded to above, reducing the ongoing alteration of shorelines is largely an awareness issue. TBAP provides information on shorelines as part of exhibits and distributes educational materials at local events. TBAP also reaches many local people through regular postings by DEP and the Friends of the Tampa Bay Aquatic Preserves on their social media pages, TBAP also provides direct outreach through presentations to waterfront residents through their homeowner associations about this and other issues, such as storm drain awareness.

Pinellas County's Code of Ordinances has recently been updated to address the construction of seawalls and living shorelines. The county ordinances encourage using alternate methods for shoreline stabilization, such as riprap and vegetation in place of seawalls (Pinellas County Water and Navigation Regulations, 2011, 2018). Both types of shoreline management must be permitted through DEP and TBAP regularly consults with regulatory during the permitting process. In addition, no land clearing or ground disturbance, above or below the mean high water line, can be completed until the Division of Historical Resources has provided a review and recommendations for the proposed activity. TBAP staff can suggest alternatives that avoid or minimize potential impacts from these activities.

The regulatory process also offers opportunities to restore altered shorelines through mitigation and public interest projects. As was mentioned in the previous issue section, permit applicants often must mitigate for impacts to habitat. In addition, applicants may need to add an additional environmentally beneficial component to their project if it is not sufficiently in the public interest on its own, as prescribed in Chapter 18-20, F.A.C. TBAP staff often play an important advisory role in both of these processes, and shoreline restoration can be an appropriate suggestion for projects. Toward this end, TBAP and regulatory staff will provide cross-training, and shoreline restoration project ideas.

Third, TBAP also pursues other opportunities for encouraging shoreline restoration outside the regulatory process. For instance, county and city governments often seek advice from TBAP on areas where they would like to bring altered shorelines back to a more natural state. The reasons for such restoration vary, ranging from the aesthetics of natural shorelines to attracting fish to desired locations, such as municipal fishing piers. TBAP has pointed out these benefits and has suggested approaches to replace hard structures with natural slopes and vegetation. TBAP staff stays current with new restoration approaches and technologies as they become available, acting as a local resource for site- specific restoration recommendations.

Goal 1: Minimize new alterations to natural shorelines.

Objective 1: Increase awareness of the ecological and protective importance of natural shorelines.

Integrated Strategies

- Provide information on natural shoreline options including regulatory information, at outreach events.
- Give presentations to civic groups and homeowner associations.
- Provide information for CSO outreach efforts.
- Document shoreline erosion in sensitive areas such as rookery islands.
- Provide applicable information and any available resources for grant opportunities.

Performance Measures

- Information on shoreline importance included in event display where appropriate.
- Conduct presentations to local groups. .

Partners

- Pinellas County
- Tampa Bay Agency on Bay Management

Objective 2: Provide regulatory input when appropriate.

Integrated Strategies

- Provide shoreline information to regulatory employees.
- Provide input on shoreline alteration avoidance and minimization during the regulatory process.

Performance Measures

- Conduct training for regulatory staff about shoreline issues.
- Shoreline protection is incorporated into regulatory comments when warranted.

Partners

- DEP's Southwest Regulatory District Office
- Pinellas County Environmental Management Division
- SWFWMD's regulatory office

Goal 2: Seek opportunities to restore altered shorelines to a more natural state.

Objective 1: Facilitate natural shoreline restoration through the regulatory process.

Integrated Strategies

- Maintain a database of potential shoreline restoration opportunities.
- Recommend shoreline restoration, when appropriate, as mitigation.
- Recommend shoreline restoration, when appropriate, as public interest.

Performance Measures

- Shoreline restoration opportunities database is maintained.
- Shoreline restoration is recommended in the regulatory process when appropriate.

Partners

- DEP's Southwest Regulatory District Office
- SWFWMD's regulatory office
- Pinellas County Environmental Management Division

Objective 2: Make technical advice and information available to interested parties.

Integrated Strategy

- Provide suggested approaches and how-to information to homeowner associations and waterfront associations that show interest.

Performance Measure

- An up-to-date database of technical information and case studies is created and maintained.

Partners

- Local governments
- Waterfront homeowner associations
- Pinellas County

4.3 / The Education and Outreach Management Program

The Education and Outreach Management Program components are essential management tools used to increase public awareness and promote informed stewardship by local communities. Education programs include on and off-site education and training activities. These activities include field studies for students and teachers; the development and distribution of media; the distribution of information at local events; the recruitment and management of volunteers; and, training workshops for local citizens and decision-makers. The design and implementation of education programs incorporates the strategic targeting of select audiences. These audiences include all ages and walks of life; however, each represents key stakeholders and decision-makers. These efforts by the Education and Outreach Program allow the aquatic preserve to build and maintain relationships and convey knowledge to the community; invaluable components to successful management.

4.3.1 / Background of Education and Outreach at Pinellas County and Boca Ciega Bay Aquatic Preserves

Because of the population density of Pinellas County, any increase in awareness of individuals' contributions to degradation or improvement of coastal waters can have considerable impacts through even minor behavioral changes. Therefore, education and outreach have been important areas of emphasis for TBAP and will become more important in the future.

In 2024, TBAP moved its office to the Clearwater Historical Society in Pinellas County and the building is also available for outreach events. However, like its resource management strategy, the education and outreach strategy relies on partnerships with other facilities and on-site information. From the earliest days of on-site management at BCBAP and PCAP, aquatic preserve managers maintained a presence at public events to raise awareness and disseminate information. These displays included storyboard displays, as well as relevant literature. The Aquatic Preserves Coloring Book has long been a popular way of reaching the public through the education of children about the importance of PCAP and BCBAP and other aquatic preserves. In 1990, the TBAP made their first foray into mass media communication to raise program awareness with the production of a televised public service announcement featuring the Bellamy Brothers as celebrity spokesmen. For many years, the program sought outreach to school classes and TBAP staff still provide school programing, like the "Great American Teach-In." In the late 1990s outreach efforts switched to social media, television, and radio to reach a broader spectrum of the population.

TBAP received an invitation to host an episode of the University of South Florida's Marine Science Program's Project Oceanography television series in the fall of 2000. The team learned that mass communication technology was becoming a vehicle for education and outreach that spread conservation awareness much farther than previously hoped. The Project Oceanography series was broadcast over satellite television to classrooms across Pinellas County, the greater Tampa Bay area, Florida and beyond. Because classrooms could subscribe and receive classroom preparatory materials corresponding with each episode, the reach of this program even extended overseas. The TBAP-hosted episode on polluted runoff included hands-on demonstrations involving student volunteers from a live middle school audience. As a result of this wide-reaching outreach success, TBAP continued its efforts to reach larger audiences. A video documentary called Wild Tampa Bay, produced by Hillsborough County TV in 2000 reached a wide audience around Tampa Bay. The Tampa Tribune took the unusual step of providing a positive critical review of the program that further highlighted TBAP's conservation

efforts (Belcher, 2000). Over the years, a number of television news features and newspaper articles provided additional public exposure for the TBAP program.

Experiential learning is one of the most effective ways to generate public support. TBAP has sought various ways to engage people in hands-on volunteer activities that involve service learning experiences. In BCBAP and PCAP, the greatest need for volunteer work is island restoration. During the cool months, many local citizens, student volunteers, interns and out-of-town visitors have a pleasant experience of helping to remove invasive plants, planting native plants, removing debris, maintaining an interpretive trail and signs and other resource management activities. During their work, these volunteers are becoming directly engaged with the issues, and they often come away indicating that the experience has enhanced their appreciation for the TBAP. In a partnership that has lasted over a decade, Ohio State University has sent multiple groups each year to work with TBAP for week-long service learning trips. Other out-of-state groups have come from the University of North Carolina at Chapel Hill and Louisiana State University. Reflective debriefings built into these programs provide valuable insight for TBAP staff about the insights and knowledge the student volunteers take away from the experience.

4.3.2 / Current Status of Education and Outreach at Pinellas County and Boca Ciega Bay Aquatic Preserves

The education and outreach efforts of TBAP to date have received consistently positive feedback, but they have focused more on groups who have sought the information and/or have already had some degree of awareness on the topics presented. The focus for TBAP going forward is to reach farther into the community to engage residents who may not fully appreciate their connection to, and their role in protecting the Tampa Bay ecosystem.

Because TBAP's education and outreach efforts are not tied to a centralized visitor center, the program must maintain a network of informational media at access points and relevant events. TBAP has done much of its outreach through events where displays and hands-on activities can convey information on our coastal resources and individuals' role in helping protect them. Hands-on activities are often connected with specific issues. For example, at events where many children are expected, TBAP has reusable grocery bags for the children to decorate with fabric markers as their parents learn about the area's habitats and the importance of preventing marine debris.

Moving forward, TBAP is looking to expand its educational reach beyond events to reach a broader cross section of residents. With the ability to create 360-degree virtual reality content, TBAP is exploring possibilities to offer immersive Virtual Reality (VR) experiences at permanent or semi-permanent installations. The program is also looking to engage with neighborhoods that are connected to coastal ecosystems through their storm drains. Initiatives like cooperative community storm drain marking integrated with an educational component and long-term tracking could help achieve this community-based awareness and engagement.

4.3.3 / Education and Outreach Issue

Issue IV: Marine Debris

It would be difficult to find an area of Tampa Bay that is not affected by the presence of marine debris. Relative to the bi-directional tidal oscillations of bay waters, directional (residual) flow driven by runoff and ground water input is small. The resulting long residence time for water in the bay gives floating debris a good chance of being driven by wind to a shoreline within the bay. Likewise, the barrier islands on the west coast of Pinellas County that delineate St Joseph Sound, Clearwater Harbor and Boca Ciega Bay help retain debris within these basins. While this helps intercept debris that, otherwise, would end up in the Gulf of Mexico, debris becomes concentrated in the waters and shorelines around Pinellas County.

Some marine debris is very Floridian in nature.

Marine debris poses a real threat to wildlife that might become entangled or might ingest indigestible materials like plastics. Monofilament fishing line is commonly seen wrapped around birds and turtles, among other animals, causing injury or possibly death. A Monofilament Recovery & Recycling Program was initiated by FWC to reduce the impact of this particular type of marine debris in Florida (FWC, n.d.-b). The Monofilament Recovery & Recycling Program has created a network of recycling bins around the state to encourage proper disposal of the line, as well as numerous coastal cleanup events to remove line from the natural environment. There are more than 25 sites in PCAP and BCBAP with monofilament line bins. Although this is a positive move, animals are continuously found entangled all throughout the aquatic preserves.

Marine debris comes in all shapes and sizes. It ranges from the unsecured plastic bag that blows out of a vehicle or washes down a storm drain to derelict boats that, by not having been moored securely, come loose from their moorings and run aground and/or sink. The Ocean Conservancy, during their 2016 International Coastal Cleanup, identified cigarette butts, bottle caps, food and beverage wrappers, straws and plastic bags as some of the most common debris found along Florida's coastline (Ocean Conservancy, 2017). Urban areas are the source of much of the debris that ends up along less-developed shorelines. In Pinellas County, this issue can be addressed, in part, by measures to prevent debris from entering waterways from the land. For debris that gets into the aquatic preserve, the area offers considerable resources for removing it. TBAP can do a lot to reduce and remove marine debris through raising awareness, encouraging best management practices and coordinating debris removal efforts.

The preferred approach is to prevent debris from entering aquatic habitat. It is not uncommon to see plastics and other items carried by winds or stormwater runoff. Many people do not realize how directly storm drains and ditches often conduct runoff and debris to natural habitats. Increasing this awareness is expected to result in better management of waste before it becomes debris. To complement this awareness, physical infrastructure, like covered trash receptacles and stormwater retrofits to intercept floatable debris can help prevent entering these systems and impacting natural habitats.

Goal 1: Reduce marine debris at the source.

Objective 1: Reduce marine debris through physical means.

Integrated Strategies

- Work with local resource managers to ensure that trash receptacles at access points are covered and emptied regularly to prevent discarded debris from entering the aquatic preserve.
- Encourage storm water system retrofits that include mechanisms (e.g., baffle boxes) to intercept floatable debris.
- Promote sound fish waste management through a combination of fish-cleaning restrictions, public education and proper disposal of fish waste.

Performance Measure

- Managers at all visited access sites are contacted, when necessary, about covering trash receptacles and providing additional capacity for peak usage periods when needed.

Partners

- Local parks departments
- SWFWMD's Surface Water Improvement and Management (SWIM) program
- Pinellas County Environmental Management Division
- Keep Pinellas Beautiful
- Local governments
- Clean Boating Partnership

Objective 2: Reduce marine debris through increased awareness.

Integrated Strategies

- Provide awareness messages at access point kiosks and other informational locations to raise awareness about marine debris and its effects on the aquatic preserve.
- Provide awareness messages on marine debris at outreach events.
- Encourage local communities to mark storm drains.
- Encourage studies that identify types and possible sources of marine debris within the aquatic preserves.

Performance Measures

- Identify number of access points needing signage.
- Information on marine debris is available at all identified points of access/use of PCAP and BCBAP.
- Track participation at outreach events to ensure that multiple user groups and regions are engaged and receives information on marine debris.
- Track materials shared with local communities to mark storm drains.

Partners

- Keep Pinellas Beautiful
- Homeowner associations
- Tampa Bay Estuary Program
- Pinellas County Environmental Management Division
- Local governments
- Tampa Bay Watch

Goal 2: Remove debris that has entered the aquatic preserves.

Objective 1: Coordinate and encourage debris removal activities.

Integrated Strategies

- Facilitate shoreline cleanups of marine debris, focusing on islands, debris hotspots and relatively remote areas.
- Encourage boaters to remove floating debris.
- Encourage and support derelict vessel removal operations using Best Management Practices (BMPs) to protect natural resources.

Performance Measures

- A debris removal component is included in all activities at islands and other project sites.
- Track number of islands cleaned.
- Coordinate with appropriate agencies and recommend BMPs for removal of derelict vessels.
- When needed, assist with the training of contractors on BMPs to utilize including natural resources and habitats overview.

Partners

- Keep Pinellas Beautiful
- Boating and kayaking groups
- Pinellas County Environmental Management Division
- Local college student organizations
- Civic groups
- NOAA and FWC Marine Debris Programs
- Division of Emergency Management and contractors

4.4 / The Public Use Management Program

The Public Use Management Program addresses the delivery and management of public use opportunities at PCAP and BCBAP. The components of this program focus on providing the public recreational opportunities within the site's boundaries which are compatible with resource management objectives. The goal for public access management in ORCP managed areas is to promote and manage public use of preserves and reserves that supports the research, education, and stewardship mission of ORCP.

While access by the general public has always been a priority, the conservation of ORCP's sites is the primary management concern for ORCP. It is essential for staff to analyze existing public uses and define management strategies that balance these activities where compatible in a manner that protects natural, cultural and aesthetic resources. This requires gathering existing information on use, needs, and opportunities, as well as a thorough consideration of the existing and potential impacts to critical upland, wetland and submerged habitats. This includes the coordination of visitor program planning with social science research. One of ORCP's critical management challenges during the next 10 years is balancing anticipated increases in public use with the need to ensure preservation of site resources. This section explains the history and current status of the Public Use efforts.

4.4.1 / Background of Public Use at Pinellas County and Boca Ciega Bay Aquatic Preserves

The underlying rationale for TBAP's role in public access to, and use of, aquatic preserves' resources is the idea that use of the aquatic preserves' resources and conservation of those resources are not necessarily at odds. In fact, sustainable usage can create much-needed public education and engagement to address a number of conservation needs.

As a program focused primarily on conservation, TBAP plays a much less active role in facilities for public access and recreation than parks and other programs for which recreation is the primary focus. However, without the role of the vast acreages of habitat protected in BCBAP and PCAP in generating clean water, fisheries resources and other basics of a quality coastal zone, even recreation areas like shoreline parks would offer much poorer visitor experiences. Additionally, the resources managed by the program often offer unique nature-based opportunities, and TBAP bears some responsibility in ensuring sustainable access for those interested.

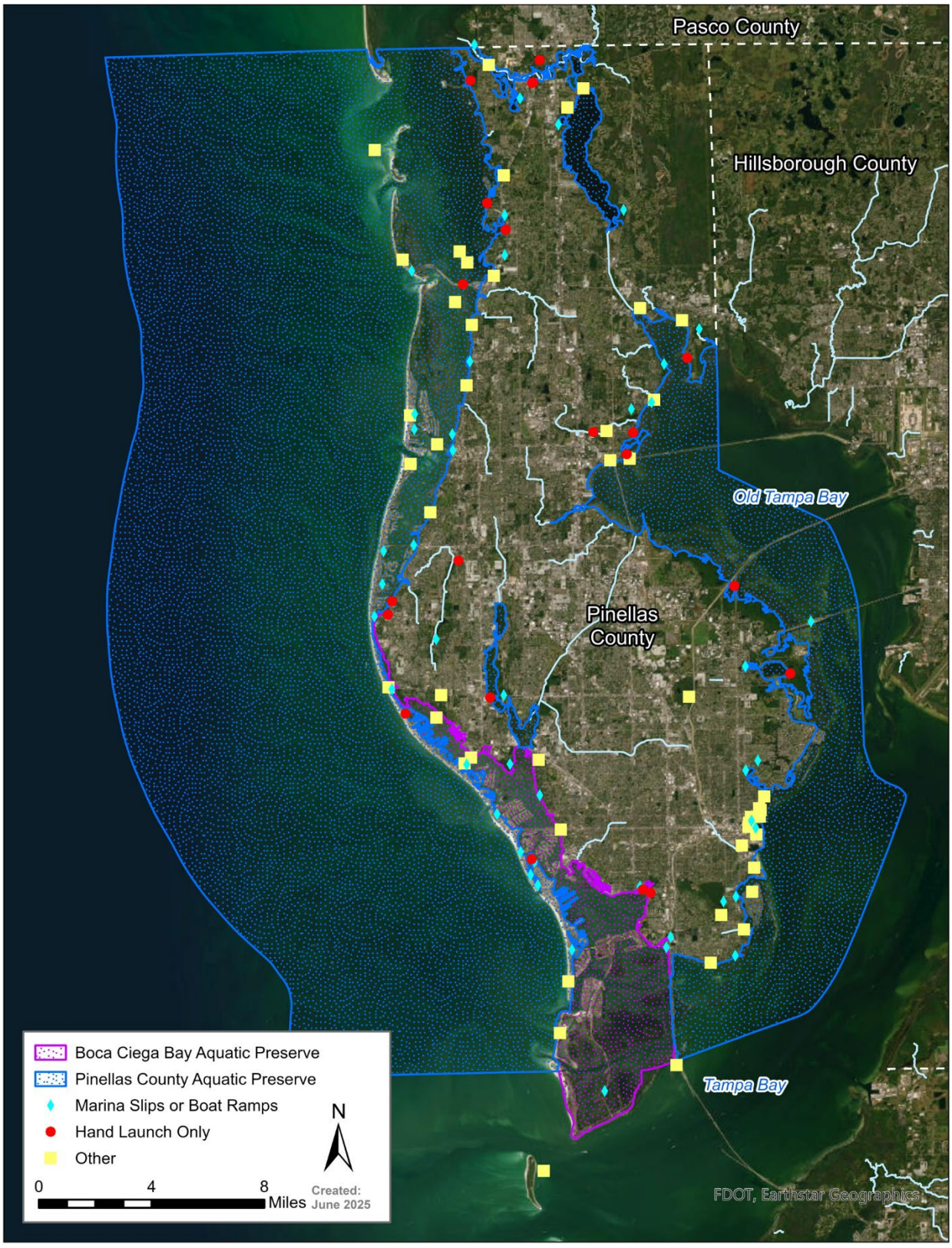
The TBAP program directly manages very little public use infrastructure in BCBAP and PCAP. For remote areas with routine public use, including certain islands where picnicking and camping are common, a few amenities like picnic tables have been added to focus usage on specific areas. Most of TBAP's visitor accommodation infrastructure is in the form of informational kiosks and standalone signs intended to help visitors appreciate their experience, while helping them to be good stewards of the resources they are enjoying. Depending on whether the signage is at a boat ramp, an island or other venue, site-specific messages like what to do if you hook a bird or the importance of native vegetation are selected for that venue.

TBAP often works closely with local governments and organizations to suggest kayak launch sites, design kiosk signage or assist with other access point features that benefit the goals of TBAP, as well as the entity managing the access point. Often site-specific signage design in-house and printed locally is much less costly than the off-the-shelf signage available from professional outdoor sign vendors. TBAP has a history of creating win-win partnerships, and quite a few of those are collaborative efforts toward accommodating public use.

4.4.2 / Current Status of Public Use at Pinellas County and Boca Ciega Bay Aquatic Preserves

TBAP's limited upland footprint likely will never allow it to play a large role in developing public access facilities, but the conservation benefits of knowledgeable, engaged visitors will continue to drive the program to be innovative in providing information that will enhance enjoyment and stewardship among visitors to the aquatic preserves. The trend toward more site-specific information will continue, as the staff gains more knowledge, software and other resources to produce professional- quality media in-house. Technology also will allow TBAP to offer more guidance in the use of resources with less physical alteration, as in the development of virtual paddling trails where physical trail signs, which can require frequent, expensive maintenance are replaced with downloadable virtual trail waypoints for GPS-enabled devices.

Programs like TBAP are constantly looking for usage trends on the horizon. Attention to demographic trends in visitation can allow the program to anticipate changing informational needs and to be prepared. A good example of this shift is in the origins of visitors coming to Pinellas County for nature-based experiences. In the past, most foreign visitors have been from Europe, and alternate versions of park brochures might have been printed in languages that reflect that visitor demographic. Recently, Florida is seeing more visitors from southeast Asia. Personal communication of the TBAP manager with Visit St. Pete/Clearwater officials has indicated that it might be useful to begin creating versions of local nature guide materials, like park brochures, in languages like simplified Chinese. State and local park officials, who would be key partners, have also responded positively to TBAP's initiative. It may also be beneficial to produce similar materials in Vietnamese and Spanish to improve outreach to new residents in those communities. While not extensive, TBAP's contributions to accommodating public use are innovative and forward-thinking. There are a wide variety of recreational activities available in the Pinellas County aquatic preserves, including boating, kayaking, canoeing, fishing, beachgoing, nature study, and more with over 100 access points. Each of these access points are listed in Appendix B.6, as well as common amenities and a series of maps. There is also an interactive map with boat ramps and beach access



Map 15 | Public access sites in and near Pinellas County Aquatic Preserve

points at https://floridaaquaticpreserves.org/managed-areas/aquatic-preserves/pinellas-county-aquatic-preserve.

Other, less traditional uses of the aquatic preserves can potentially impact resources. Ultralight aircraft have been observed flushing birds from islands and shoals. Horseback riding concessions in various parts of the aquatic preserves have been observed to damage marshes and seagrasses, as well as degrade water quality. In 2019, with support and data from DEP, Pinellas County passed an ordinance against horseback riding in the aquatic preserves to protect these resources. As each possible issue arises, TBAP will document any adverse impacts and seek ways to avoid or minimize the impacts, as sustainable public use is a component of management strategies associated with other issues.

Regulatory staff work directly with TBAP staff on field assessments for permit applications and other projects.

Chapter 5 / Administrative Plan

Successful implementation of the ecosystem science, public use, education, and resource management programs outlined in this management plan is dependent on an effective administration strategy and framework that provides for adequate staffing, facilities, funding, and cooperation with other agencies and citizen support. The objectives of the aquatic preserve's administrative program include the following: 1) to supervise and administer programs and maintain facilities; 2) to comply with all legal rules, contracts, agreements, and regulations; 3) to maintain all records needed for operating, budgeting, planning, and purchasing; and 4) to communicate and coordinate with all entities involved in research, education, commercial, and recreation utilization or management within the aquatic preserve.

Present staff positions include a full-time Environmental Specialist III- Select Exempt Service (ESIII-SES), a full-time Environmental Specialist II- Other Personnel Services (ESII-OPS), and a full-time ES I-OPS. In addition, to science-based resource management, these positions also perform administrative, maintenance and outreach duties. To implement planned activities, staff resources are supplemented by active intern and volunteer programs. A computer-based volunteer coordination system is used to track interested volunteers and their volunteer hours. Colleges, grade schools, nonprofit organizations, corporate groups and other agencies have been valuable sources of volunteers.

The plan's recommended actions, time frames, and cost estimates will guide the RCP's planning and budgeting activities over the period of this plan. These recommendations are based on the information that exists at the time the plan was prepared. A high degree of adaptability and flexibility must be built into this process to ensure that ORCP can adjust to changes in the availability of funds, unexpected events such as hurricanes, and changes in statewide issues, priorities and policies. While most of the strategies identified in this plan will be implemented using existing staff and funding, several objectives and the strategies necessary to accomplish strategies cannot be completed during the life of this plan without additional resources.

Statewide priorities for management and restoration of submerged and coastal resources are evaluated each year as part of the process for planning ORCP's annual budget. When preparing ORCP's budget, it considers the needs and priorities of the entire aquatic preserve program, other programs within ORCP, and the projected availability of funding from all sources during the upcoming fiscal year. ORCP pursues supplemental sources of funds and staff resources whenever possible, including grants, volunteers, and partnerships with other entities. ORCP's ability to accomplish the specific actions identified in the plan will be determined largely by the availability of resources, which may vary from year to year. Consequently, the target schedules and estimated costs identified in Appendix D may need to be adjusted during the ten-year management planning cycle.

Spectacular natural resources are located in close proximity to urban development.

Chapter 6 / Facilities Plan

Facilities

Boca Ciega Bay Aquatic Preserve (BCBAP) and Pinellas County Aquatic Preserve (PCAP) are part of the Tampa Bay Aquatic Preserves (TBAP) program, which manages four aquatic preserves in three counties. While a primary base of operation is important, it is equally important that the TBAP program maintain partnerships around the bay so local resources can be leveraged for site-specific projects and activities. These resources include compounds that can be used for temporary equipment storage near projects, local community group partners that can provide manpower and volunteers, agencies and organizations that can provide meeting and event spaces and both public and private academic institutions that can provide equipment, student interns/volunteers and local expertise. This dispersed facilities partner approach is an absolute necessity for a program with resource management goals spread across a large geographic area.

Buildings

Until recently, most of TBAP's facilities were based in Manatee County, south of the Skyway Bridge. Since the previous plan, TBAP has secured a lease and moved most facilities to Clearwater, in Pinellas County.

TBAP's office is at the Clearwater Historical Society at 610 S. Ft. Harrison Avenue on the 2nd floor of the building in downtown Clearwater. Data lines link the offices directly to the state's data network, while also supporting Cisco phone connectivity. Aside from the lease, an event center, that could seat approximately 50 people on-site, is available for use, at no charge, from the Clearwater Historical Society. For larger meetings and events, other facilities are available, also at no charge on some Pinellas County managed lands.

This move puts the program headquarters closer to the most frequently-accessed field project sites and outreach event venues, such as Weedon Island Preserve. Additionally, and very importantly, the office and storage facility, at an elevation of over 30 feet, and in solid old school buildings, puts the TBAP program on better footing in the event of hurricanes and other weather events. Therefore, TBAP should have increased capacity to aid the community and/or engage in resource-related activities, like derelict vessel removal, following episodic events. An additional benefit of the new headquarters site is that the site allows TBAP to support the Clearwater Historical Society's efforts to promote the historic nature of the building which was built in 1906,

Unlike the office space, the storage space on site is not climate-controlled, though portable air conditioner can be used to climate-control a smaller room in that space. The storage space is organized into grab-and-go aisles for outreach materials, display components and volunteer field gear. A small workbench area allows for repairs to instruments and other field equipment.

TBAP has secured a portable building that for items that are not appropriately stored in the main building, such as those that may contain gasoline or be wet due to field activities .. The 10' x 12' building was selected because it has a welded steel frame, a wind rating of 180mph, and blends well with the old school buildings of the site. This building needs to be very resilient, as it protects equipment, like chainsaws, that could be needed in the immediate aftermath of a storm.

Partnerships are key to TBAP's facilities use and management. Whether it is the use of a Pinellas County venue, like Weedon Island Preserve's visitor center, or a vehicle compound, like the Pasco County maintenance yard at Anclote River Park, such partnerships have enabled TBAP to operate with much greater efficiency and effectiveness than otherwise would be possible. With the new Clearwater headquarters location, TBAP has also gained a valuable partner in the Clearwater Historical Society. The Friends of Tampa Bay Aquatic Preserves has already worked with the Historical Society on outreach events and other initiatives, and, as the Historical Society continues to renovate building space, TBAP may have room to grow.

Vehicles

TBAP currently has two vehicles, and they are suitable for the program's present vehicle needs. TBAP uses vehicles to tow vessels on trailers, to transport staff, interns and volunteers and to transport equipment.

TBAP's F-250, heavy duty, supercab truck has good towing capacity, a full 8ft bed and a topper on the bed. This vehicle is the main vehicle for towing boats and carrying equipment to marinas and other field sites. The topper can be locked, so equipment can be stored in the bed with some security at marinas until it is needed.

TBAP's F-150 extended cab truck is also suitable for towing vessels and carrying equipment. It does not have a topper on the bed, so it is suitable for transporting large objects like native plants.

Vessels

TBAP has two fully-operational motorized vessels. One is a 24 ft commercial SeaArk aluminum boat. This vessel is very well-suited for shallow water and island work. It can be configured with coolers for storage

and seating, and it also can be fitted with a 500 lb capacity boom and hand winch for retrieving large debris, buoys, etc.

TBAP also has a 25 ft vee hull Mako that complements the limitations of the SeaArk by allowing work to be conducted in open, often choppy, conditions TBAP uses open water vessels to access offshore and open bay parts of the preserves and to transport volunteers to island remote shorelines.

TBAP also has several kayaks and a canoe. These allow staff, volunteers and equipment to access areas where motorized vessels cannot go. Additionally, TBAP has a 10 ft Zodiac inflatable boat that can be used for shallow water and as a tender for the Mako.

TBAP maintains, and annually updates, a hurricane plan with detailed plans for securing and/or removing equipment and facilities in the event of a severe weather threat.

List of Appendices

Appendix A / Legal Documents

A.1 / Aquatic Preserve Resolution

WHEREAS, the State of Florida, by virtue of its sovereignty, is the owner of the beds of all navigable waters, salt and fresh, lying within its territory, with certain minor exceptions, and is also the owner of certain other lands derived from various sources; and

WHEREAS, title to these sovereignty and certain other lands has been vested by the Florida Legislature in the State of Florida Board of Trustees of the Internal Improvement Trust Fund, to be held, protected and managed for the long range benefit of the people of Florida; and

WHEREAS, the State of Florida Board of Trustees of the Internal Improvement Trust Fund, as a part of its overall management program for Florida's state-owned lands, does desire to insure the perpetual protection, preservation and public enjoyment of certain specific areas of exceptional quality and value by setting aside forever these certain areas as aquatic preserves or sanctuaries; and

WHEREAS, the ad hoc Florida Inter-Agency Advisory Committee on Submerged Land Management has selected through careful study and deliberation a number of specific areas of state—owned land having exceptional biological, aesthetic and scientific value, and has recommended to the State of Florida Board of Trustees of the Internal Improvement Trust Fund that these selected areas be officially recognized and established as the initial elements of a statewide system of aquatic preserves for Florida;

NOW, THEREFORE, BE IT RESOLVED by the State of Florida Board of Trustees of the Internal Improvement Trust Fund:

THAT it does hereby establish a statewide system of aquatic preserves as a means of protecting and preserving in perpetuity certain specially selected areas of state-owned land: and

THAT specifically described, individual areas of state-owned land may from time to time be established as aquatic preserves and included in the statewide system of aquatic preserves by separate resolution of the State of Florida Board of Trustees of the Internal Improvement Trust Fund; and

THAT the statewide system of aquatic preserves and all individual aquatic preserves established thereunder shall be administered and managed, either by the said State of Florida Board of Trustees of the Internal Improvement Trust Fund or its designee as may be specifically provided for in the establishing resolution for each individual aquatic preserve, in accordance with the following management policies and criteria:

(1) An aquatic preserve is intended to set aside an exceptional area of state-owned land and its associated waters for preservation essentially in their natural or existing condition by reasonable regulation of all human activity which might have an effect on the area.

(2) An aquatic preserve shall include only lands or water bottoms owned by the State of Florida, and such private lands or water bottoms as may be specifically authorized for inclusion by appropriate instrument from the owner. Any included lands or water bottoms to which a private ownership claim might subsequently be proved shall upon adjudication of private ownership be automatically excluded from the preserve, although such exclusion shall not preclude the State from attempting to negotiate an arrangement with the owner by which such lands or water bottoms might be again included within the preserve.

(3) No alteration of physical conditions within an aquatic preserve shall be permitted except: (a) minimum dredging and spoiling for authorized public navigation projects, or (b) other approved activity designed to enhance the quality or utility of the preserve itself. It is inherent in the concept of the aquatic

preserve that, other than as contemplated above, there be: no dredging and filling to create land, no drilling of oil wells or excavation for shell or minerals, and no erection of structures on stilts or otherwise unless associated with authorized activity, within the confines of a preserve - to the extent these activities can be lawfully prevented.

(4) Specifically, there shall be no bulkhead lines set within an aquatic preserve. When the boundary of a preserve is intended to be the line of mean high water along a particular shoreline, any bulkhead line subsequently set for that shoreline will also be at the line of mean high water.

(5) All human activity within an aquatic preserve shall be subject to reasonable rules and regulations promulgated and enforced by the State of Florida Board of Trustees of the Internal Improvement Trust Fund and/or any other specifically designated managing agency Such rules and regulations shall not interfere unduly with lawful and traditional public uses of the area, such as fishing (both sport and commercial), hunting, boating, swimming and the like.

(6) Neither the establishment nor the management of an aquatic preserve shall infringe upon the lawful and traditional riparian rights o private property owners adjacent to a preserve. In furtherance of these rights, reasonable improvement for ingress and egress, mosquito control, shore protection and similar purposes may be permitted by the State of Florida Board of Trustees of the Internal Improvement Trust Fund and other jurisdictional agencies, after review and formal concurrence by any specifically designated managing agency for the preserve in question.

(7) Other uses of an aquatic preserve, or human activity within a preserve, although not originally contemplated, may be permitted by the State of Florida Board of Trustees of the Internal improvement Trust Fund and other jurisdictional agencies, but only after a formal finding of compatibility made by the said Trustees on the advice of any specifically designated managing agency for the preserve in question.

IN TESTIMONY WHEREOF, the Trustees for and on behalf of the State of Florida Board of Trustees of the Internal Improvement Trust Fund have hereunto subscribed their names and have caused the official seal of said State of Florida Board of Trustees of the Internal Improvement Trust Fund to be hereunto affixed, in the City of Tallahassee, Florida, on this the 24th day of November A. D. 1969.

CLAUDE R. KIRK, JR, Governor

TOM ADAMS, Secretary of State

EARL FAIRCLOTH, Attorney General

FRED O. DICKINSON, JR., Comptroller

BROWARD WILLIAMS, Treasurer

FLOYD T. CHRISTIAN, Commissioner of Education

DOYLE CONNER, Commissioner of Agriculture

As and Constituting the State of Florida Board of Trustees of the Internal Improvement Trust Fund

A.2 / Florida Statutes

All the statutes can be found according to number at:

http://www.leg.state.fl.us/Statutes

Florida Statutes, Chapter 253: State Lands

Florida Statutes, Chapter 258: State Parks and Preserves

Part II (Aquatic Preserves)

Florida Statutes, Chapter 267: Historical Resources

Florida Statutes, Chapter 370: Saltwater Fisheries

Florida Statutes, Chapter 372: Wildlife

Florida Statutes, Chapter 403: Environmental Control

(Statute authorizing the Florida Department of Environmental Protection (DEP) to create Outstanding Florida Waters is at 403.061(27))

Florida Statutes, Chapter 597: Aquaculture

A.3 Florida Administrative Code

All rules can be found according to number at https://www.flrules.org/Default.asp

Florida Administrative Code, Chapter 18-20: Florida Aquatic Preserves

https://www.flrules.org/gateway/ChapterHome.asp?Chapter=18-20

Florida Administrative Code, Chapter 18-21: Sovereignty Submerged Lands Management

https://www.flrules.org/gateway/ChapterHome.asp?Chapter=18-21

Florida Administrative Code, Chapter 62-302: Surface Water Quality Standards

(Rule designating Outstanding Florida Waters is at 62-302.700)

https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-302

Florida Department of
Environmental Protection

Memorandum

April 29, 2005

TO: District Bureau Chiefs

FROM: Mike Bullock, Director
Florida Park Service

SUBJECT: Memorandum of Agreement

The enclosed Memorandum of Agreement secures the commitment of the Divisions of Recreation and Parks and Coastal and Aquatic Managed Areas to collaborate resources. This partnership will unify our similar missions to better protect Florida's natural resources while offering quality recreational opportunities.

Please review the document, which includes future steps for implementing the agreement, and share it with your staff. Employee cooperation will enhance the ability of both Divisions to improve resource management and protection.

Thank you for your support of this team effort. Its success will benefit both programs.

MB/jg
Enclosure

Department of
Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Colleen M. Castille
Secretary

MEMORANDUM AGREEMENT BETWEEN DIVISION OF RECREATION & PARKS AND COASTAL & AQUATIC MANAGED AREAS

DRP and CAMA are programs with comparable missions: to protect and manage Florida's diverse natural resources and provide outdoor recreation. Ecosystems do not recognize divisional lines and organizational structure must not impede our mission to protect Florida's resources. Because of our similar missions and close proximity in the field, DRP and CAMA will collaborate on upland and submerged land management issues, as well as share manpower, facilities, vehicles, boats and other resources. DEP employees will work in teams and share resources, regardless from which Division or Office an employee or resource originates. If Parks or Aquatic Preserve staff needs assistance with resource management, events or programs, it is encouraged and expected that staff from each Office or Division will assist as time allows.

To promote an even greater spirit of cooperation among our two sister divisions, we are directing the DRP District Bureau Chiefs and the CAMA Environmental Administrators to foster inter-division employee cooperation. In the future, we will:

* Hold two joint CAMA/FPS district staff meetings onsite where appropriate per year. FPS District Bureau Chiefs and CAMA Environmental Administrators shall attend these meetings. The respective directors must be notified of the meeting schedule. Additional meetings should be scheduled as needed.

* On an annual basis, work together to identify and develop joint priority project plans that share efforts to protect and manage neighboring resources. Possibly a good time to perform this work would be at one of the meetings discussed in the previous paragraph.

* Hold meetings where properties have changed hands so that the FPS can learn about CAMA experience with their properties and vice-versa. We encourage the exchange of information regarding managed lands wherever there is the opportunity.

* Encourage joint participation in site management plans of both the FPS and CAMA.

* Actively explore ways to share office space, equipment, tools and staff, where appropriate, to achieve a specific project or goals. (Examples might be: heavy equipment, staff for burning, staff for an event, administrative staff costs, etc…)

* Seek to help the other division whenever possible, while not interfering with present work responsibilities.

Please share this memorandum with your staff. DRP and CAMA's joint commitment to work together in the spirit of true cooperation to manage Florida's natural resources and provide quality outdoor recreation will enhance our accomplishments, benefiting both programs. The success of this partnership will be monitored on an ongoing basis.

Mike Bullock 4-27-05
Mike Bullock (Date)
Director
Florida Park Service

Katherine Andrews 4-27-05
Katherine Andrews (Date)
Director
Coastal and Aquatic Managed Areas

Witness 4/27/05
Witness (Date)

Appendix B / Resource Data

B.1 / Glossary of Terms

References to these definitions can be found at the end of this list and in Appendix B.2 (References).

allochthonous – exogenous; originating outside and transported into a given system or area (Lincoln et al., 2003).

anaerobic - growing or occurring in the absence of molecular oxygen (Lincoln et al., 2003).

aquaculture - the cultivation of aquatic organisms (Lincoln et al., 2003).

aquifer – a body of porous rock or soil through which water passes and in which water gathers (Collin, 2004).

biodiversity – the range of species, subspecies or communities in a specific habitat such as a rainforest or a meadow (Collin, 2004).

biotic community – a community of organisms in a specific area (Collin, 2004).

codify - to arrange laws and rules systematically (Neufeldt & Sparks, 1990).

diversity - a measure of the number of species and their relative abundance in a community (Lincoln et al., 2003).

drainage basin (catchment) - the area from which a surface watercourse or a groundwater system derives its water; watershed (Allaby, 2005).

easement - a right that one may have in another's land (Neufeldt & Sparks, 1990).

ecosystem - a community of organisms and their physical environment interacting as an ecological unit (Lincoln et al., 2003).

emergent - an aquatic plant having most of the vegetative parts above water; a tree which reaches above the level of the surrounding canopy (Lincoln et al., 2003).

endangered species - an animal or plant species in danger of extinction throughout all or a significant portion of its range (U.S. Fish and Wildlife Service [USFWS], 2015)

endolithic – growing within a rock or other hard inorganic substratum (Lincoln et al., 2003)

epifauna – the total animal life inhabiting a sediment surface or water surface (Lincoln et al., 2003).

estuary – a part of a river where it meets the sea and is partly composed of salt water (Collin, 2004).

extinction - the disappearance of a species from a given habitat (Lincoln et al., 2003).

fauna - the animal life of a given region, habitat or geological stratum. (Lincoln et al., 2003).

flora - the plant life of a given region, habitat or geological stratum (Lincoln et al., 2003).

frac-out - the unintentional return of drilling fluids to the surface during horizontal directional drilling (Dickers, 2016).

geographic information system (GIS) - computer system supporting the collection, storage, manipulation and query of spatially referred data, typically including an interface for displaying geographical maps (Lincoln et al., 2003).

habitat – the type of environment in which a specific organism lives (Collin, 2004).

hydric - pertaining to water; wet (Lincoln et al., 2003).

infauna - the total animal life within a sediment (Lincoln et al., 2003).

intertidal zone - the shore zone between the highest and lowest tides; littoral (Lincoln et al., 2003).

listed species - a species, subspecies, or distinct population segment that has been added to the Federal list of endangered and threatened wildlife and plants (USFWS, 2015).

mandate - an order or command; the will of constituents expressed to their representative, legislature, etc. (Neufeldt & Sparks, 1990).

mesic - pertaining to conditions of moderate moisture or water supply; used of organisms occupying moist habitats. (Lincoln et al., 2003)

midden - a refuse heap; used especially in archaeology (Lincoln et al., 2003).

monitoring – a process of regular checking on the progress of something (Collin, 2004).

pollution – the presence of unusually high concentrations of harmful substances in the environment, as a result of human activity or a natural process (Collin, 2004).

population - all individuals of one or more species within a prescribed area. A group of organisms of one species, occupying a defined area and usually isolated to some degree from other similar groups (Lincoln et al., 2003).

runoff - part of precipitation that is not held in the soil but drains freely away (Lincoln et al., 2003).

salinity - a measure of the total concentration of dissolved salts in seawater (Lincoln et al., 2003).

sessile - non-motile; permanently attached at the base (Lincoln et al., 2003).

species - a group of organisms, minerals or other entities formally recognized as distinct from other groups; the basic unit of biological classification (Lincoln et al., 2003).

species of concern - an informal term referring to a species that might be in need of conservation action. This may range from a need for periodic monitoring of populations and threats to the species and its habitat, to the necessity for listing as threatened or endangered. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing. A similar term is “species at risk,” which is a general term for listed species as well as unlisted ones that are declining in population. Canada uses the term in its new “Species at Risk Act.” “Imperiled species” is another general term for listed as well as unlisted species that are declining (USFWS, 2015).

stakeholder - any person or organization who has an interest in the actions discussed or is affected by the resulting outcomes of a project or action (USFWS, 2015).

stillstand – a period of geologic time characterized by unchanging sea levels (Allaby, 2005).

subtidal - environment which lies below the mean low water level (Allaby, 2005).

supratidal - the zone on the shore above mean high tide level (Lincoln et al., 2003).

threatened species - an animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range (USFWS, 2015).

turbid - cloudy; opaque with suspended matter (Lincoln et al., 2003).

upland - land elevated above other land (Neufeldt & Sparks, 1990).

vegetation - plant life or cover in an area; also used as a general term for plant life (Lincoln et al., 2003).

water column - the vertical column of water in a sea or lake extending from the surface to the bottom (Lincoln et al., 2003).

watershed - an elevated boundary area separating tributaries draining in to different river systems; drainage basin (Lincoln et al., 2003).

wetland - an area of low lying land, submerged or inundated periodically by fresh or saline water (Lincoln et al., 2003).

wildlife - any undomesticated organisms; wild animals (Allaby, 2005).

B.2 / *References*

Allaby, M. (Ed.). (2005). *Oxford dictionary of ecology* (3rd ed.). Oxford, UK: Oxford University Press.

Ash, T. & Runnels, R.J. (2004). Hardbottom communities of Tampa Bay. In *Bay Area Scientific Information Symposium IV*. Symposium conducted at the meeting of the Tampa Bay Regional Planning Council in St. Petersburg, FL.

Baker, P., Baker, S.M., & Fajans, J. (2004). *Nonindigenous species in the greater Tampa Bay ecosystem* (Tampa Bay Estuary Program Technical Publication #02-04). St. Petersburg, FL: Tampa Bay Estuary Program.

Bayles, T. (2005, May 25). Fort DeSoto Park beach basks in top honors. *Sarasota Herald-Tribune*. https://www.heraldtribune.com/story/news/2005/05/25/fort-desoto-park-beach-basks-in-top-honors/28847034007/

Belcher, W. (2000, February 11). 'Wild Tampa Bay' worth the look. *Tampa Tribune*.

Broska, J.C., & Barnette, H.L. (1999). *Hydrogeology and analysis of aquifer characteristics in West-Central Pinellas County, Florida*. Tallahassee, FL: U.S. Geological Survey.

Collin, P.H. (2004). *Dictionary of environment and ecology, fifth edition.* Bloomsbury Publishing, London.

Craft, J.A., Suthard, B., Kruempel, C.J. (2007). *Pinellas County-Sand Key beach renourishment project: RAI response to File No. 0238664-001-JC* (Hardbottom edge mapping and historical data evaluation). Boca Raton, FL: Coastal Planning & Engineering, Inc.

Dial Cordy and Associates, Inc. (2003). *Alternative Sand Source Utilization for the Pinellas County Beach Erosion Control Project* (Draft Environmental Assessment prepared for the US Army Corps of Engineers Jacksonville District). Jacksonville Beach, FL: Dial Cordy and Associates, Inc.

Dickers, J. (2016, May 4). What is a frac-out in HDD? *Utility Magazine*. Retrieved June 26, 2018 from https://utilitymagazine.com.au/what-is-a-frac-out-in-hdd/

Ecological Society of America. (2004). *Invasion*. Retrieved June 8, 2018, from https://www.esa.org/esa/wp-content/uploads/2012/12/invasion.pdf

Ehringer, J.N. (1994). *Results of analysis of prop scar damage at the Fort Desoto Aquatic Habitat Management Area 1992/1993* (Tampa Bay National Estuary Program Technical Publication #05-94). Retrieved June 29, 2018 from Tampa Bay Estuary Program website: https://www.tbeptech.org/TBEP_TECH_PUBS/1994/TBEP_05-94%20PropScarDamage.pdf

Explore the bay. Tampa Bay Estuary Program. (2025, October 21). https://tbep.org/about-the-bay/explore-the-bay/

Florida Department of Environmental Protection. (2002). *Pinellas County island management plan*. Terra Ceia, FL: Author.

Florida Fish and Wildlife Conservation Commission. (n.d.). *Monofilament Recovery & Recycling Program*. Retrieved from http://mrrp.myfwc.com/

Florida Natural Areas Inventory. (2010). *Guide to the natural communities of Florida: 2010 edition*. Tallahassee, FL: Author.

Friedman, B. (2017). *Pinellas County economic development: Pinellas County population projection 2016-2021*. Retrieved January 12, 2018 from http://c.ymcdn.com/sites/pced.site-

ym.com/resource/collection/D0CC72B9-2234-4FFD-95CF-C22DBF80BD57/PopulationProjection.pdf

Guangxi Mangrove Research Center. (2008). *Survey report on the stakeholder's knowledge of and awareness on mangroves*.

Hine, A.C., Brooks, G.A., Davis, R.A., Duncan, D.S., Locker, S.D., Twichell, D.C. & Gelfenbaum, G. (2003). The west-central Florida inner shelf and coastal system: A geologic conceptual overview and introduction to the special issue. *Marine Geology, 200*(1-4), 1-17. https://doi.org/10.1016/S0025-3227(03)00161-0

Jacoby, J., Walters, L., Baker, S., & Blyler, K. (2003). *A primer on invasive species in coastal and marine waters* (SGEB 60). Gainesville, FL: University of Florida, Sea Grant, Florida. Retrieved from http://nsgl.gso.uri.edu/flsgp/flsgpg05001.pdf

Johansson, J.R. (2016). *Seagrass transect monitoring in Tampa Bay: A summary of findings from 1997 through 2015* (Rep.). Janicki Environmental.

Karlen, D.J., Dix, T.L., Goetting, B.K., Markham, S.E., Campbell, K.W., & Jernigan, J.M. (2015, February). Twenty-year trends in the benthic community and sediment quality of Tampa Bay 1993 - 2012 (Rep.). Retrieved July 30, 2019, from Environmental Protection Commission of Hillsborough County website: http://www.epchc.org/home/showdocument?id=268]

Karlen, D.J., Dix, T., Goetting, B.K., Markham, S.E., Campbell, K., Jernigan, J., Christian, J., Martinez, K., & Chacour, A. (2020, May). Twenty-five-year trends in the benthic community and sediment quality of Tampa Bay 1993 - 2017 (Rep.). Retrieved October 28, 2025, from Environmental Protection Commission of Hillsborough County website: https://www.epchc.org/home/showpublisheddocument/2476/637641123894830000

Kathiresan, K., & Rajendran, N. (2005). Coastal mangrove forests mitigated tsunami. *Estuarine, Coastal and Shelf Science, 65*(3), 601-606. https://doi.org/10.1016/j.ecss.2005.06.022

Laffoley, D., White, A.T., Kilarksi, S., Gleason, M, Smith, S., Day, J., Hillary, A., Wedell, V., & Pee, D. (2008). *Establishing Marine Protected Area networks: Making it happen*. Washington, D.C.: IUCN-World Commission on Protected Areas, National Oceanic and Atmospheric Administration and The Nature Conservancy.

Lincoln, R.J., Boxshall, G.A., & Clark, P.F. (2003). A *dictionary of ecology, evolution and systematics*. New York: Cambridge University Press.

MacGrady, G.J. (1973). Florida's sovereignty submerged lands: What are they, who owns them, and where is the boundary? *Florida State University Law Review*, *1*(4), 596-644.

McCartney, A. (2008, June 1). 'Dr. Beach': Caladesi Island best in US. *Ocala StarBanner*. https://www.ocala.com/story/news/2008/06/01/dr-beach-caladesi-island-best-in-us/31249056007/

Meylan, A., Mosier, A., Moody, K., Kendall, M. & Foley, A. (1996). *Assessment of sea turtle monitoring programs in Tampa Bay* (Tampa Bay Estuary Program Technical Publication # 12-96). St. Petersburg, FL: Tampa Bay Estuary Program.

Milanich, J.T. (1994). Archaeology of Pre-Columbian Florida. Gainesville, FL: University Press of Florida.

National Audubon Society. (n.d.). *Field checklist: Birds of Clearwater Harbor and St. Joseph Sound, Florida* [brochure]. Tampa, FL: Author.

Neufeldt, V., & Sparks, A.N. (1990). *Webster's new world dictionary* (3rd Ed.). Cleveland, OH: Webster's New World Dictionaries.

Ocean Conservancy. (2017). *Together for our ocean*. Retrieved April 27, 2018, from https://oceanconservancy.org/wp-content/uploads/2017/04/2017-Ocean-Conservancy-ICC-Report.pdf

Pinellas County Department of Environmental Management. (2008). *Brooker Creek Preserve management plan: 2008 update*. Tarpon Springs, FL: Author.

Pinellas County Planning Department. (2008). *Pinellas County historical background*. Retrieved January 12, 2018 from http://www.pinellascounty.org/Plan/pdf_files/PCHB.pdf

Rabbe, E.A., Roy, L.C. & McIvor, C.C. (2012). Tampa Bay coastal wetlands: Nineteenth to twentieth century tidal marsh-to-mangrove conversion. *Estuaries and Coasts, 35*.1145–1162. https://doi.org/10.1007/s12237-012-9503-1

Restom-Gaskill, T., Wolf, J. & Runnels, R. (2009) Distribution of native plant species on islands of the Tampa Bay Area. In *Bay Area Scientific Information Symposium V*. Symposium conducted at the meeting of the Tampa Bay Regional Planning Council in St. Petersburg, FL

Rondeaux, C. (2003, June 22). Still life with reef. *St. Petersburg Times*, pp. 1F, 7F.

Rodgers, J.A., & Schwikert, S.T. (2002). Buffer- zone distances to protect foraging and loafing waterbirds from disturbance by personal watercraft and outboard-powered boats. *Conservation Biology, 16*(1), 216-224.

Rodgers, J.A., & Smith, H.T., (1997). Buffer zone distances to protect foraging and loafing waterbirds from human disturbance in Florida. *Wildlife Society Bulletin, 25*(1):139-145.

Scott, T.M. (1988). *The lithostratigraphy of the Hawthorn Group (Miocene) of Florida* (Bulletin No. 59, Florida Geological Survey). Tallahassee, FL: Florida Geological Survey.

Simberloff, D. (1994). *Why is Florida being invaded? An assessment of invasive non-indigenous species in Florida's public lands, Florida* (Technical report no. TSS-94-100). Tallahassee, FL: Department of Environmental Protection.

Smith, G.C., Sullivan, P., & Reed, M.B. (2008). Countywide cultural resources survey. Clearwater, FL: Pinellas Board of County Commissioners. Retrieved January 12, 2018 from http://www.pinellascounty.org/Plan/pdf_files/CCRS.pdf

University of Florida. (2020). Florida estimates of population: 2025. University of Florida's Bureau of Economic and Business Research. https://www.bebr.ufl.edu/wp-content/uploads/2025/12/estimates_2025.pdf

University of Florida. (2023). *Florida aquatic preserves visitor use estimation study*. https://steinreclab.com/florida-aquatic-preserve-visitor-use-study-phase-5/

U.S. Fish and Wildlife Service. (2015). *Endangered species glossary*. U.S. Fish & Wildlife Service Endangered Species. https://www.fws.gov/endangered/about/glossary.html

U.S. Fish and Wildlife Service. (n.d.-a) Egmont Key National Wildlife Refuge. Retrieved June 28, 2018, from https://www.fws.gov/refuge/Egmont_Key/about.html

U.S. Fish and Wildlife Service. (n.d.-b) Pinellas National Wildlife Refuge. Retrieved June 28, 2018, from https://www.fws.gov/refuge/Pinellas/about.html

Visit St. Pete/Clearwater. (2025) *Visit St. Pete-Clearwater visitor profile & economic impact study*. Retrieved December 17, 2025 from

https://www.visitstpeteclearwater.com/sites/default/files/2024-12/VSPC%20Visitor%20Profile%20-%20FY2024%20Report%20%2827Nov2024%29.pdf

Visit St. Pete/Clearwater. (n.d.) *8 reasons why Clearwater Beach wins awards*. Retrieved January 10, 2026 from https://www.visitstpeteclearwater.com/list/8-reasons-why-clearwater-beach-is-1

World Media Group, LLC. (n.d.). *Pinellas County, FL weather*. Retrieved January 15, 2018, from http://www.usa.com/pinellas-county-fl-weather.htm

Yarbro, L.A., & Carlson, P.R., Jr., (Eds.). 2016. *Seagrass Integrated Mapping and Monitoring Program: Mapping and monitoring report no. 2* (Fish and Wildlife Research Institute Technical Report TR-17 version 2). St. Petersburg, FL: Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute.

B.3 / Species Lists

B.3.1 / Native Species

Legend: FT = Federally- and State-Designated Threatened • FE = Federally-and State-Designated Endangered • ST = State-Designated Threatened • SE = State-Designated Endangered • BGEPA = Bald and Golden Eagle Protection Act

Common Name	Scientific Name	Status
Kingdom Protista		
Phylum Phaeophyta		
Class Phaeophyceae		
Order Dictyotales		
Family Dictyotaceae		
brown alga	*Dictyota dichotoma*	
brown alga	*Padina sp.*	
Order Fucales		
Family Sargassaceae		
brown alga	*Sargassum filipendula*	
brown alga	*Sargassum polyceratium*	
brown alga	*Sargassum vulgare*	
Phylum Chlorophyta		
Class Ulvophyceae		
Order Bryopsidales		
Family Caulerpaceae		
green alga	*Caulerpa mexicana*	
green alga	*Caulerpa paspaloides*	
green alga	*Caulerpa prolifera*	
green alga	*Caulerpa racemosa*	
green alga	*Caulerpa sertularioides*	
Family Codiaceae		
green alga	*Codium carolinianum*	
green alga	*Codium decorticatum*	
green alga	*Codium taylorii*	
Family Halimedaceae		
green alga	*Halimeda incrassata*	
Family Udoteaceae		
green alga	*Penicillus sp.*	
green alga	*Rhipocephalus sp.*	
Order Cladophorales		
Family Cladophoraceae		
green alga	*Cladophora*	
Family Boodleaceae		
green alga	*Cladophoropsis*	

Common Name	Scientific Name	Status
Order Ulvales		
Family Ulvaceae		
green alga	*Enteromorpha flexuosa*	
green alga	*Enteromorpha intestinalis*	
green alga	*Enteromorpha lingulata*	
green alga	*Ulva fasciata*	
green alga	*Ulva lactuca*	
green alga	*Ulva rigida*	
Phylum Rhodophyta		
Class Florideophyceae		
Order Ceramiales		
Family Ceramiaceae		
red alga	*Centroceras clavulatum*	
red alga	*Ceramium brevizonatum*	
red alga	*Spyridia filamentosa*	
Family Dasyaceae		
red alga	*Heterosiphonia crispella*	
Family Rhodomelacedae		
red alga	*Acanthophora spicifera*	
Order Gigartinales		
Family Gracilariaceae		
red alga	*Gracilaria blodgettii*	
red alga	*Gracilaria cervicornis*	
red alga	*Gracilaria tikvahiae*	
Family Hypneaceae		
red alga	*Hypnea musciformis*	
Family Solieriaceae		
red alga	*Eucheuma isiforme*	
red alga	*Solieria filiformis*	
Order Halymeniales		
Family Halymeniaceae		
red alga	*Halymenia pseudofloresia*	
Kingdom Plantae		
Class Magnoliopsida		
Order Alismatales		
Family Alismataceae		
arrowhead	*Sagittaria spp.*	
Family Araceae		
duckweed	*Lemna spp.*	

Common Name	Scientific Name	Status
goldenclub	*Orontium aquaticum*	
Florida mudmidget	*Wolffiella gladiata*	
Family Cymodoceaceae		
shoal grass	*Halodule wrightii*	
manatee grass	*Syringodium filiforme*	
Family Hydrocharitaceae		
Engelmann's seagrass	*Halophila engelmannii*	
turtle grass	*Thalassia testudinum*	
Family Ruppiaceae		
wigeongrass	*Ruppia maritima*	
Order Apiales		
Family Apiaceae		
marsh pennywort	*Hydrocotyle umbellata*	
Order Aquifoliales		
Family Aquifoliaceae		
inkberry	*Ilex glabra*	
Order Arecales		
Family Arecaceae		
date palm	*Phoenix spp.*	
cabbage palm	*Sabal palmetto*	
saw palmetto	*Serenoa repens*	
Washington palm	*Washingtonia robusta*	
Order Asparagales		
Family Amaryllidaceae		
string lily	*Crinum americanum*	
Family Asparagaceae		
Spanish bayonet	*Yucca aloifolia*	
Order Asterales		
Family Asteraceae		
common ragweed	*Ambrosia artemisiifolia*	
saltbush	*Baccharis halimifolia*	
Spanish needles	*Bidens alba*	
begger-ticks	*Bidens mitis*	
sea oxeye	*Borrichia frutescens*	
tickseed	*Coreopsis leavenworth II*	
tassel flower	*Emilia sonchifolia*	
camphorweed	*Heterotheca subaxillaris*	
marsh elder	*Iva frutescens*	
beach elder	*Iva imbricata*	
seaside goldenrod	*Solidago sempervirens*	

Common Name	Scientific Name	Status
spiny-leaved sow thistle	*Sonchus asper*	
Order Boraginales		
Family Boraginaceae		
scorpion tail	*Heliotropium angiospermum*	
seaside fleliotrope	*Heliotropium curassavicum*	
Order Brassicales		
Family Bataceae		
saltwort	*Batis maritima*	
Family Capparaceae		
Jamaican caper	*Capparis cynophallophora*	
Family Caricaceae		
papaya	*Carica papaya*	
Order Caryophyllales		
Family Aizoaceae		
seapurslane	*Sesuvium portulacastrum*	
Family Amaranthaceae		
samphire	*Blutaparon vermiculare*	
Family Cactaceae		
prickly-pear cactus	*Opuntia stricta*	
Family Chenopodiaceae		
lamb's-quarters	*Chenopodium album*	
annual glasswort	*Sarcocornia bigelovii*	
perrenial glasswort	*Sarcocornia perennis*	
sea blite	*Suaeda linearis*	
Family Phytolaccaceae		
poke berry	*Phytolacca americana*	
rouge plant	*Rivina humilis*	
Family Plumbaginaceae		
sea lavender	*Limonium carolinianum*	
Family Polygonaceae		
sea grape	*Coccoloba uvifera*	
smartweed	*Polygonum spp.*	
Family Portulacaceae		
common purslane	*Portulaca oleracea*	
pink purslane	*Portulaca pilosa*	
Order Commelinales		
Family Pontederiaceae		
pickerelweed	*Pontederia cordata*	
Order Cornales		
Family Cornaceae		

Common Name	Scientific Name	Status
blackgum	*Nyssa sylvatica*	
swamp tupelo	*Nyssa sylvatica var. biflora*	
Family Loasaceae		
poor man's patches	*Mentzelia floridana*	
Family Nyssaceae		
water tupelo	*Nyssa aquatica*	
ogeechee tupelo	*Nyssa ogeche*	
Order Cucurbitales		
Family Cucurbitaceae		
wild balsam apple	*Momordica charantia*	
Order Cycadales		
Family Cycadaceae		
coontie	*Zamia pumila*	
Order Fabales		
Family Fabaceae		
nickerbean	*Caesalpinia bonduc*	
seaside bean	*Canavalia rosea*	
rattle box	*Crotalaria spp.*	
Florida tick trefoil	*Desmodium floridanum*	
hairy indigo	*Indigofera hirsuta*	
bequilla	*Sesbania emerus*	
necklace pod	*Sophora tomentosa*	
clover	*Trifolium spp.*	
cowpea	*Vigna luteola*	
Family Polygalaceae		
shallow wort	*Cynanchum spp.*	
showy milkwort	*Polygala grandifiora*	
Family Surianaceae		
bay cedar	*Suriana maritima*	
Order Fagales		
Family Fagacea		
sand live oak	*Quercus geminata*	
laurel oak	*Quercus hemisphaerica*	
swamp laurel oak	*Quercus laurifolia*	
overcup oak	*Quercus lyrata*	
live oak	*Quercus virginiana*	
oak	*Quercus spp.*	
Family Myricaceae		
wax myrtle	*Morella cerifera*	
Order Gentianales		

Common Name	Scientific Name	Status
Family Loganiaceae		
rust weed	*Polypremum procumbens*	
Family Rubiaceae		
common buttonbush	*Cephalanthus occidentalis*	
wild coffee	*Psychotria nervosa*	
Order Lamiales		
Family Acanthaceae		
Britton's wild petunia	*Ruellia brittoniana*	
Family Avicenniaceae		
black mangrove	*Avicennia germinans*	
Family Oleaceae		
Eastern swamp privet	*Forestiera acuminata*	
Florida privet	*Forestiera segregata*	
Family Verbenaceae		
beauty berry	*Callicarpa americana*	
lantana	*Lantana involucrata*	
blue porterweed	*Stachytarpheta jamaicensis*	
Order Laurales		
Family Lauraceae		
red bay	*Persea borbonia*	
Order Liliales		
Family Smilacaceae		
earleaf greenbrier	*Smilax auriculata*	
Order Magnoliales		
Family Magnoliaceae		
southern magnolia	*Magnolia grandiflora*	
Order Malpighiales		
Family Euphorbiaceae		
dixie sandmat	*Chamaesyce bombensis*	
spurge	*Chamaesyce spp. #X*	
spurge	*Chamaesyce spp. #2*	
spurge	*Chamaesyce spp. #3*	
spurge	*Chamaesyce spp. #4*	
spurge	*Chamaesyce spp. #5*	
spurge	*Chamaesyce spp. #6*	
finger rot	*Cnidoscolus stimulosus*	
croton	*Croton glandulosus*	
painted leaf	*Poinsettia cyathophora*	
Family Passifloraceae		
passion vine	*Passiflora lutea*	

Common Name	Scientific Name	Status
corky-stemmed passion-flower	*Passiflora suberosa*	
Family Rhizophoraceae		
red mangrove	*Rhizophora mangle*	
Family Salicaceae		
coastal plain willow	*Salix caroliniana*	
Order Myrtales		
Family Combretaceae		
buttonwood	*Conocarpus erectus*	
silver buttonwood	*Conocarpus erectus var sericeus*	
white mangrove	*Laguncularia racemosa*	
Family Myrtaceae		
white stopper	*Eugenia axillaris*	
Spanish stopper	*Eugenia foetida*	
Family Onagraceae		
bee blossom	*Guara angustifolia*	
seaside evening primrose	*Oenothera humifusa*	
Order Nymphaeales		
Family Nymphaeaceae		
yellow waterlily	*Nymphaea mexicana*	
Order Pinales		
Family Cupressaceae		
southern red cedar	*Juniperus silicicola*	
red cedar	*Juniperus virginiana*	
pond cypress	*Taxodium ascendens*	
bald cypress	*Taxodium distichum*	
Family Pinaceae		
South Florida slash pine	*Pinus elliottii var densa*	
loblolly pine	*Pinus taeda*	
Order Poales		
Family Cyperaceae		
saw grass	*Cladium jamaicense*	
Baldwin's flatsedge	*Cyperus croceus*	
swamp flatsedge	*Cyperus distinctus*	
sedge	*Carex spp.*	
sedge	*Cyperus ligularis*	
sedge	*Cyperus spp. #2*	
sedge	*Cyperus spp. #X*	
Gulf Coast spikerush	*Eleocharis cellulosa*	
yellow spikerush	*Eleocharis flavescens*	
hurricane grass	*Fimbristylis cymosa*	

Common Name	Scientific Name	Status
marsh fimbry	*Fimbristylis spadicea*	
fimbry	*Fimbristylis spp.*	
Family Juncaceae		
needle rush	*Juncus roemerianus*	
rush	*Juncus spp.*	
Family Poaceae		
bushy bluestem	*Andropogan glomeratus*	
broomsedge	*Andropogon virginicus*	
coastal sandspur	*Cenchrus incertus*	
sandspur	*Cenchrus spp. #2*	
sandspur	*Cenchrus spp. #X*	
finger grass	*Chloris spp.*	
crow's foot grass	*Dactyloctenium aegyptium*	
tropical crabgrass	*Diqitaria spp.*	
saltgrass	*Distichlis spicata*	
lovegrass	*Eragrostis spp.*	
pinewoods fingergrass	*Eustachys petraea*	
hairawn muhly	*Muhlenbergia capillaris*	
seashore paspalum	*Paspalum vaginatum*	
rose natalgrass	*Rhychelytrum repens*	
yellow bristlegrass	*Setaria parviflora*	
salt marsh cordgrass	*Spartina alterniflora*	
sand cordgrass	*Spartina bakeri*	
saltmeadow cordgrass	*Spartina patens*	
Gulf cordgrass	*Spartina spartinae*	
coral/Virginia dropseed	*Sporobolus domingensis*	
seashore dropseed	*Sporobolus virginicus*	
St. Auqustine grass	*Stenotaphrum secundatum*	
purple sandgrass	*Triplasis purpurea*	
seaoats	*Uniola paniculata*	
Family Typhaceae		
cattail	*Typha spp.*	
Order Rosales		
Family Moraceae		
strangler fig	*Ficus aurea*	
Cuban laurel	*Ficus microcarpa*	
Family Ulmaceae		
sugarberry	*Celtis laevigata*	
Family Urticaceae		
false nettle	*Boehmeria cylindrica*	

Common Name	Scientific Name	Status
Order Sapindales		
Family Aceraceae		
Florida maple	*Acer saccharum ssp. floridanum*	
red maple	*Acer rubrum*	
Family Anacardiaceae		
Eastern poison ivy	*Toxicodendron radicans*	
Family Burseraceae		
gumbo-limbo	*Bursera simaruba*	
Order Saxifragales		
Family Hamamelidaceae		
sweetgum	*Liquidambar styraciflua*	
Order Solanales		
Family Convolvulaceae		
beach morning-glory	*Ipomoea macrantha*	
railroad vine	*Ipomoea pes-caprae*	
Family Solanaceae		
Christmasberry	*Lycium carolinianum*	
ground cherry	*Physalis angustifolia*	
common nightshade	*Solanum americanum*	
Order Theales		
Family Clusiaceae		
Atlantic St. John's wort	*Hypericum reductum*	
Order Vitales		
Family Vitaceae		
Virqinia creeper	*Parthenocissus quinquefolia*	
muscadine grape	*Vitis rotundifolia*	
Class Polypodiopsida		
Order Osmundales		
Family Osmundaceae		
royal fern	*Osmunda regalis*	
Kingdom Animalia		
Phylum Porifera		
Class Demospongiae		
Order Agelasida		
Family Agelasidae		
demosponge	*Agelus sp.*	
Order Dictyoceratida		
Family Spongiidae		
sheepswool sponge	*Hippiospongia lachne*	

Common Name	Scientific Name	Status
Family Irciniidae		
ball sponge	*Ircinia sp.*	
Order Hadromerida		
Family Clionaidae		
brown variable sponge	*Anthosigmella varians*	
red boring sponge	*Cliona celata*	
sponge	*Cliona sp.*	
sponge	*Cliona sp. A of EPC*	
Florida loggerhead sponge	*Spheciospongia vesparium*	
Order Haplosclerida		
Family Chalinidae		
erect rope sponge	*Amphimedon compressa*	
Family Niphatidae		
brown bowl sponge	*Cribrochalina vasculum*	
Family Petrosiidae		
giant barrel sponge	*Xestosponzia muta*	
Family Phloeodictyidae		
dark volcano sponge	*Calyx podatypa*	
Order Tethyida		
Family Timeidae		
sponge	*Timea cf. mixta*	
Order Tetractinellida		
Family Tetillidae		
sponge	*Cinachyrella cf. apion (Uliczka, 1929)*	
sponge	*Tetilla cf. laminaris*	
sponge	*Tetilla sp.*	
Order Verongida		
Family Aplysinidae		
yellow tube sponge	*Aplysina fistularis*	
branching candle sponge	*Verongia longissima*	
Family Pseudoceratinidae		
branching tube sponge	*Pseudoceratina crassa*	
Phylum Cnidaria		
Class Anthozoa		
Order Actiniaria		
Family Actiniidae		
sea anemone	*Anthopleura sp.*	
sea anemone	*Aulactinia cf. capitata*	
sea anemone	*Bunodosoma sp.*	
Family Edwardsiidae		

Common Name	Scientific Name	Status
sea anemone	*Edwardsia cf. elegans*	
Family Haloclavidae		
sea anemone	*Haloclava cf. producta*	
Order Alcyonacea		
Family Briareidae		
sea fingers	*Briareum asbestinum*	
Family Ellisellidae		
octocoral	*Ellisella sp.*	
Family Gorgoniidae		
soft coral	*Leptogorgia sp.*	
colorful sea whip	*Leptogorgia virgulata*	
octocoral	*Lophogorgia sp.*	
Family Plexauridae		
octocoral	*Bebryce sp.*	
shelf-knob sea rod	*Eunicea succinea*	
warty sea rod	*Eunicea calvculata*	
octocoral	*Hypnogorgia sp.*	
delicate spiny sea rod	*Muricea laxa*	
orange spiny sea rod	*Muricea elongata*	
octocoral	*Placogorgia sp.*	
sea rod	*Plexaura sp.*	
giant slit-pore sea rod	*Plexaurella nutans*	
octocoral	*Pseudoplexaura sp.*	
octocoral	*Thesea sp.*	
Order Antipatharia		
Family Antipathidae		
black coral	*Antipathes sp.*	
Order Gorgonacea		
Family Gorgoniidae		
sea plume	*Pseudopterogorgia sp.*	
yellow sea whip	*Pterogorgia citrina*	
octocoral	*Pseudopterogorgia sp.*	
octocoral	*Pterogorgia sp.*	
Order Pennatulacea		
Family Renillidae		
sea pansy	*Renilla sp.*	
Order Scleractinia		
Family Astrocoeniidae		
blushing star coral	*Stephanocoenia mitchelinii*	
Family Caryophylliidae		

Common Name	Scientific Name	Status
hidden cup coral	*Phyllangia americana*	
Family Faviidae		
tube coral	*Cladocora arbuscula*	
boulder star coral	*Montastrea annularis*	
knobby star coral	*Solenastrea hyades*	
Family Mussidae		
cactus coral	*Isophyllia sinuosa*	
rose coral	*Manicina aereolata*	
mushroom coral	*Scolymia lacera*	
Family Oculinidae		
ivory bush coral	*Oculina diffusa*	
robust ivory tree coral	*Oculina robusta*	
Family Rhizangiidae		
northern cup coral	*Astrangia poculata*	
Family Siderastreidae		
lesser starlet coral	*Siderastrea radians*	
starlet coral	*Siderastrea sp.*	
Order Spirularia		
Family Cerianthidae		
North American tube anemone	*Ceriantheopsis cf. americanus*	
Order Zoantharia		
Family Sphenopidae		
giant zoanthid	*Palythoa grandis*	
Class Hydrozoa		
Order Anthoathecata		
Family Corynidae		
hydrozoan	*Corynidae sp.*	
Family Hydractiniidae		
hydrozoan	*Podocoryna cf. americana*	
Family Milleporidae		
branching fire coral	*Millepora alcicornis*	
Family Oceaniidae		
hydrozoan	*Turritopsis cf. fascicularis*	
Family Pennariidae		
hydrozoan	*Pennaria sp. A of Joyce, 1961*	
Order Leptothecata		
Family Campanulariidae		
hydrozoan	*Campanulariidae Sp. B of EPC*	
hydrozoan	*Clytia cf. noliformis*	
hydrozoan	*Clytia cf. sp. B of Joyce, 1961*	

Common Name	Scientific Name	Status
hydrozoan	*Clytia sp.*	
doubletoothed hydrozoan	*Obelia cf. bidentata*	
Family Lovenellidae		
hydrozoan	*Lovenella gracilis*	
Family Plumulariidae		
hydrozoan	*Plumularia cf. margaretta*	
Framily Sertulariidae		
hydrozoan	*Sertularia distans*	
Family Thyroscyphidae		
hydrozoan	*Thyroscyphus ramosus*	
Phylum Platyhelminthes (flatworms)		
Class Turbellaria		
Order Polycladida		
Family Gnesiocerotidae		
flat worm	*Gnesioceros floridana*	
Family Leptoplanidae		
flat worm	*Euplana gracilis*	
Family Prosthiostomidae		
flat worm	*Prosthiostomum cf. lobatum*	
Family Stylochidae		
flat worm	*Stylochopsis ellipticus*	
oyster leech	*Stylochus sp.*	
Phylum Annelida (segmented worms)		
Class Hirudinea		
Order Arhynchobdellida		
Family Erpobdellidae		
leech	*Erpobdella punctata*	
Class Oligochaeta		
Order Haplotaxida		
Family Enchytraeidae		
oligochaete worm	*Grania cf. monochaeta*	
oligochaete worm	*Grania monospermatheca*	
oligochaete worm	*Grania nr. americana*	
oligochaete worm	*Grania sp.*	
oligochaete worm	*Grania sp. A of EPC*	
Family Tubificidae		
oligochaete worm	*Bathydrilus adriaticus*	
oligochaete worm	*Bathydrilus notabilis*	
oligochaete worm	*Bathydrilus sp.*	

Common Name	Scientific Name	Status
oligochaete worm	*Heterodrilus bulbiporus*	
oligochaete worm	*Heterodrilus occidentalis*	
oligochaete worm	*Heterodrilus paucifascis*	
oligochaete worm	*Heterodrilus pentcheffi*	
oligochaete worm	*Heterodrilus sp.*	
oligochaete worm	*Inanidrilus bulbosus*	
oligochaete worm	*Inanidrilus leukodermatus*	
oligochaete worm	*Inanidrilus sp.*	
oligochaete worm	*Limnodriloides baculatus*	
oligochaete worm	*Limnodriloides barnardi*	
oligochaete worm	*Limnodriloides hastatus*	
oligochaete worm	*Limnodriloides monothecus complex*	
oligochaete worm	*Limnodriloides rubicundus*	
oligochaete worm	*Limnodriloides sp.*	
oligochaete worm	*Limnodriloides uniampullatus*	
oligochaete worm	*Limnodriloides vespertinus*	
oligochaete worm	*Limnodriloidinae*	
oligochaete worm	*Limnodrilus hoffmeisteri*	
oligochaete worm	*Limnodrilus sp.*	
oligochaete worm	*Milliganius sabulosus*	
oligochaete worm	*Naidinae*	
oligochaete worm	*Olavius cf. latus*	
oligochaete worm	*Olavius imperfectus*	
oligochaete worm	*Olavius sp.*	
oligochaete worm	*Parakaketio longiprostatus*	
oligochaete worm	*Pectinodrilus molestus*	
oligochaete worm	*Smithsonidrilus marinus complex*	
oligochaete worm	*Smithsonidrilus sp.*	
oligochaete worm	*Smithsonidrilus sp. A of EPC*	
oligochaete worm	*Tectidrilus bori*	
oligochaete worm	*Tectidrilus squalidus*	
oligochaete worm	*Thalassodrilides gurwitschi*	
oligochaete worm	*Thalassodrilides ineri*	
oligochaete worm	*Tubificoides brownae*	
oligochaete worm	*Tubificoides motei*	
oligochaete worm	*Tubificoides sp.*	
oligochaete worm	*Tubificoides wasselli*	
Class Polychaeta		
Order Aciculata		
Family Amphinomidae		

Common Name	Scientific Name	Status
polychaete worm	*Linopherus cf. paucibranchiata*	
polychaete worm	*Paramphinome sp. B of Gathof, 1984*	
Order Canalipalpata		
Family Ampharetidae		
polychaete worm	*Hobsonia florida*	
polychaete worm	*Isolda pulchella*	
polychaete worm	*Melinna cristata*	
polychaete worm	*Melinna maculata*	
Family Chaetopteridae		
polychaete worm	*Chaetopterus variopedatus*	
polychaete worm	*Mesochaetopterus capensis*	
polychaete worm	*Spiochaetopterus costarum*	
Family Ctenodrilidae		
polychaete worm	*Ctenodrilus serratus*	
Family Magelonidae		
polychaete worm	*Magelona cf. rosea*	
polychaete worm	*Magelona pettiboneae*	
polychaete worm	*Magelona sp.*	
polychaete worm	*Magelona sp. B of Uebelacker & Jones, 1984*	
polychaete worm	*Magelona sp. H of Uebelacker & Jones, 1984*	
polychaete worm	*Magelona sp. I of Uebelacker & Jones, 1984*	
Family Poecilochaetidae		
polychaete worm	*Poecilochaetus johnsoni*	
Family Serpulidae		
polychaete worm	*Hydroides dianthus*	
polychaete worm	*Hydroides protulicola*	
polychaete worm	*Hydroides sp.*	
polychaete worm	*Janua (Dexiospira) cf. corrugata*	
polychaete worm	*Janua sp.*	
polychaete worm	*Janua steueri*	
polychaete worm	*Pileolaria rosepigmentata*	
polychaete worm	*Pileolaria sp. A of EPC*	
polychaete worm	*Pomatoceros americanus*	
polychaete worm	*Serpula sp.*	
polychaete worm	*SERPULIDAE sp. A of EPC*	
polychaete worm	*SERPULIDAE sp. C of EPC*	
polychaete worm	*SERPULIDAE sp. D of EPC*	
polychaete worm	*Spirorbinae*	
Order Capitellida		
Family Arenicolidae		

Common Name	Scientific Name	Status
polychaete worm	*Arenicola cristata*	
polychaete worm	*Branchiomaldane cf. vincenti*	
Family Capitellidae		
polychaete worm	*Capitella aciculata*	
polychaete worm	*Capitella capitata complex*	
polychaete worm	*Capitella jonesi*	
polychaete worm	*Dasybranchus caducus lumbricoides*	
polychaete worm	*Heteromastus filiformis*	
polychaete worm	*Mediomastus ambiseta*	
polychaete worm	*Notomastus cf. latericeus*	
polychaete worm	*Notomastus hemipodus*	
polychaete worm	*Notomastus lobatus*	
polychaete worm	*Scyphoproctus platyproctus*	
Family Maldanidae		
polychaete worm	*Boguea enigmatica*	
polychaete worm	*Clymenella mucosa*	
polychaete worm	*Clymenella torquata*	
polychaete worm	*Euclymene cf. sp. A of Wolf, 1984*	
polychaete worm	*Maldane sp. A of EPC*	
polychaete worm	*MALDANIDAE sp. A of EPC*	
polychaete worm	*Sabaco elongata*	
Order Cirratulida		
Family Paraonidae		
polychaete worm	*Aricidea (Acmira) taylori*	
polychaete worm	*Aricidea (Allia) bryani*	
polychaete worm	*Aricidea cerrutii*	
polychaete worm	*Aricidea fragilis*	
polychaete worm	*Aricidea philbinae*	
polychaete worm	*Aricidea sp.*	
polychaete worm	*Aricidea sp. A of EPC*	
polychaete worm	*Aricidea suecica*	
polychaete worm	*Cirrophorus sp.*	
polychaete worm	*Cirrophorus sp. A of EPC*	
polychaete worm	*Paradoneis cf. lyra*	
polychaete worm	*Paradoneis perkinsi*	
polychaete worm	*Paraonis fulgens*	
Order Errantia		
Family Phyllodocidae		
polychaete worm	*Eumida cf. sanguinea*	
polychaete worm	*Hypereteone heteropoda*	

Common Name	Scientific Name	Status
polychaete worm	*Hypereteone lactea*	
polychaete worm	*Nereiphylla castanea*	
polychaete worm	*Nereiphylla fragilis*	
polychaete worm	*Nereiphylla sp.*	
polychaete worm	*Nereiphylla sp. A of Gathof, 1984*	
polychaete worm	*Paranaitis gardineri*	
polychaete worm	*Phyllodoce arenae*	
polychaete worm	*Phyllodoce sp.*	
Order Eunicida		
Family Dorvilleidae		
polychaete worm	*Meiodorvillea sp.*	
polychaete worm	*Ophryotrocha sp.*	
polychaete worm	*Ophryotrocha sp. A of EPC*	
polychaete worm	*Pettiboneia duofurca*	
polychaete worm	*Pettiboneia sp.*	
polychaete worm	*Protodorvillea kefersteini*	
polychaete worm	*Schistomeringos cf. rudolphi*	
polychaete worm	*Schistomeringos pectinata*	
Family Eunicidae		
polychaete worm	*Eunice wui*	
polychaete worm	*Lysidice hebes*	
polychaete worm	*Lysidice ninetta*	
polychaete worm	*Marphysa cf. sanguinea*	
polychaete worm	*Marphysa nr. belli*	
polychaete worm	*Marphysa sp.*	
Family Lumbrineridae		
polychaete worm	*Lumbrineris januarii*	
polychaete worm	*Lumbrineris latreilli*	
polychaete worm	*Lumbrineris nonatoi*	
polychaete worm	*Lumbrineris/Scoletoma sp.*	
polychaete worm	*Scoletoma ernesti*	
polychaete worm	*Scoletoma tenuis*	
polychaete worm	*Scoletoma verrilli*	
Family Oenonidae		
polychaete worm	*Arabella iricolor*	
polychaete worm	*Arabella multidentata*	
polychaete worm	*Arabella mutans*	
polychaete worm	*Drilonereis longa*	
polychaete worm	*Drilonereis magna*	
polychaete worm	*Drilonereis sp. E of Uebelacker, 1984*	

Common Name	Scientific Name	Status
Family Onuphidae		
polychaete worm	*Diopatra cuprea*	
polychaete worm	*Diopatra sp.*	
polychaete worm	*Kinbergonuphis simoni*	
polychaete worm	*Kinbergonuphis sp.*	
polychaete worm	*Kinbergonuphis sp. C of Gathof, 1984*	
polychaete worm	*Mooreonuphis cf. nebulosa*	
polychaete worm	*Mooreonuphis pallidula*	
polychaete worm	*Mooreonuphis sp.*	
polychaete worm	*Onuphis eremita oculata*	
polychaete worm	*Onuphis sp. A of Gathof,1984*	
polychaete worm	*Ramphobrachium sp. A of EPC*	
Order Opheliida		
Family Opheliidae		
polychaete worm	*Armandia agilis*	
polychaete worm	*Armandia maculata*	
polychaete worm	*Armandia sp.*	
polychaete worm	*Ophelina cf. acuminata*	
polychaete worm	*Ophelina cylindricaudata*	
polychaete worm	*Travisia hobsonae*	
Order Orbiniida		
Family Orbiniidae		
polychaete worm	*Leitoscoloplos foliosus*	
polychaete worm	*Leitoscoloplos fragilis*	
polychaete worm	*Leitoscoloplos robustus*	
polychaete worm	*Leitoscoloplos sp.*	
polychaete worm	*Naineris sp.*	
polychaete worm	*Orbinia riseri*	
polychaete worm	*Questa caudicirra*	
polychaete worm	*Questa riseri*	
polychaete worm	*Questa sp.*	
polychaete worm	*Scoloplos (Scoloplos) cf. acmeceps*	
polychaete worm	*Scoloplos (Scoloplos) rubra*	
polychaete worm	*Scoloplos sp.*	
Order Phyllodocida		
Family Chrysopetalidae		
polychaete worm	*Bhawania heteroseta*	
Family Eulepethidae		
polychaete worm	*Grubeulepis mexicana*	
Family Glyceridae		

Common Name	Scientific Name	Status
polychaete worm	*Glycera americana*	
polychaete worm	*Glycera dibranchiata*	
polychaete worm	*Glycera gilbertae*	
polychaete worm	*Glycera nr. sp. A of Gilbert, 1984*	
polychaete worm	*Glycera sp.*	
polychaete worm	*Hemipodia simplex*	
Family Goniadidae		
polychaete worm	*Glycinde solitaria*	
polychaete worm	*Goniada littorea*	
polychaete worm	*Goniadides carolinae*	
Family Hesionidae		
polychaete worm	*Hesione sp.*	
polychaete worm	*Microphthalmus cf. sczelkowii*	
polychaete worm	*Microphthalmus sp.*	
polychaete worm	*Neogyptis crypta*	
polychaete worm	*Neogyptis plurisetis*	
polychaete worm	*Oxydromus obscurus*	
polychaete worm	*Oxydromus sp.*	
polychaete worm	*Oxydromus sp. A of Uebelacker*	
polychaete worm	*Parahesione luteola*	
polychaete worm	*Podarkeopsis levifuscina*	
Family Nephtyidae		
polychaete worm	*Aglaophamus verrilli*	
polychaete worm	*Nephtys squamosa*	
Family Nereididae		
polychaete worm	*Alitta succinea*	
polychaete worm	*Ceratonereis (Composetia) irritabilis*	
polychaete worm	*Ceratonereis (Composetia?) sp. A of EPC*	
polychaete worm	*Ceratonereis cf. longicirrata*	
polychaete worm	*Ceratonereis sp.*	
polychaete worm	*Laeonereis culveri*	
polychaete worm	*Laeonereis sp. A of EPC*	
polychaete worm	*Neanthes acuminata*	
polychaete worm	*Nereis (Neanthes) micromma*	
polychaete worm	*Nereis falsa*	
polychaete worm	*Nereis lamellosa*	
polychaete worm	*Nereis pelagica*	
polychaete worm	*Nereis riisei*	
polychaete worm	*Nereis sp.*	
polychaete worm	*Platynereis dumerilii*	

Common Name	Scientific Name	Status
polychaete worm	*Stenoninereis martini*	
polychaete worm	*Websterinereis tridentata*	
Family Pholoidae		
polychaete worm	*Taylorpholoe hirsuta*	
Family Pilargidae		
polychaete worm	*Ancistrosyllis carolinensis*	
polychaete worm	*Ancistrosyllis hartmanae*	
polychaete worm	*Ancistrosyllis jonesi*	
polychaete worm	*Ancistrosyllis sp. C of Wolf, 1984*	
polychaete worm	*Cabira incerta*	
polychaete worm	*Litocorsa antennata*	
polychaete worm	*Pilargis berkeleyae*	
polychaete worm	*Pilargis wolfi*	
polychaete worm	*Sigambra bassi*	
polychaete worm	*Sigambra sp.*	
polychaete worm	*Sigambra tentaculata*	
polychaete worm	*Synelmis ewingi*	
Family Polynoidae		
polychaete worm	*Harmothoe sp.*	
polychaete worm	*Lepidametria commensalis*	
polychaete worm	*Lepidonotus variabilis*	
polychaete worm	*Malmgreniella maccraryae*	
polychaete worm	*Malmgreniella taylori*	
Family Sigalionidae		
polychaete worm	*Sigalion cf. lewisii*	
polychaete worm	*Sigalion sp.*	
polychaete worm	*Sigalion sp. A of Wolf, 1984*	
polychaete worm	*Sigalion sp. B of Wolf, 1984 as "Thalanessa sp. A of Wolf, 1984"*	
polychaete worm	*SIGALIONIDAE Genus A of Wolf,1984*	
polychaete worm	*Sthenelais sp.*	
polychaete worm	*Sthenelais sp. A of Wolf, 1984*	
polychaete worm	*Sthenelanella sp. A of Wolf, 1984*	
Family Syllidae		
polychaete worm	*Branchiosyllis exilis*	
polychaete worm	*Branchiosyllis oculata*	
polychaete worm	*Brania nitidula*	
polychaete worm	*Brania rugulosa*	
polychaete worm	*Brania sp.*	
polychaete worm	*Brania wellfleetensis*	
polychaete worm	*Brania/Salvatoria sp.*	

Common Name	Scientific Name	Status
polychaete worm	*Dentatisyllis carolinae*	
polychaete worm	*Exogone (Exogone) cf. breviantennata*	
polychaete worm	*Exogone (Exogone) lourei*	
polychaete worm	*Exogone arenosa*	
polychaete worm	*Exogone dispar*	
polychaete worm	*Exogone sp.*	
polychaete worm	*Haplosyllis spongicola*	
polychaete worm	*Myrianida sp.*	
polychaete worm	*Odontosyllis enopla*	
polychaete worm	*Parapionosyllis floridana*	
polychaete worm	*Parapionosyllis longicirrata*	
polychaete worm	*Parapionosyllis sp.*	
polychaete worm	*Parapionosyllis uebelackerae*	
polychaete worm	*Pionosyllis sp.*	
polychaete worm	*Plakosyllis brevipes*	
polychaete worm	*Proceraea cf. cornuta*	
polychaete worm	*Salvatoria clavata*	
polychaete worm	*Salvatoria vieitezi*	
polychaete worm	*Sphaerosyllis aciculata*	
polychaete worm	*Sphaerosyllis cf. riseri*	
polychaete worm	*Sphaerosyllis glandulata*	
polychaete worm	*Sphaerosyllis labyrinthophila*	
polychaete worm	*Sphaerosyllis perkinsi*	
polychaete worm	*Sphaerosyllis piriferopsis*	
polychaete worm	*Sphaerosyllis sp.*	
polychaete worm	*Sphaerosyllis taylori*	
polychaete worm	*Streptosyllis websteri*	
polychaete worm	*Syllidae Genus A of EPC*	
polychaete worm	*Syllides bansei*	
polychaete worm	*Syllides floridanus*	
polychaete worm	*Syllides fulvus*	
polychaete worm	*Syllides sp.*	
polychaete worm	*Syllinae*	
polychaete worm	*Syllis alosae*	
polychaete worm	*Syllis cf. beneliahuae*	
polychaete worm	*Syllis cf. broomensis as in San Martin, 1992*	
polychaete worm	*Syllis corallicola*	
polychaete worm	*Syllis cornuta*	
polychaete worm	*Syllis gracilis*	
polychaete worm	*Syllis prolifera*	

Common Name	Scientific Name	Status
polychaete worm	*Syllis sp.*	
polychaete worm	*Syllis sp. A of EPC*	
polychaete worm	*Trypanosyllis (Trypanosyllis) cf. coeliaca*	
polychaete worm	*Trypanosyllis parvidentata*	
polychaete worm	*Trypanosyllis sp.*	
Order Sabellida		
Family Fabriciidae		
polychaete worm	*Augeneriella hummelincki*	
polychaete worm	*Fabricinuda trilobata*	
Family Oweniidae		
polychaete worm	*Galathowenia oculata*	
polychaete worm	*Myriochele sp. A of Milligan, 1984*	
polychaete worm	*Owenia fusiformis*	
Family Sabellariidae		
polychaete worm	*Sabellaria floridensis*	
polychaete worm	*Sabellaria sp.*	
polychaete worm	*Sabellaria sp. A of Uebelacker, 1984*	
Family Sabellidae		
feather duster worm	*Bispira melanostigma*	
feather duster worm	*Branchiomma sp.*	
feather duster worm	*Chone sp.*	
feather duster worm	*Chone sp. A of EPC*	
feather duster worm	*Chone sp. A of Uebelacker, 1984*	
feather duster worm	*Euchone sp.*	
feather duster worm	*Megalomma pigmentum*	
feather duster worm	*Megalomma sp.*	
feather duster worm	*Oriopsis anneae*	
feather duster worm	*Oriopsis sp.*	
feather duster worm	*Paradialychone cf. americana*	
feather duster worm	*Parasabella microphthalma*	
feather duster worm	*Parasabella sp.*	
feather duster worm	*Pseudopotamilla fitzhughi*	
feather duster worm	*Pseudopotamilla sp.*	
feather duster worm	*Sabella sp.*	
Order Spionida		
Family Polygordiidae		
polychaete worm	*Polygordius sp.*	
Family Spionidae		
polychaete worm	*Aonides mayaguezensis*	
polychaete worm	*Boccardiella sp.*	

Common Name	Scientific Name	Status
polychaete worm	*Carazziella hobsonae*	
polychaete worm	*Dipolydora barbilla*	
polychaete worm	*Dipolydora socialis*	
polychaete worm	*Dispio uncinata*	
polychaete worm	*Laonice cirrata*	
polychaete worm	*Microspio sp.*	
polychaete worm	*Paraprionospio pinnata*	
polychaete worm	*Polydora cf. heterochaeta*	
polychaete worm	*Polydora colonia*	
polychaete worm	*Polydora cornuta*	
polychaete worm	*Polydora sp.*	
polychaete worm	*Polydora websteri*	
polychaete worm	*Prionospio cf. steenstrupi*	
polychaete worm	*Prionospio cristata*	
polychaete worm	*Prionospio heterobranchia*	
polychaete worm	*Prionospio multibranchiata*	
polychaete worm	*Prionospio perkinsi*	
polychaete worm	*Prionospio pygmaea*	
polychaete worm	*Prionospio pygmaea*	
polychaete worm	*Prionospio sp.*	
polychaete worm	*Pseudopolydora sp.*	
polychaete worm	*Pseudopolydora sp. A of EPC*	
polychaete worm	*Pseudopolydora sp. B of EPC*	
polychaete worm	*Scolelepis (Scolelepis) squamata*	
polychaete worm	*Scolelepis (Scolelepis) texana*	
polychaete worm	*Scolelepis sp.*	
polychaete worm	*Spio pettiboneae*	
polychaete worm	*Spiophanes bombyx complex*	
polychaete worm	*Streblospio spp.*	
Order Terebellida		
Family Cirratulidae		
polychaete worm	*Aphelochaeta sp.*	
polychaete worm	*Caulleriella cf. alata*	
polychaete worm	*Caulleriella sp.*	
polychaete worm	*Caulleriella sp. A of Wolf, 1984*	
polychaete worm	*Caulleriella sp. B of Wolf, 1984*	
polychaete worm	*Caulleriella sp. D of EPC*	
polychaete worm	*Caulleriella sp. F of EPC*	
polychaete worm	*Chaetozone sp.*	
polychaete worm	*Chaetozone sp. A of Wolf, 1984*	

Common Name	Scientific Name	Status
polychaete worm	*Chaetozone sp. B of Wolf, 1984*	
polychaete worm	*Chaetozone sp. C of Wolf, 1984*	
polychaete worm	*Chaetozone sp. D of Wolf, 1984*	
polychaete worm	*Chaetozone zetlandica*	
polychaete worm	*Cirratulus grandis*	
polychaete worm	*Cirriformia sp. A of Wolf, 1984*	
polychaete worm	*Cirriformia sp. B of Wolf, 1984*	
polychaete worm	*Cirriformia sp. C of Wolf, 1984*	
polychaete worm	*Cirriformia sp. D of EPC*	
polychaete worm	*Kirkegaardia cf. dorsobranchialis*	
polychaete worm	*Tharyx acutus*	
Family Flabelligeridae		
polychaete worm	*Piromis roberti*	
Family Pectinariidae		
ice cream cone worm	*Amphictene sp. A of Wolf, 1984*	
ice cream cone worm	*Pectinaria gouldii*	
Family Terebellidae		
polychaete worm	*Eupolymnia sp.*	
polychaete worm	*Lanassa sp.*	
polychaete worm	*Loimia medusa*	
polychaete worm	*Loimia viridis*	
polychaete worm	*Lysilla cf. alba*	
polychaete worm	*Lysilla sp.*	
polychaete worm	*Pista cf. cristata*	
polychaete worm	*Pista fasciata*	
polychaete worm	*Pista palmata*	
polychaete worm	*Pista quadrilobata*	
polychaete worm	*POLYCIRRINAE*	
polychaete worm	*Polycirrus cf. haematodes*	
polychaete worm	*Polycirrus dubius*	
polychaete worm	*Polycirrus plumosus*	
polychaete worm	*Polycirrus sp.*	
polychaete worm	*Polycirrus sp. B of Kritzler, 1984*	
polychaete worm	*Polycirrus sp. C of EPC*	
polychaete worm	*Streblosoma hartmanae*	
polychaete worm	*Streblosoma sp.*	
polychaete worm	*Terebella nr. verrilli*	
Family Trichobranchidae		
polychaete worm	*Terebellides stroemii*	
Phylum Sipuncula		

Common Name	Scientific Name	Status
Class Phascolosomatidea		
Order Aspidosiphoniformes		
Family Aspidosiphonidae		
peanut worm	*Aspidosiphon cf. muelleri*	
Order Phascolosomatiformes		
Family Phascolosomatidae		
peanut worm	*Phascolosoma sp.*	
Class Sipunculidea		
Order Golfingiiformes		
Family Phascolionidae		
peanut worm	*Phascolion cf. caupo*	
peanut worm	*Phascolion cryptum*	
peanut worm	*Phascolion sp.*	
Family Themistidae		
peanut worm	*Themiste alutacea*	
Order Sipunculiformes		
Family Sipunculidae		
peanut worm	*Sipunculidae sp. A of EPC*	
Phylum Mollusca		
Class Bivalvia		
Order Anomalodesmata		
Family Lyonsiidae		
glassy lysonia	*Lyonsia floridana*	
Family Pandoridae		
clam	*Pandora trilineata*	
Family Periplomatidae		
unequal spoonclam	*Periploma margaritaceum*	
Family Thraciidae		
hemphill thracid	*Asthenothaerus hemphilli*	
clam	*Bushia cf. elegans*	
clam	*Thracia cf. papyracea*	
Order Arcoida		
Family Arcidae		
transverse ark clam	*Anadara transversa*	
Family Glycymerididae		
comb bittersweet	*Tucetona pectinata*	
Family Noetiidae		
clam	*Arcopsis adamsi*	
Order Carditoida		
Family Carditidae		

Common Name	Scientific Name	Status
brood-ribbeb cardita	*Carditamera floridana*	
three-toother cardita	*Pleuromeris tridentata*	
flat cardita	*Pteromeris perplana*	
Family Crassatellidae		
lunate crassinella	*Crassinella lunulata*	
Order Myoida		
Family Corbulidae		
clam	*Caryocorbula caribaea*	
clam	*Caryocorbula cf. contracta*	
Family Gastrochaenidae		
clam	*Lamychaena hians*	
Family Myidae		
Antillean sphenia	*Sphenia fragilis*	
Family Pholadidae		
angel wing clam	*Cyrtopleura costata*	
Order Mytiloida		
Family Mytilidae		
Atlantic paper mussel	*Amygdalum papyrium*	
scorched mussel	*Brachidontes exustus*	
cross-sculpture crenella	*Crenella decussata*	
crenella	*Crenella sp.*	
mussel	*Lioberus castaneus*	
mahogany date mussel	*Lithophaga bisulcata*	
tulip mussel	*Modiolus americanus*	
northern horsemussel	*Modiolus modiolus*	
horsemussel	*Modiolus squamosus*	
lateral mussel	*Musculus lateralis*	
Order Nuculanoida		
Family Nuculanidae		
pointed nut clam	*Nuculana acuta*	
Order Nuculoida		
Family Nuculidae		
Atlantic nut clam	*Nucula proxima*	
Order Ostreoidea		
Family Ostreidae		
Eastern oyster	*Crassostrea virginica*	
crested oyster	*Ostrea equestris*	
Family Plicatulidae		
Atlantic kitten's paw	*Plicatula gibbosa*	
Order Pectinida		

Common Name	Scientific Name	Status
Family Anomiidae		
common jingle shell	*Anomia simplex*	
Family Pectinidae		
bay scallop	*Argopecten irradians*	
Order Pterioida		
Family Isognomonidae		
Lister's tree oyster	*Isognomon radiatus*	
Family Pinnidae		
half-naked pen	*Atrina seminuda*	
Order Solemyoida		
Family Solemyidae		
West Indian awning clam	*Solemya occidentalis*	
Order Solenida		
Family Pharidae		
jackknife clam	*Ensis minor*	
Order Veneroida		
Family Cardiidae		
guppy strawberry cockle	*Ctenocardia guppyi*	
cockle	*Laevicardium sp.*	
Florida prickly cockle	*Trachycardium egmontianum*	
cockle	*Trachycardium sp.*	
Family Corbiculidae		
clam	*Corbicula fluminea*	
Carolina marsh clam	*Polymesoda caroliniana*	
Family Dreissenidae		
dark false mussel	*Mytilopsis leucophaeata*	
Family Lasaeidae		
kelly clam	*Aligena cf. texasiana*	
kelly clam	*Erycina floridana*	
kelly clam	*Kellia cf. suborbicularis*	
kelly clam	*Mysella planulata*	
kelly clam	*Orobitella cf. limpida*	
kelly clam	*Orobitella floridana*	
Family Lucinidae		
buttercup lucine	*Anodontia cf. alba*	
dwarf tiger lucine	*Ctena orbiculata*	
spinose lucine	*Lucinisca muricata*	
woven lucine	*Lucinisca nassula*	
costate lucine	*Parvilucina costata*	
many-lined lucine	*Parvilucina crenella*	

Common Name	Scientific Name	Status
miniature lucine	*Radiolucina amianta*	
Florida lucine	*Stewartia floridana*	
Family Mactridae		
duck clam	*Anatina anatina*	
duck clam	*Mactrotoma fragilis*	
duck clam	*Mulinia lateralis*	
duck clam	*Raeta plicatella*	
Family Petricolidae		
false angel wing	*Petricolaria pholadiformis*	
Family Semelidae		
common Atlantic abra	*Abra aequalis*	
clam	*Cumingia vanhyningi*	
concentric ervilia	*Ervilia concentrica*	
clam	*Semele bellastriata*	
clam	*Semele cf. purpurascens*	
clam	*Semele proficua*	
clam	*Semelina nuculoides*	
Family Solecurtidae		
clam	*Tagelus divisus*	
stout razor clam	*Tagelus plebeius*	
Family Tellinidae		
tellin	*Angulus cf. sybariticus*	
tellin	*Angulus cf. tampaensis*	
tellin	*Angulus cf. versicolor*	
tellin	*Angulus nr. exerythrus*	
tellin	*Angulus nr. tampaensis*	
tellin	*Angulus tenellus*	
tellin	*Angulus texanus*	
tellin	*Eurytellina alternata*	
rose-petal tellin	*Eurytellina lineata*	
tellin	*Eurytellina nr. nitens*	
short macoma	*Macoma brevifrons*	
waxy macoma	*Macoma cerina*	
cheating macoma	*Macoma cf. phenax*	
constricted macoma	*Macoma constricta*	
narrowed macoma	*Macoma tenta*	
tellin	*Merisca cf. aequistriata*	
tellin	*Merisca nr. aequistriata*	
sibling tellin	*Scissula consobrina*	
white crest tellin	*Tellidora cristata*	

Common Name	Scientific Name	Status
Family Ungulinidae		
clam	*Phlyctiderma semiaspera*	
Family Veneridae		
pointed venus	*Anomalocardia cuneimeris*	
venus clam	*Callista eucymata*	
venus clam	*Chione elevata*	
venus clam	*Cyclinella tenuis*	
disk dosinia	*Dosinia discus*	
waxy gould clam	*Gouldia cerina*	
sunray venus	*Macrocallista nimbosa*	
southern quahog	*Mercenaria campechiensis*	
brown gem clam	*Parastarte triquetra*	
lightning pitar	*Pitar cf. fulminatus*	
chalky pitar	*Pitar simpsoni*	
corded pitar	*Pitarenus cordatus*	
venus clam	*Timoclea grus*	
venus clam	*Transennella conradina*	
venus clam	*Transennella nr. cubaniana*	
venus clam	*Transennella stimpsoni*	
Class Gastropoda		
Order Anaspidea		
Family Aplysiidae		
ragged sea hare	*Bursatella cf. leachii*	
Order Caenogastropoda		
Family Cerithiidae		
grass cerith	*Bittiolum varium*	
sea snail	*Cerithium atratum*	
sea snail	*Cerithium muscarum*	
Family Cerithiopsidae		
sea snail	*Cerithiopsis fusiformis*	
sea snail	*Cerithiopsis sp.*	
sea snail	*Seila adamsii*	
Family Epitoniidae		
wentletrap	*Epitonium angulatum*	
wentletrap	*Epitonium humphreysii*	
wentletrap	*Epitonium matthewsae*	
wentletrap	*Epitonium rupicolum*	
wentletrap	*Epitonium sp.*	
wentletrap	*Epitonium tollini*	
Family Eulimidae		

Common Name	Scientific Name	Status
sea snail	*Eulima bifasciata*	
sea snail	*Melanella nr. eulimoides*	
sea snail	*Melanella nr. intermedia*	
sea snail	*Melanella sp.*	
sea snail	*Melanella sp. B of EPC*	
sea snail	*Melanella sp. C of EPC*	
sea snail	*Melanella sp. D of EPC*	
sea snail	*Microeulima hemphilli*	
sea snail	*Niso aeglees*	
sea snail	*Oceanida inglei*	
sea snail	*Polygireulima sp.*	
sea snail	*Polygireulima sp. A of EPC*	
sea snail	*Polygireulima sp. C of EPC*	
sea snail	*Vitreolina cf. arcuata*	
sea snail	*Vitreolina cf. bermudezi*	
Family Modulidae		
modulid	*Modulus modulus*	
Family Scaliolidae		
sea snail	*Finella adamsi*	
Family Terebridae		
eastern auger	*Terebra dislocata*	
fine-ribbed auger	*Terebra protexta*	
Family Triphoridae		
sea snail	*Marshallora nigrocincta*	
Order Cephalaspidea		
Family Aglajidae		
sea slug	*Chelidonura sp.*	
Family Bullidae		
Atlantic bubble snail	*Bulla striata*	
Family Cylichnidae		
bubble snail	*Acteocina canaliculata*	
bubble snail	*Cylichnella bidentata*	
bubble snail	*Tornatina inconspicua*	
Family Haminoeidae		
bubble snail	*Haminoea antillarum*	
bubble snail	*Haminoea elegans*	
bubble snail	*Haminoea sp.*	
bubble snail	*Haminoea succinea*	
bubble snail	*Melampus coffea*	
Order Littorinimorpha		

Common Name	Scientific Name	Status
Family Aclididae		
sea snail	*Graphis underwoodae*	
Family Caecidae		
sea snail	*Caecum (Elepantulum) sp.*	
sea snail	*Caecum cf. bipartitum*	
sea snail	*Caecum cooperi*	
sea snail	*Caecum floridanum*	
sea snail	*Caecum imbricatum*	
sea snail	*Caecum multicostatum*	
sea snail	*Caecum nr. carolinianum*	
sea snail	*Caecum nr. insularum*	
sea snail	*Caecum pulchellum*	
sea snail	*Caecum sp.*	
sea snail	*Caecum strigosum*	
sea snail	*Caecum textile*	
sea snail	*Meioceras nitidum*	
Family Calyptraeidae		
slipper snail	*Calyptraea centralis*	
slipper snail	*Crepidula depressa*	
common slipper snail	*Crepidula fornicata*	
slipper snail	*Crepidula maculosa*	
slipper snail	*Crepidula nr. ustulatulina*	
slipper snail	*Crepidula sp.*	
slipper snail	*Crepidula ustulatulina*	
Family Hydrobiidae		
mud snail	*Littoridinops monroensis*	
mud snail	*Littoridinops palustris*	
mud snail	*Littoridinops sp.*	
mud snail	*Pyrgophorus platyrachis*	
Family Naticidae		
shark eye	*Neverita duplicata*	
moon snail	*Polinices duplicatus*	
white baby ear	*Sinum perspectivum*	
moon snail	*Tectonatica pusilla*	
Family Rissoidae		
Catesby's risso	*Schwartziella catesbyana*	
sea snail	*Zebina browniana*	
Family Strombidae		
Florida fighting conch	*Strombus alatus*	
Family Tornidae		

Common Name	Scientific Name	Status
sea snail	*Cochliolepis cf. parasitica*	
sea snail	*Cyclostremiscus nr. beauii*	
sea snail	*Cyclostremiscus pentagonus*	
sea snail	*Cyclostremiscus suppressus*	
sea snail	*Macromphalina floridanus*	
sea snail	*Solariorbis cf. blakei*	
sea snail	*Solariorbis infracarinata*	
sea snail	*Teinostoma biscaynense*	
Florida vitrinella	*Vitrinella floridana*	
sea snail	*Vitrinella helicoidea*	
Order Neogastropoda		
Family Bellolividae		
olive snail	*Jaspidella blanesi*	
Family Buccinidae		
sea snail	*Busycon sinistrum*	
Channel whelk	*Busycotypus canaliculatus*	
crown conch	*Busycotypus spiratus*	
sea snail	*Gemophos tinctus*	
sea snail	*Hesperisternia multangulus*	
lightning whelk	*Sinistrofulgur perversum*	
Family Clathurellidae		
glassy dwarf turrid	*Nannodiella cf. oxia*	
Family Columbellidae		
dove snail	*Aesopus stearnsii*	
dove snail	*Astyris lunata*	
dove snail	*Costoanachis floridana*	
dove snail	*Costoanachis lafresnayi*	
dove snail	*Costoanachis semiplicata*	
dove snail	*Costoanachis sp.*	
dove snail	*Costoanachis sparsa*	
dove snail	*Parvanachis obesa*	
dove snail	*Suturoglypta iontha*	
Family Conidae		
cone snail	*Conasprella stearnsii (Conrad, 1869)*	
cone snail	*Kurtziella atrostyla*	
cone snail	*Kurtziella limonitella*	
cone snail	*Kurtziella sp.*	
cone snail	*Pyrgocythara plicosa*	
cone snail	*Rubellatoma diomedea*	
cone snail	*Stellatoma stellata*	

Common Name	Scientific Name	Status
Family Cystiscidae		
sea snail	*Gibberula lavalleeana*	
sea snail	*Granulina hadria*	
Family Drilliidae		
sea snail	*Cerodrillia thea*	
Family Fasciolariidae		
horse conch	*Pleuroploca gigantea*	
Family Marginellidae		
margin snail	*Dentimargo aureocinctus*	
margin snail	*Dentimargo eburneolus*	
margin snail	*Prunum apicinum*	
margin snail	*Prunum bellulum*	
margin snail	*Prunum succinea*	
Family Melongenidae		
Florida crown conch	*Melongena corona*	
Family Muricidae		
rock snail	*Eupleura sulcidentata*	
rock snail	*Urosalpinx tampaensis*	
Family Nassariidae		
common Eastern nassa	*Nassarius vibex*	
Family Olividae		
lettered olive	*Oliva sayana*	
olive snail	*Olivella dealbata*	
olive snail	*Olivella floralia*	
olive snail	*Olivella mutica*	
olive snail	*Olivella nivea*	
olive snail	*Olivella perplexa*	
olive snail	*Olivella pusilla*	
olive snail	*Olivella sp.*	
olive snail	*Olivella sp. E of EPC*	
Family Turridae		
turrid	*Pilsbryspira leucocyma*	
oyster turrid	*Pyrgospira ostrearum*	
Order Nudibranchia		
Family Aeolidiidae		
sea slug	*Spurilla cf. neapolitana*	
Family Eubranchidae		
nudibranch	*Eubranchus cf. coniclus*	
Family Onchidorididae		
sea slug	*Corambe obscura*	

Common Name	Scientific Name	Status
Family Polyceridae		
sea slug	*Polycera hummi*	
Family Trinchesiidae		
sea slug	*Tenellia fuscata*	
Order Pylopulmonata		
Family Pyramidellidae		
three-toothed odostome	*Boonea cf. bisultralis*	
impressed odostome	*Boonea impressa*	
sea snail	*Boonea seminuda*	
needle odostome	*Eulimastoma engonium*	
pyram	*Eulimastoma weberi*	
sea snail	*Eulimella nr. smithii*	
sea snail	*Evalea virginica*	
pyram	*Fargoa cf. gibbosa*	
incised tubonille	*Houbricka cf. incisa*	
crenulated pyram	*Longchaeus suturalis*	
odostome	*Odostomia acutidens*	
ovoid odostome	*Odostomia laevigata*	
odostome	*Odostomia sp. C of EPC*	
odostome	*Odostomia sp. D of EPC*	
odostome	*Odostomia sp. E of EPC*	
odostome	*Odostomia spp.*	
odostome	*ODOSTOMIINAE sp. A of EPC*	
odostome	*ODOSTOMIINAE sp. B of EPC*	
pyram	*Petitilla crosseana*	
pyram	*PYRAMIDELLIDAE sp. A of EPC*	
pyram	*PYRAMIDELLIDAE sp. B of EPC*	
sayella	*Sayella fusca*	
sayella	*Sayella hemphilli*	
sayella	*Sayella sp.*	
turbonille	*Turbonilla (Bartschella) sp.*	
turbonille	*Turbonilla (Chemnitzia) sp.*	
turbonille	*Turbonilla (Pyrgiscus) sp. B of EPC*	
turbonille	*Turbonilla (Pyrigiscus) sp.*	
turbonille	*Turbonilla (Pyrigiscus) sp. C of EPC*	
turbonille	*Turbonilla (Pyrigiscus) sp. D of EPC*	
turbonille	*Turbonilla (Strioturbonilla) sp.*	
turbonille	*Turbonilla cf. arnoldoi*	
turbonille	*Turbonilla cf. conradi*	
Dall's turbonille	*Turbonilla cf. dalli*	

Common Name	Scientific Name	Status
turbonille	*Turbonilla cf. puncta*	
turbonille	*Turbonilla cf. riisei*	
Hemphill's turbonille	*Turbonilla hemphilli*	
interrupted turbonille	*Turbonilla interrupta*	
turbonille	*Turbonilla toyatani*	
Order Sacoglossa		
Family Cylindrobullidae		
sea snail	*Cylindrobulla beauii*	
Order Trochida		
Family Skeneidae		
sea snail	*Didianema pauli*	
Order (Unassigned)		
Family Acteonidae		
pitted baby-bubble	*Japonactaeon punctostriatus*	
Family Murchisonellidae		
sea snail	*Murchisonella spectrum*	
Class Polyplacophora		
Order Chitonida		
Family Chitonidae		
West Indian fuzzy chiton	*Acanthopleura granulata*	
Family Ischnochitonidae		
chiton	*Chaetopleura apiculata*	
chiton	*Ischnochiton niveus*	
chiton	*Ischnochiton papillosus*	
chiton	*Ischnochiton sp.*	
Order Neoloricata		
Family Acanthochitonidae		
chiton	*Acanthochitona pygmaea*	
Class Scaphopoda		
Order Dentaliida		
Family Dentaliidae		
scaphopod	*Antalis cf. antillarum*	
scaphopod	*Antalis nr. cerata*	
scaphopod	*Antalis pilsbryi*	
scaphopod	*Dentalium laqueatum*	
scaphopod	*Dentalium sp.*	
scaphopod	*Graptacme calamus*	
scaphopod	*Graptacme eborea*	
Phylum Nemertea		
Class Anopla		

Common Name	Scientific Name	Status
Order Heteronemertea		
Family Lineidae		
milky ribbon worm	*Cerebratulus lacteus*	
ribbon worm	*Fragilonemertes rosea*	
ribbon worm	*Tarrhomyos cf. luridus*	
Order Palaeonemertea		
Family Carinomidae		
ribbon worm	*Carinoma cf. tremaphoros*	
Family Tubulanidae		
ribbon worm	*Tubulanus pellucidus*	
ribbon worm	*Tubulanus sp. A of EPC*	
ribbon worm	*Tubulanus sp. B of EPC*	
Class Enopla		
Order Hoplonemertea		
Family Amphiporidae		
ribbon worm	*Amphiporus cf. caecus*	
ribbon worm	*Amphiporus sp. A of EPC*	
ribbon worm	*Paranemertes cf. biocellatus*	
Order Monostilifera		
Family Tetrastemmatidae		
ribbon worm	*Prostoma sp.*	
ribbon worm	*Tetrastemma candidum*	
Phylum Phoronida		
Family Phoronidae		
horseshoe worm	*Phoronis sp.*	
Phylum Bryozoa		
Class Gymnolaemata		
Order Cheilostomatida		
Family Akatoporidae		
moss animal	*Akatopora leucocypha*	
Family Beaniidae		
moss animal	*Beania klugei*	
Family Bugulidae		
moss animal	*Bugula neritina*	
Family Cupuladriidae		
moss animal	*Discoporella depressa*	
moss animal	*Discoporella sp.*	
Family Electridae		
moss animal	*Conopeum cf. tenuissimum*	
moss animal	*Electra bellula*	

Common Name	Scientific Name	Status
Family Lepraliellidae		
moss animal	*Celleporaria cf. mordax*	
moss animal	*Celleporaria sp. A of EPC*	
Family Membraniporidae		
moss animal	*Biflustra arborescens*	
moss animal	*Biflustra cf. denticulata*	
moss animal	*Membranipora sp.*	
Family Schizoporellidae		
moss animal	*Schizoporella cf. floridana*	
moss animal	*Schizoporella pungens*	
Family Smittinidae		
moss animal	*Parasmittina cf. nitida Morphotype B*	
Family Thalamoporellidae		
moss animal	*Thalamoporella floridana*	
Order Ctenostomatida		
Family Aeverrilliidae		
moss animal	*Aeverrillia armata*	
Family Nolellidae		
moss animal	*Nolella cf. stipata*	
Phylum Brachiopoda		
Class Lingulata		
Order Lingulida		
Family Lingulidae		
brachiopod	*Glottidia pyramidata*	
Phylum Arthropoda		
Class Insecta		
Order Diptera		
Family Chaoboridae		
glassworm	*Chaoborus punctipennis*	
Family Chironomidae		
chironomid	*Asheum beckae*	
chironomid	*Chironomus sp.*	
chironomid	*Cryptochironomus sp.*	
chironomid	*Cryptotendipes sp.*	
chironomid	*Dicrotendipes lobus*	
chironomid	*Dicrotendipes modestus*	
chironomid	*Dicrotendipes neomodestus*	
chironomid	*Dicrotendipes simpsoni*	
chironomid	*Glyptotendipes sp.*	
chironomid	*Goeldichironomus sp.*	

Common Name	Scientific Name	Status
chironomid	*Labrundinia sp.*	
chironomid	*Polypedilum halterale grp.*	
chironomid	*Polypedilum illinoense grp.*	
chironomid	*Polypedilum scalaenum group*	
chironomid	*Polypedilum sp.*	
chironomid	*Procladius (Holotanypus) sp.*	
chironomid	*Tanypus clavatus*	
chironomid	*Tanytarsus limneticus*	
Order Ephemeroptera		
Family Caenidae		
mayfly	*Caenis diminuta*	
Class Malacostraca		
Order Amphipoda		
Family Ampeliscidae		
amphipod	*Ampelisca abdita*	
amphipod	*Ampelisca agassizi*	
amphipod	*Ampelisca holmesi*	
amphipod	*Ampelisca schellenbergi*	
amphipod	*Ampelisca sp. A of LeCroy, 2002*	
amphipod	*Ampelisca sp. C of LeCroy, 2002*	
amphipod	*Ampelisca sp. D of EPC*	
amphipod	*Ampelisca sp. G of EPC*	
amphipod	*Ampelisca spp.*	
amphipod	*Ampelisca vadorum*	
Family Amphilochidae		
amphipod	*Apolochus cf. casahoya*	
amphipod	*Apolochus sp. A of LeCroy, 2002*	
amphipod	*Hourstonius laguna*	
Family Ampithoidae		
amphipod	*Ampithoe cf. longimana*	
amphipod	*Ampithoe cf. ramondi*	
amphipod	*Ampithoe sp.*	
amphipod	*Cymadusa compta*	
Family Aoridae		
amphipod	*Bemlos cf. longicornis*	
amphipod	*Bemlos setosus*	
amphipod	*Bemlos sp.*	
amphipod	*Bemlos spinicarpus*	
amphipod	*Globosolembos smithi*	
amphipod	*Grandidierella bonnieroides*	

Common Name	Scientific Name	Status
amphipod	*Lembos cf. hypacanthus*	
amphipod	*Lembos unifasciatus*	
amphipod	*Paramicrodeutopus myersi*	
amphipod	*Plesiolembos rectangulatus*	
Family Argissidae		
amphipod	*Argissa hamatipes*	
Family Bateidae		
amphipod	*Batea catharinensis*	
amphipod	*Batea cuspidata*	
Family Corophiidae		
amphipod	*Americorophium ellisi*	
amphipod	*Apocorophium louisianum*	
amphipod	*Laticorophium cf. baconi*	
amphipod	*Monocorophium acherusicum*	
amphipod	*Monocorophium sp.*	
amphipod	*Monocorophium sp. A of LeCroy, 2004*	
amphipod	*Monocorophium tuberculatum*	
Family Dexaminidae		
amphipod	*Polycheria sp. A of LeCroy, 2004*	
Family Gammaridae		
amphipod	*Gammarus mucronatus*	
Family Hadziidae		
amphipod	*Protohadzia cf. schoenerae*	
Family Haustoriidae		
amphipod	*Acanthohaustorius uncinus*	
Family Isaeidae		
amphipod	*Photis cf. longicaudata*	
amphipod	*Photis melanica*	
amphipod	*Photis pugnator*	
amphipod	*Photis sp. C of LeCroy, 2000*	
amphipod	*Photis sp. E of LeCroy, 2000*	
amphipod	*Photis sp. F of LeCroy, 2000*	
Family Ischyroceridae		
amphipod	*Cerapus cudjoe*	
amphipod	*Cerapus sp. A of EPC*	
amphipod	*Cerapus sp. B of LeCroy, 2007*	
amphipod	*Cerapus sp. C of LeCroy, 2007*	
amphipod	*Cerapus spp.*	
amphipod	*Ericthonius brasiliensis*	
amphipod	*Ericthonius sp. A of EPC*	

Common Name	Scientific Name	Status
Family Leucothoidae		
amphipod	*Leucothoe cf. spinicarpa complex*	
Family Liljeborgiidae		
amphipod	*Listriella barnardi*	
Family Lysianassidae		
amphipod	*Hippomedon sp. B of LeCroy, 2007*	
amphipod	*LYSIANASSIDAE Genus C of EPC*	
amphipod	*Lysianopsis alba*	
amphipod	*Shoemakerella cubensis*	
Family Megaluropidae		
amphipod	*Gibberosus cf. myersi*	
Family Melitidae		
amphipod	*Ceradocus shoemakeri*	
amphipod	*Dulichiella appendiculata*	
amphipod	*Dulichiella sp. A of LeCroy, 2000*	
amphipod	*Dumosus cf. atari*	
amphipod	*Elasmopus cf. pectenicrus*	
amphipod	*Elasmopus cf. rapax*	
amphipod	*Elasmopus levis*	
amphipod	*Elasmopus pocillimanus*	
amphipod	*Elasmopus sp. A of EPC*	
amphipod	*Maera diffidentia*	
amphipod	*Melita elongata*	
amphipod	*Melita longisetosa*	
Family Phoxocephalidae		
amphipod	*Eobrolgus spinosus*	
amphipod	*Metharpinia floridana*	
amphipod	*Rhepoxynius cf. epistomus*	
amphipod	*Rhepoxynius sp.*	
amphipod	*Rhepoxynius sp. A of EPC*	
Family Neomegamphopidae		
amphipod	*Neomegamphopus cf. hiatus*	
Family Oedicerotidae		
amphipod	*Hartmanodes nyei*	
Family Microprotopidae		
amphipod	*Microprotopus raneyi*	
amphipod	*Microprotopus shoemakeri*	
Family Platyischnopidae		
amphipod	*Eudevenopus honduranus*	
Family Podoceridae		

Common Name	Scientific Name	Status
amphipod	*Podocerus brasiliensis*	
Family Pontogeneiidae		
amphipod	*Pontogeneia cf. bartschi*	
amphipod	*Pontogeneiidae*	
amphipod	*Tethygeneia cf. longleyi*	
Family Stenothoidae		
amphipod	*Parametopella sp. A of EPC*	
amphipod	*Parametopella texensis*	
amphipod	*Stenothoe cf. georgiana*	
amphipod	*Stenothoe minuta*	
amphipod	*Stenothoe sp.*	
amphipod	*Stenothoe sp. A of EPC*	
Family Synopiidae		
amphipod	*Metatiron triocellatus*	
amphipod	*Metatiron tropakis*	
Family Unciolidae		
amphipod	*Pedicorophium cf. laminosum*	
amphipod	*Rudilemboides naglei*	
Order Cumacea		
Family Bodotriidae		
cumacean	*Cyclaspis cf. platymerus*	
cumacean	*Cyclaspis pustulata*	
cumacean	*Cyclaspis sp. B of Heard et al, 2007*	
cumacean	*Cyclaspis sp. C of Heard et al, 2007*	
cumacean	*Cyclaspis spp.*	
cumacean	*Cyclaspis varians*	
Family Diastylidae		
cumacean	*Oxyurostylis lecroyae*	
cumacean	*Oxyurostylis smithi*	
cumacean	*Oxyurostylis sp. C of Rakocinski et al, 1991*	
cumacean	*Oxyurostylis spp.*	
Family Nannastacidae		
cumacean	*Almyracuma bacescui*	
cumacean	*Campylaspis sp.*	
cumacean	*Cumella cf. garrityi*	
cumacean	*Cumella sp.*	
Order Decapoda		
Family Albuneidae		
mole crab	*Lepidopa websteri*	
Family Alpheidae		

Common Name	Scientific Name	Status
snapping shrimp	*Alpheus armillatus*	
snapping shrimp	*Alpheus cf. angulosus*	
bigclaw snapping shimp	*Alpheus heterochaelis*	
green snapping shrimp	*Alpheus normanni*	
snapping shrimp	*Alpheus sp.*	
pistol shrimp	*Automate dolichognatha*	
pistol shrimp	*Automate evermanni*	
pistol shrimp	*Automate rectifrons*	
pistol shrimp	*Automate sp.*	
Family Callianassidae		
ghost shrimp	*Lepidophthalmus louisianensis*	
ghost shrimp	*Lepidophthalmus sp.*	
ghost shrimp	*Sergio sp.*	
Family Cambaridae		
albino cave crayfish	*Procambarus sp.*	
Family Caprellidae		
Japanese skeleton shrimp	*Caprella penantis*	
skeleton shrimp	*Deutella incerta*	
skeleton shrimp	*Deutella sp.*	
skeleton shrimp	*Paracaprella pusilla*	
skeleton shrimp	*Paracaprella sp.*	
skeleton shrimp	*Paracaprella tenuis*	
Family Diogenidae		
hermit crab	*Areopaguristes hummi*	
Family Dromiidae		
sponge crab	*Hypoconcha arcuata*	
Family Hepatidae		
flecked box crab	*Hepatus pudibundus*	
Family Hippolytidae		
cleaner shrimp	*Hippolyte pleuracanthus*	
cleaner shrimp	*Hippolyte sp.*	
zostera shrimp	*Hippolyte zostericola*	
slender sargassum shrimp	*Latreutes fucorum*	
cleaner shrimp	*Latreutes parvulus*	
bryozoan shrimp	*Thor floridanus*	
cleaner shrimp	*Thor sp.*	
arrow shrimp	*Tozeuma carolinense*	
Family Leuconidae		
hooded shrimp	*Leucon americanus*	
hooded shrimp	*Leucon cf. sp. A of Heard et al, 2007*	

Common Name	Scientific Name	Status
Family Leucosiidae		
sculptured clutch crab	*Ebalia cariosa*	
purse crab	*Ebalia stimpsoni*	
purse crab	*Iliacantha liodactylus*	
longfinger purse crab	*Iliacantha subglobosa*	
mottled purse crab	*Persephona mediterranea*	
Family Luciferidae		
shrimp	*Lucifer faxoni*	
Family Menippidae		
Florida stone crab	*Menippe mercenaria*	
Family Mysidae		
mysid shrimp	*Americamysis almyra*	
mysid shrimp	*Americamysis stucki*	
mysid shrimp	*Brasilomysis sp.*	
mysid shrimp	*Chlamydopleon dissimile*	
mysid shrimp	*Gastrosaccinae*	
mysid shrimp	*Mysidopsis spp.*	
mysid shrimp	*Taphromysis bowmani*	
Family Nannosquillidae		
mantis shrimp	*Nannosquilla cf. taylori*	
Family Ogyrididae		
decapod	*Ogyrides alphaerostris*	
Family Paguridae		
wormreef hermit	*Pagurus carolinensis*	
hermit crab	*Pagurus gymnodactylus*	
longwrist hermit	*Pagurus longicarpus*	
hermit crab	*Pagurus maclaughlinae*	
hermit crab	*Pagurus sp.*	
hermit crab	*Pagurus stimpsoni*	
Family Palaemonidae		
shrimp	*Kemponia americana*	
brackish grass shrimp	*Palaemonetes intermedius*	
daggerblade grass shrimp	*Palaemonetes pugio*	
shrimp	*Periclimenes longicaudatus*	
shrimp	*Periclimenes/Kemponia sp.*	
Family Panopeidae		
mud crab	*Dyspanopeus sayi*	
mud crab	*Dyspanopeus sp.*	
Texas mud crab	*Dyspanopeus texanus*	
mud crab	*Eurypanopeus sp.*	

Common Name	Scientific Name	Status
smooth mud crab	*Hexapanopeus angustifrons*	
narrowback mud crab	*Panopeus americanus*	
furrowed mud crab	*Panopeus occidentalis*	
mud crab	*Panopeus sp.*	
white-tipped mud crab	*Rhithropanopeus harrisii*	
Family Parthenopidae		
smooth elbow crab	*Heterocrypta granulata*	
Family Pasiphaeidae		
shrimp	*Leptochela bermudensis*	
combclaw shrimp	*Leptochela serratorbita*	
Family Penaeidae		
pink shrimp	*Farfantepenaeus duorarum*	
penaeid shrimp	*Farfantepenaeus sp.*	
roughneck shrimp	*Rimapenaeus constrictus*	
penaeid shrimp	*Rimapenaeus sp.*	
Family Pinnotheridae		
sand-dollar pea crab	*Dissodactylus mellitae*	
Family Pinnotheridae		
crab	*Pinnixa cf. floridana*	
crab	*Pinnixa cf. pearsei*	
tube pea crab	*Pinnixa chaetopterana*	
crab	*Pinnixa cylindrica*	
crab	*Pinnixa retinens*	
crab	*Pinnixa sp. A of LeCroy, unpublished key,Perdido,FL*	
crab	*Pinnixa sp. D of LeCroy, unpublished key,Perdido,FL*	
crab	*Pinnixa sp. E of LeCroy, unpublished key,Perdido,FL*	
crab	*Pinnixa spp.*	
crab	*Pinnotheres sp.*	
squatter pea crab	*Tumidotheres maculatus*	
Family Pisidae		
longnose spider crab	*Libinia dubia*	
crab	*Libinia sp.*	
cryptic teardrop crab	*Pelia mutica*	
Family Porcellanidae		
olivepit porcelain crab	*Euceramus praelongus*	
porcelain crab	*Megalobrachium soriatum*	
porcelain crab	*Pachycheles sp.*	
porcelain crab	*Polyonyx gibbesi*	
Family Portunidae		

Common Name	Scientific Name	Status
shelligs	*Callinectes ornatus*	
blue crab	*Callinectes sapidus*	
lesser blue crab	*Callinectes similis*	
Family Processidae		
seagrass shrimp	*Ambidexter symmetricus*	
shrimp	*Nikoides schmitti*	
shrimp	*Processa bermudensis*	
shrimp	*Processa hemphilli*	
shrimp	*Processa sp.*	
Family Sicyoniidae		
brown rock shrimp	*Sicyonia brevirostris*	
rock shrimp	*Sicyonia laevigata*	
rock shrimp	*Sicyonia parri*	
kinglet rock shrimp	*Sicyonia typica*	
Family Tychidae		
massive urn crab	*Pitho aculeata*	
oval urn crab	*Pitho anisodon*	
eggshell urn crab	*Pitho laevigata*	
broadback urn crab	*Pitho lherminieri*	
Family Upogebiidae		
mud shrimp	*Upogebia affinis*	
mud shrimp	*Upogebia sp.*	
Order Isopoda		
Family Anthuridae		
isopod	*Amakusanthura cf. signata*	
isopod	*Amakusanthura magnifica*	
isopod	*Amakusanthura sp.*	
isopod	*Cyathura polita*	
Family Bopyridae		
isopod	*Pseudioninae*	
Family Hologнathidae		
isopod	*Cleantioides planicauda*	
Family Hyssuridae		
isopod	*Kupellonura formosa*	
isopod	*Neohyssura irpex*	
isopod	*Xenanthura brevitelson*	
Family Idoteidae		
isopod	*Edotia lyonsi*	
isopod	*Edotia triloba*	
isopod	*Erichsonella attenuata*	

Common Name	Scientific Name	Status
isopod	*Erichsonella filiformis*	
Family Sphaeromatidae		
isopod	*Cassidinidea ovalis*	
isopod	*Exosphaeroma diminutum*	
isopod	*Harrieta faxoni*	
isopod	*Paracerceis caudata*	
isopod	*Paradella dianae*	
isopod	*Paradella sp.*	
isopod	*Sphaeroma quadridentatum*	
Family Cirolanidae		
isopod	*Eurydice personata*	
Family Serolidae		
isopod	*Heteroserolis mgrayi*	
Order Tanaidacea		
Family Apseudidae		
tanaid	*Apseudes sp. A of EPC*	
Family Kalliapseudidae		
tanaid	*Mesokalliapseudes macsweenyi*	
Family Leptocheliidae		
tanaid	*Leptochelia cf. longimana*	
tanaid	*Leptochelia forresti*	
tanaid	*Leptochelia rapax*	
Family Parapseudidae		
tanaid	*Halmyrapseudes bahamensis*	
tanaid	*Pakistanapseudes cf. sp. A of EPC*	
Class Maxillopoda		
Order Sessilia		
Family Balanidae		
ivory barnacle	*Amphibalanus eburneus*	
bay barnacle	*Amphibalanus improvisus*	
barnacle	*Amphibalanus sp.*	
barnacle	*Amphibalanus venustus*	
Class Merostomata		
Order Xiphosura		
Family Limulidae		
horseshoe crab	*Limulus polyphemus*	
Class Pycnogonida		
Order Pantopoda		
Family Callipallenidae		
sea spider	*Callipallene phantoma*	

Common Name	Scientific Name	Status
Family Phoxichilidiidae		
sea spider	*Anoplodactylus sp.*	
Phylum Echinodermata		
Class Asteroidea		
Order Phanerozonia		
Family Astropectinidae		
royal starfish	*Astropecten articulatus*	
Family Luidiidae		
slender armed starfish	*Luidia clathrata*	
Class Echinoidea		
Order Arbacioida		
Family Arbacia		
purple sea urchin	*Arbacia punctulata*	
Order Camarodonta		
Family Toxopneustidae		
pink sea urchin	*Lytechinus variegatus*	
Order Clypeasteroida		
Family Mellitidae		
sand dollar	*Mellita tenuis*	
Class Holothuroidea		
Order Apodida		
Family Synaptidae		
sea cucumber	*Epitomapta cf. roseola*	
sea cucumber	*Leptosynapta sp.*	
sea cucumber	*SYNAPTIDAE sp. A of EPC*	
sea cucumber	*SYNAPTIDAE sp. C of EPC*	
sea cucumber	*Synaptula hydriformis*	
Order Dendrochirotida		
Family Cucumariidae		
sea cucumber	*Ocnus cf. pygmaeus*	
sea cucumber	*Thyonella gemmata*	
Family Phyllophoridae		
sea cucumber	*Pentamera cf. pulcherrima*	
Family Sclerodactylidae		
sea cucumber	*Sclerodactyla briareus*	
Class Ophiuroidea		
Order Ophiurida		
Family Amphiuridae		
brittle star	*Amphiodia atra*	
brittle star	*Amphioplus sepultus*	

Common Name	Scientific Name	Status
brittle star	*Amphioplus abditus*	
brittle star	*Amphioplus thrombodes*	
brittle star	*Amphipholis gracillima*	
brittle star	*Amphipholis sp.*	
brittle star	*Amphipholis squamata*	
brittle star	*Ophiophragmus filograneus*	
brittle star	*Ophiophragmus sp.*	
brittle star	*Ophiophragmus wurdemani*	
Family Ophiactidae		
brittle star	*Hemipholis elongata*	
Family Ophiodermatidae		
brittle star	*Ophioderma brevispina*	
Family Ophiolepididae		
brittle star	*Ophiolepis cf. elegans*	
brittle star	*Ophiolepis sp.*	
Phylum Hemichordata		
Class Enteropneusta		
Family Harrimaniidae		
acorn worm	*Stereobalanus canadensis*	
Phylum Chordata		
Class Leptocardii		
Order Amphioxiformes		
Family Branchiostomatidae		
Florida lancelet	*Branchiostoma floridae*	
Class Ascidiacea		
Order Enterogona		
Family Didemnidae		
white speck tunicate	*Didemnum cf. conchyliatum*	
tunicate	*Didemnum sp.*	
tunicate	*Diplosoma cf. listerianum*	
tunicate	*Lissoclinum cf. fragile*	
Family Perophoridae		
sea squirt	*Perophora cf. viridis*	
Family Polycitoridae		
tunicate	*Eudistoma sp.*	
Order Stolidobranchia		
Family Molgulidae		
tunicate	*Molgula occidentalis*	
Class Actinopterygii (ray-finned fishes)		
Order Acipenseriformes		

Common Name	Scientific Name	Status
Family Acipenseridae		
Atlantic sturgeon	*Acipenser oxyrinchus*	FE
Order Albuliformes		
Family Albulidae		
bonefish	*Albula vulpes*	
Order Anguilliformes		
Family Anguillidae		
American eel	*Anguilla rostrata*	
Family Ophichthidae		
spotted spoon-nose eel	*Echiophis intertinctus*	
speckled worm eel	*Myrophis punctatus*	
shrimp eel	*Ophichthus gomesii*	
Order Atheriniformes		
Family Atherinopsidae		
brook silverside	*Labidesthes sicculus*	
rough silverside	*Membras martinica*	
menidia silverside	*Menidia spp.*	
Order Aulopiformes		
Family Synodontidae		
inshore lizardfish	*Synodus foetens*	
Order Batrachoidiformes		
Family Batrachoididae		
Gulf toadfish	*Opsanus beta*	
Gulf toadfish (red morph)	*Opsanus beta (red morph)*	
Order Beloniformes		
Family Belonidae		
Atlantic needlefish	*Strongylura marina*	
redfin needlefish	*Strongylura notata*	
timucu	*Strongylura timucu*	
houndfish	*Tylosurus crocodilus*	
Family Hemiramphidae		
ballyhoo	*Hemiramphus brasiliensis*	
false silver halfbeak	*Hyporhamphus meeki*	
halfbeak	*Hyporhamphus unifasciatus*	
Order Clupeiformes		
Family Clupeidae		
Gulf menhaden	*Brevoortia patronus*	
yellowfin menhaden	*Brevoortia smithi*	
gizzard shad	*Dorosoma cepedianum*	
threadfin shad	*Dorosoma petenense*	

Common Name	Scientific Name	Status
scaled sardine	*Harengula jaguana*	
Atlantic thread herring	*Opisthonema oglinum*	
Spanish sardine	*Sardinella aurita*	
Family Engraulidae		
Cuban anchovy	*Anchoa cubana*	
striped anchovy	*Anchoa hepsetus*	
dusky anchovy	*Anchoa lyolepis*	
bay anchovy	*Anchoa mitchilli*	
Order Cypriniformes		
Family Cyprinidae		
golden shiner	*Notemigonus crysoleucas*	
ironcolor shiner	*Notropis chalybaeus*	
Order Cyprinodontiformes		
Family Cyprinodontidae		
sheepshead minnow	*Cyprinodon variegatus*	
goldspotted killifish	*Floridichthys carpio*	
Family Fundulidae		
diamond killifish	*Adinia xenica*	
banded topminnow	*Fundulus cingulatus*	
marsh killifish	*Fundulus confluentus*	
Gulf killifish	*Fundulus grandis*	
Seminole killifish	*Fundulus seminolis*	
longnose killifish	*Fundulus similis*	
pygmy killifish	*Leptolucania ommata*	
rainwater killifish	*Lucania parva*	
Family Poeciliidae		
Western mosquito fish	*Gambusia affinis*	
Eastern mosquito fish	*Gambusia holbrooki*	
least killifish	*Heterandria formosa*	
sailfin molly	*Poecilia latipinna*	
Order Elopiformes		
Family Elopidae		
ladyfish	*Elops saurus*	
malacho	*Elops smithi*	
Family Megalopidae		
tarpon	*Megalops atlanticus*	
Order Esociformes		
Family Esocidae		
redfin pickerel	*Esox americanus americanus*	
Order Gadiformes		

Common Name	Scientific Name	Status
Family Phycidae		
Southern hake	*Urophycis floridana*	
Order Gobiesociformes		
Family Gobiesocidae		
skilletfish	*Gobiesox strumosus*	
Order Lepisosteiformes		
Family Lepisosteidae		
longnose gar	*Lepisosteus osseus*	
Florida gar	*Lepisosteus platyrhincus*	
Order Lophiiformes		
Family Ogcocephalidae		
polka-dot batfish	*Ogcocephalus cubifrons*	
Order Mugiliformes		
Family Mugilidae		
striped mullet	*Mugil cephalus*	
white mullet	*Mugil curema*	
fantail mullet	*Mugil trichodon*	
Order Ophidiiformes		
Family Ophidiidae		
blotched cusk-eel	*Ophidion grayi*	
bank cusk-eel	*Ophidion holbrookii*	
crested cusk-eel	*Ophidion josephi*	
Order Perciformes		
Family Blenniidae		
Florida blenny	*Chasmodes saburrae*	
zebratail blenny	*Hypleurochilus caudovittatus*	
feather blenny	*Hypsoblennius hentz*	
Family Carangidae		
yellow jack	*Caranx bartholomaei*	
blue runner	*Caranx crysos*	
crevalle jack	*Caranx hippos*	
horse-eye jack	*Caranx latus*	
Atlantic bumper	*Chloroscombrus chrysurus*	
round scad	*Decapterus punctatus*	
bluntnose jack	*Hemicaranx amblyrhynchus*	
leatherjacket	*Oligoplites saurus*	
lookdown	*Selene vomer*	
Florida pompano	*Trachinotus carolinus*	
permit	*Trachinotus falcatus*	
Family Centrarchidae		

Common Name	Scientific Name	Status
bluegill	*Lepomis macrochirus*	
redear sunfish	*Lepomis microlophus*	
largemouth bass	*Micropterus salmoides*	
Family Centropomidae		
common snook	*Centropomus undecimalis*	
Family Chaetodontidae		
spotfin butterflyfish	*Chaetodon ocellatus*	
Family Cichlidae		
tilapia	*Oreochromis/Sarotherodon spp.*	
blackchin tilapia	*Sarotherodon melanotheron*	
Family Dactyloscopidae		
speckled stargazer	*Dactyloscopus moorei*	
Family Echeneidae		
sharksucker	*Echeneis naucrates*	
whitefin sharksucker	*Echeneis neucratoides*	
Family Ephippidae		
Atlantic spadefish	*Chaetodipterus faber*	
Family Gerreidae		
Irish pompano	*Diapterus auratus*	
spotfin mojarra	*Eucinostomus argenteus*	
silver jenny	*Eucinostomus gula*	
tidewater mojarra	*Eucinostomus harengulus*	
striped mojarra	*Eugerres plumieri*	
mojarra	*Gerreidae spp.*	
Family Gobiidae		
frillfin goby	*Bathygobius soporator*	
darter goby	*Ctenogobius boleosoma*	
emerald goby	*Ctenogobius smaragdus*	
tiger goby	*Elacatinus macrodon*	
highfin goby	*Gobionellus oceanicus*	
naked goby	*Gobiosoma bosc*	
twoscale goby	*Gobiosoma longipala*	
code goby	*Gobiosoma robustum*	
crested goby	*Lophogobius cyprinoides*	
clown goby	*Microgobius gulosus*	
green goby	*Microgobius thalassinus*	
Family Haemulidae		
tomtate	*Haemulon aurolineatum*	
white grunt	*Haemulon plumierii*	
pigfish	*Orthopristis chrysoptera*	

Common Name	Scientific Name	Status
Family Kyphosidae		
Bermuda chub	*Kyphosus sectatrix*	
Family Labridae		
slippery dick	*Halichoeres bivittatus*	
parrotfish	*Labridae spp.*	
hogfish	*Lachnolaimus maximus*	
Family Labrisomidae		
banded blenny	*Paraclinus fasciatus*	
marbled blenny	*Paraclinus marmoratus*	
Family Lobotidae		
tripletail	*Lobotes surinamensis*	
Family Lutjanidae		
mutton snapper	*Lutjanus analis*	
schoolmaster	*Lutjanus apodus*	
gray snapper	*Lutjanus griseus*	
lane snapper	*Lutjanus synagris*	
yellowtail snapper	*Ocyurus chrysurus*	
Family Mullidae		
red goatfish	*Mullus auratus*	
Family Pomatomidae		
bluefish	*Pomatomus saltatrix*	
Family Rachycentridae		
cobia	*Rachycentron canadum*	
Family Scaridae		
emerald parrotfish	*Nicholsina usta*	
Family Sciaenidae		
silver perch	*Bairdiella chrysoura*	
sand seatrout	*Cynoscion arenarius*	
spotted seatrout	*Cynoscion nebulosus*	
spot	*Leiostomus xanthurus*	
Southern kingfish	*Menticirrhus americanus*	
Gulf kingfish	*Menticirrhus littoralis*	
Northern kingfish	*Menticirrhus saxatilis*	
Atlantic croaker	*Micropogonias undulatus*	
black drum	*Pogonias cromis*	
red drum	*Sciaenops ocellatus*	
Family Serranidae		
black Sea bass	*Centropristis striata*	
sand perch	*Diplectrum formosum*	
goliath grouper	*Epinephelus itajara*	

Common Name	Scientific Name	Status
red grouper	*Epinephelus morio*	
gag	*Mycteroperca microlepis*	
pygmy sea bass	*Serraniculus pumilio*	
belted sandfish	*Serranus subligarius*	
Family Sparidae		
sheepshead	*Archosargus probatocephalus*	
grass porgy	*Calamus arctifrons*	
sheepshead porgy	*Calamus penna*	
spottail pinfish	*Diplodus holbrookii*	
pinfish	*Lagodon rhomboides*	
Family Uranoscopidae		
southern stargazer	*Astroscopus y-graecum*	
Order Pleuronectiformes		
Family Achiridae		
lined sole	*Achirus lineatus*	
hogchoker	*Trinectes maculatus*	
Family Cynoglossidae		
blackcheek tonguefish	*Symphurus plagiusa*	
Family Paralichthyidae		
ocellated flounder	*Ancylopsetta quadrocellata*	
spotted whiff	*Citharichthys macrops*	
spotfin flounder	*Cyclopsetta fimbriata*	
fringed flounder	*Etropus crossotus*	
shelf flounder	*Etropus cyclosquamus*	
Gulf flounder	*Paralichthys albigutta*	
southern flounder	*Paralichthys lethostigma*	
Order Rhinopristiformes		
Family Rhinobatidae		
Atlantic guitarfish	*Rhinobatos lentiginosus*	
Order Scombriformes		
Family Scombridae		
little tunny	*Euthynnus alletteratus*	
Spanish mackerel	*Scomberomorus maculatus*	
Family Sphyraenidae		
great barracuda	*Sphyraena barracuda*	
sennet	*Sphyraena borealis*	
guaguanche	*Sphyraena guachancho*	
Family Stromateidae		
Gulf butterfish	*Peprilus burti*	

Common Name	Scientific Name	Status
harvestfish	*Peprilus paru*	
Order Scorpaeniformes		
Family Scorpaenidae		
barbfish	*Scorpaena brasiliensis*	
Family Triglidae		
leopard searobin	*Prionotus scitulus*	
bighead searobin	*Prionotus tribulus*	
Order Siluriformes		
Family Ariidae		
hardhead catfish	*Ariopsis felis*	
gafftopsail catfish	*Bagre marinus*	
Family Ictaluridae		
channel catfish	*Ictalurus punctatus*	
Order Syngnathiformes		
Family Fistulariidae		
bluespotted cornetfish	*Fistularia tabacaria*	
Family Syngnathidae		
fringed pipefish	*Anarchopterus criniger*	
lined seahorse	*Hippocampus erectus*	
dwarf seahorse	*Hippocampus zosterae*	
dusky pipefish	*Syngnathus floridae*	
chain pipefish	*Syngnathus louisianae*	
Gulf pipefish	*Syngnathus scovelli*	
Order Tetraodontiformes		
Family Diodontidae		
striped burrfish	*Chilomycterus schoepfii*	
balloonfish	*Diodon holocanthus*	
Family Monacanthidae		
orange filefish	*Aluterus schoepfii*	
scrawled filefish	*Aluterus scriptus*	
fringed filefish	*Monacanthus ciliatus*	
planehead filefish	*Stephanolepis hispidus*	
pygmy filefish	*Stephanolepis setifer*	
Family Ostraciidae		
scrawled cowfish	*Acanthostracion quadricornis*	
trunkfish	*Lactophrys trigonus*	
long-horned cowfish	*Lactoria cornuta*	
boxfish	*Ostraciidae spp.*	
Family Tetraodontidae		
Southern puffer	*Sphoeroides nephelus*	

Common Name	Scientific Name	Status
bandtail puffer	*Sphoeroides spengleri*	
Class Chondrichthyes (sharks, skates, & rays)		
Order Carcharhiniformes		
Family Carcharhinidae		
blacknose shark	*Carcharhinus acronotus*	
bull shark	*Carcharhinus leucas*	
blacktip shark	*Carcharhinus limbatus*	
lemon shark	*Negaprion brevirostris*	
Atlantic sharpnose shark	*Rhizoprionodon terraenovae*	
Family Sphyrnidae		
scalloped hammerhead	*Sphyrna lewini*	
bonnethead	*Sphyrna tiburo*	
Order Myliobatiformes		
Family Dasyatidae		
Southern stingray	*Dasyatis americana*	
Atlantic stingray	*Dasyatis sabina*	
bluntnose stingray	*Dasyatis say*	
Family Gymnuridae		
smooth butterfly ray	*Gymnura micrura*	
Family Myliobatidae		
spotted eagle ray	*Aetobatus narinari*	
cownose ray	*Rhinoptera bonasus*	
Order Rajiformes		
Family Rajidae		
clearnose skate	*Raja eglanteria*	
Order Torpediniformes		
Family Narcinidae		
lesser electric ray	*Narcine bancroftii*	
Class Amphibia (amphibians)		
Order Anura		
Family Ranidae		
river frog	*Rana heckscheri*	
Class Reptilia (reptiles)		
Order Crocodilia		
Family Alligatoridae		
American alligator	*Alligator mississippiensis*	FT (S/A)
Family Crocodylidae		
American crocodile	*Crocodylus acutus*	FT
Order Squamata		
Family Colubridae		

Common Name	Scientific Name	Status
Atlantic salt marsh snake	*Nerodia clarkii taeniata*	FT
plainbelly watersnake	*Nerodia erythrogaster*	
Florida watersnake	*Nerodia fasciata pictiventris*	
Family Viperidae		
Eastern diamondback rattlesnake	*Crotalus adamanteus*	
pigmy rattlesnake	*Sistrurus miliarius*	
Order Testudines		
Family Cheloniidae		
loggerhead sea turtle	*Caretta caretta*	FT
green sea turtle	*Chelonia mydas*	FT
hawksbill sea turtle	*Eretmochelys imbricata*	FE
Kemp's ridley sea turtle	*Lepidochelys kempii*	FE
Family Chelydridae		
common snapping turtle	*Chelydra serpentina*	
Family Emydidae		
diamondback terrapin	*Malaclemys terrapin*	
river cooter	*Pseudemys concinna*	
Florida cooter	*Pseudemys floridana*	
peninsula cooter	*Pseudemys peninsularis*	
red-eared turtle	*Trachemys scripta elegans*	
Family Kinosternidae		
common musk turtle	*Sternotherus odoratus*	
Family Trionychidae		
spiny softshell turtle	*Apalone spinifera*	
Class Aves (birds)		
Order Accipitriformes		
Family Accipitridae		
Cooper’s hawk	*Accipiter cooperii*	
sharp-shinned hawk	*Accipiter striatus*	
short-tailed hawk	*Buteo brachyurus*	
red-tailed hawk	*Buteo jamaicensis*	
red-shouldered hawk	*Buteo lineatus*	
broad-winged hawk	*Buteo platypterus*	
Swainson’s hawk	*Buteo swainsoni*	
Northern harrier	*Circus hudsonius*	
swallow-tailed kite	*Elanoides forficatus*	
bald eagle	*Haliaeetus leucocephalus*	BPEPA
Mississippi kite	*Ictinia mississippiensis*	
Order Anseriformes		
Family Anatidae		

Common Name	Scientific Name	Status
wood duck	*Aix sponsa*	
Northern pintail	*Anas acuta*	
green-winged teal	*Anas carolinensis*	
blue-winged teal	*Anas discors*	
mottled duck	*Anas fulvigula*	
mallard	*Anas platyrhynchos*	
lesser scaup	*Aythya affinis*	
redhead	*Aythya americana*	
ring-necked duck	*Aythya collaris*	
greater scaup	*Aythya marila*	
canvasback	*Aythya valisineria*	
bufflehead	*Bucephala albeola*	
muscovy duck	*Cairina moschata*	
long-tailed duck	*Clangula hyemalis*	
black-bellied whistling-duck	*Dendrocygna autumnalis*	
hooded merganser	*Lophodytes cucullatus*	
American wigeon	*Mareca americana*	
gadwall	*Mareca strepera*	
white-winged scoter	*Melanitta deglandi*	
surf scoter	*Melanitta perspicillata*	
red-breasted merganser	*Mergus serrator*	
ruddy duck	*Oxyura jamaicensis*	
Northern shoveler	*Spatula clypeata*	
Order Caprimulgiformes		
Family Apodidae		
chimney swift	*Chaetura pelagica*	
Family Caprimulgidae		
Chuck-will's-widow	*Antrostomus carolinensis*	
whip-poor-will	*Antrostomus vociferus*	
common nighthawk	*Chordeiles minor*	
Family Trochilidae		
ruby-throated hummingbird	*Archilochus colubris*	
rufous hummingbird	*Selasphorus rufus*	
Order Cathartiformes		
Family Cathartidae		
turkey vulture	*Cathartes aura*	
black vulture	*Coragyps atratus*	
Order Charadriiformes		
Family Charadriidae		
piping plover	*Charadrius melodus*	FT

Common Name	Scientific Name	Status
snowy plover	*Charadrius nivosus*	ST
semipalmated plover	*Charadrius semipalmatus*	
killdeer	*Charadrius vociferus*	
Wilson's plover	*Charadrius wilsonia*	
American golden-plover	*Pluvialis dominica*	
black-bellied plover	*Pluvialis squatarola*	
Family Haematopodidae		
American oystercatcher	*Haematopus palliatus*	ST
Family Laridae		
black tern	*Chlidonias niger*	
gull-billed tern	*Gelochelidon nilotica*	
Caspian tern	*Hydroprogne caspia*	
herring gull	*Larus argentatus*	
ring-billed gull	*Larus delawarensis*	
lesser black-backed gull	*Larus fuscus*	
glaucous gull	*Larus hyperboreus*	
great black-backed gull	*Larus marinus*	
Bonaparte's gull	*Larus philadelphia*	
laughing gull	*Leucophaeus atricilla*	
black skimmer	*Rynchops niger*	ST
roseate tern	*Sterna dougallii*	FT
Forster's tern	*Sterna forsteri*	
common tern	*Sterna hirundo*	
least tern	*Sternula antillarum*	ST
royal tern	*Thalasseus maximus*	
sandwich tern	*Thalasseus sandvicensis*	
Family Recurvirostridae		
black-necked stilt	*Himantopus mexicanus*	
American avocet	*Recurvirostra americana*	
Family Scolopacidae		
spotted sandpiper	*Actitis macularius*	
ruddy turnstone	*Arenaria interpres*	
sanderling	*Calidris alba*	
dunlin	*Calidris alpina*	
red knot	*Calidris canutus*	
rufa red knot	*Calidris canutus rufa*	FT
white-rumped sandpiper	*Calidris fuscicollis*	
stilt sandpiper	*Calidris himantopus*	
Western sandpiper	*Calidris mauri*	
pectoral sandpiper	*Calidris melanotos*	

Common Name	Scientific Name	Status
least sandpiper	*Calidris minutilla*	
semipalmated sandpiper	*Calidris pusilla*	
common snipe	*Gallinago gallinago*	
short-billed dowitcher	*Limnodromus griseus*	
long-billed dowitcher	*Limnodromus scolopaceus*	
marbled godwit	*Limosa fedoa*	
Hudsonian godwit	*Limosa haemastica*	
long-billed curlew	*Numenius americanus*	
whimbrel	*Numenius phaeopus*	
lesser yellowlegs	*Tringa flavipes*	
greater yellowlegs	*Tringa melanoleuca*	
willet	*Tringa semipalmata*	
solitary sandpiper	*Tringa solitaria*	
Family Stercorariidae		
parasitic jaeger	*Stercorarius parasiticus*	
pomarine jaeger	*Stercorarius pomarinus*	
Order Ciconiiformes		
Family Ardeidae		
snowy egret	*Egretta thula*	
Family Ciconiidae		
wood stork	*Mycteria americana*	FT
Family Threskiornithidae		
white ibis	*Eudocimus albus*	
Order Columbiformes		
Family Columbidae		
common ground-dove	*Columbina passerina*	
white-winged dove	*Zenaida asiatica*	
Order Coraciiformes		
Family Alcedinidae		
belted kingfisher	*Megaceryle alcyon*	
Order Cuculiformes		
Family Cuculidae		
yellow-billed cuckoo	*Coccyzus americanus*	
mangrove cuckoo	*Coccyzus minor*	
Order Falconiformes		
Family Falconidae		
merlin	*Falco columbarius*	
peregrine falcon	*Falco peregrinus*	
Southeastern American kestrel	*Falco sparverius paulus*	ST
Family Pandionidae		

Common Name	Scientific Name	Status
osprey	*Pandion haliaetus*	
Order Galliformes		
Family Odontophoridae		
Northern bobwhite	*Colinus virginianus*	
Family Phasianidae		
wild turkey	*Meleagris gallopavo*	
Order Gaviiformes		
Family Gaviidae		
common loon	*Gavia immer*	
Order Gruiformes		
Family Aramidae		
limpkin	*Aramus guarauna*	
Family Gruidae		
Florida sandhill crane	*Antigone canadensis pratensis*	ST
Family Rallidae		
American coot	*Fulica americana*	
common moorhen	*Gallinula chloropus*	
black rail	*Laterallus jamaicensis*	
sora	*Porzana carolina*	
clapper rail	*Rallus crepitans*	
king rail	*Rallus elegans*	
Virginia rail	*Rallus limicola*	
Order Passeriformes		
Family Bombycillidae		
cedar waxwing	*Bombycilla cedrorum*	
Family Cardinalidae		
Northern cardinal	*Cardinalis cardinalis*	
blue grosbeak	*Passerina caerulea*	
painted bunting	*Passerina ciris*	
indigo bunting	*Passerina cyanea*	
rose-breasted grosbeak	*Pheucticus ludovicianus*	
scarlet tanager	*Piranga olivacea*	
summer tanager	*Piranga rubra*	
dickcissel	*Spiza americana*	
Family Corvidae		
fish crow	*Corvus ossifragus*	
blue jay	*Cyanocitta cristata*	
Family Fringillidae		
evening grosbeak	*Coccothraustes vespertinus*	
pine siskin	*Spinus pinus*	

Common Name	Scientific Name	Status
American goldfinch	*Spinus tristis*	
Family Hirundinidae		
barn swallow	*Hirundo rustica*	
cliff swallow	*Petrochelidon pyrrhonota*	
purple martin	*Progne subis*	
bank swallow	*Riparia riparia*	
N. rough-winged swallow	*Stelgidopteryx serripennis*	
tree swallow	*Tachycineta bicolor*	
Family Icteridae		
red-winged blackbird	*Agelaius phoeniceus*	
bobolink	*Dolichonyx oryzivorus*	
rusty blackbird	*Euphagus carolinus*	
Brewer's blackbird	*Euphagus cyanocephalus*	
Baltimore oriole	*Icterus galbula*	
orchard oriole	*Icterus spurius*	
brown-headed cowbird	*Molothrus ater*	
boat-tailed grackle	*Quiscalus major*	
common grackle	*Quiscalus quiscula*	
Eastern meadowlark	*Sturnella magna*	
Family Laniidae		
loggerhead shrike	*Lanius ludovicianus*	
Family Motacillidae		
American pipit	*Anthus rubescens*	
Family Mimidae		
gray catbird	*Dumetella carolinensis*	
Northern mockingbird	*Mimus polyglottos*	
brown thrasher	*Toxostoma rufum*	
Family Paridae		
tufted titmouse	*Baeolophus bicolor*	
Carolina chickadee	*Poecile carolinensis*	
Family Parulidae		
Canada warbler	*Cardellina canadensis*	
Wilson's warbler	*Cardellina pusilla*	
Kentucky warbler	*Geothlypis formosa*	
common yellowthroat	*Geothlypis trichas*	
worm-eating warbler	*Helmitheros vermivorum*	
Swainson's warbler	*Limnothlypis swainsonii*	
black-and-white warbler	*Mniotilta varia*	
orange-crowned warbler	*Oreothlypis celata*	
Tennessee warbler	*Oreothlypis peregrina*	

Common Name	Scientific Name	Status
Nashville warbler	*Oreothlypis ruficapilla*	
Louisiana waterthrush	*Parkesia motacilla*	
Northern waterthrush	*Parkesia noveboracensis*	
prothonotary warbler	*Protonotaria citrea*	
ovenbird	*Seiurus aurocapilla*	
Northern parula	*Setophaga americana*	
black-throated blue warbler	*Setophaga caerulescens*	
bay-breasted warbler	*Setophaga castanea*	
Cerulean warbler	*Setophaga cerulea*	
hooded warbler	*Setophaga citrina*	
yellow-rumped warbler	*Setophaga coronata*	
prairie warbler	*Setophaga discolor*	
yellow-throated warbler	*Setophaga dominica*	
Blackburnian warbler	*Setophaga fusca*	
magnolia warbler	*Setophaga magnolia*	
black-throated gray warbler	*Setophaga nigrescens*	
palm warbler	*Setophaga palmarum*	
chestnut-sided warbler	*Setophaga pensylvanica*	
yellow warbler	*Setophaga petechia*	
pine warbler	*Setophaga pinus*	
American redstart	*Setophaga ruticilla*	
blackpoll warbler	*Setophaga striata*	
Cape May warbler	*Setophaga tigrina*	
black-throated green warbler	*Setophaga virens*	
golden-winged warbler	*Vermivora chrysoptera*	
blue-winged warbler	*Vermivora cyanoptera*	
Family Passerellidae		
saltmarsh sharp-tailed sparrow	*Ammodramus caudacutus*	
Scott's seaside sparrow	*Ammodramus maritimus peninsulae*	ST
Nelson’s sharp-tailed sparrow	*Ammodramus nelsoni*	
swamp sparrow	*Melospiza georgiana*	
Lincoln’s sparrow	*Melospiza lincolnii*	
song sparrow	*Melospiza melodia*	
house sparrow	*Passer domesticus*	
savannah sparrow	*Passerculus sandwichensis*	
Bachman’s sparrow	*Peucaea aestivalis*	
Eastern towhee	*Pipilo erythrophthalmus*	
vesper sparrow	*Pooecetes gramineus*	
chipping sparrow	*Spizella passerina*	
field sparrow	*Spizella pusilla*	

Common Name	Scientific Name	Status
white-throated sparrow	*Zonotrichia albicollis*	
white-crowned sparrow	*Zonotrichia leucophrys*	
Family Polioptilidae		
blue-gray gnatcatcher	*Polioptila caerulea*	
Family Regulidae		
ruby-crowned kinglet	*Regulus calendula*	
Family Troglodytidae		
Marian's marsh wren	*Cistothorus palustris marianae*	ST
sedge wren	*Cistothorus stellaris*	
Carolina wren	*Thryothorus ludovicianus*	
house wren	*Troglodytes aedon*	
Family Turdidae		
veery	*Catharus fuscescens*	
hermit thrush	*Catharus guttatus*	
gray-cheeked thrush	*Catharus minimus*	
Swainson’s thrush	*Catharus ustulatus*	
wood thrush	*Hylocichla mustelina*	
Eastern bluebird	*Sialia sialis*	
American robin	*Turdus migratorius*	
Family Tyrannidae		
Eastern wood-pewee	*Contopus virens*	
yellow-bellied flycatcher	*Empidonax flaviventris*	
least flycatcher	*Empidonax minimus*	
Acadian flycatcher	*Empidonax virescens*	
great crested flycatcher	*Myiarchus crinitus*	
Eastern phoebe	*Sayornis phoebe*	
gray kingbird	*Tyrannus dominicensis*	
scissor-tailed flycatcher	*Tyrannus forficatus*	
Eastern kingbird	*Tyrannus tyrannus*	
Family Vireonidae		
black-whiskered vireo	*Vireo altiloquus*	
white-eyed vireo	*Vireo griseus*	
red-eyed vireo	*Vireo olivaceus*	
blue-headed vireo	*Vireo solitarius*	
Order Pelecaniformes		
Family Ardeidae		
great egret	*Ardea alba*	
great blue heron	*Ardea herodias*	
"great white” heron	*Ardea herodias occidentalis*	
American bittern	*Botaurus lentiginosus*	

Common Name	Scientific Name	Status
green heron	*Butorides virescens*	
little blue heron	*Egretta caerulea*	ST
reddish egret	*Egretta rufescens*	ST
tricolored heron	*Egretta tricolor*	ST
least bittern	*Ixobrychus exilis*	
yellow-crowned night-heron	*Nyctanassa violacea*	
black-crowned night-heron	*Nycticorax nycticorax*	
Family Pelecanidae		
American white pelican	*Pelecanus erythrorhynchos*	
brown pelican	*Pelecanus occidentalis*	
Family Threskiornithidae		
roseate spoonbill	*Platalea ajaja*	ST
Order Piciformes		
Family Picidae		
Northern flicker	*Colaptes auratus*	
downy woodpecker	*Dryobates pubescens*	
pileated woodpecker	*Dryocopus pileatus*	
red-bellied woodpecker	*Melanerpes carolinus*	
yellow-bellied sapsucker	*Sphyrapicus varius*	
Order Podicipediformes		
Family Podicipedidae		
horned grebe	*Podiceps auritus*	
pied-billed grebe	*Podilymbus podiceps*	
Order Strigiformes		
Family Strigidae		
Florida burrowing owl	*Athene cunicularia floridana*	ST
great horned owl	*Bubo virginianus*	
Eastern screech-owl	*Megascops asio*	
barred owl	*Strix varia*	
Family Tytonidae		
barn owl	*Tyto alba*	
Order Suliformes		
Family Anhingidae		
anhinga	*Anhinga anhinga*	
Family Fregatidae		
magnificent frigatebird	*Fregata magnificens*	
Family Phalacrocoracidae		
double-crested cormorant	*Phalacrocorax auritus*	
Family Sulidae		
Northern gannet	*Morus bassanus*	

Common Name	Scientific Name	Status
Class Mammalia (mammals)		
Order Artiodactyla		
Family Delphinidae		
bottlenose dolphin	*Tursiops truncatus*	
Order Carnivora		
Family Procyonidae		
raccoon	*Procyon lotor*	
Order Sirenia		
Family Trichechidae		
West Indian manatee	*Trichechus manatus*	FT

B.3.2 / Listed Species

Legend: FT = Federally- and State-Designated Threatened • FE = Federally-and State-Designated Endangered • ST = State-Designated Threatened • SE = State-Designated Endangered • BGEPA = Bald and Golden Eagle Protection Act

Common Name	Scientific Name	Status
Fishes		
Atlantic sturgeon	*Acipenser oxyrinchus*	FE
Reptiles		
American alligator	*Alligator mississippiensis*	FT (S/A)
loggerhead sea turtle	*Caretta caretta*	FT
green sea turtle	*Chelonia mydas*	FT
American crocodile	*Crocodylus acutus*	FT
hawksbill sea turtle	*Eretmochelys imbricata*	FE
Kemp's ridley sea turtle	*Lepidochelys kempii*	FE
mangrove snake	*Nerodia clarkii*	FT
Birds		
seaside sparrow	*Ammodramus maritimus*	ST
sandhill crane	*Antigone canadensis*	ST
burrowing owl	*Athene cunicularia*	ST
rufa red knot	*Calidris canutus rufa*	FT
piping plover	*Charadrius melodus*	FT
snowy plover	*Charadrius nivosus*	ST
marsh wren	*Cistothorus palustris*	ST
little blue heron	*Egretta caerulea*	ST
reddish egret	*Egretta rufescens*	ST
tricolored heron	*Egretta tricolor*	ST
American kestrel	*Falco sparverius*	ST
American oystercatcher	*Haematopus palliatus*	ST
wood stork	*Mycteria americana*	FT
roseate spoonbill	*Platalea ajaja*	ST
black skimmer	*Rynchops niger*	ST
roseate tern	*Sterna dougallii*	FT
least tern	*Sternula antillarum*	ST
Mammals		
West Indian manatee	*Trichechus manatus*	FT

B.3.3 / Invasive Non-Native or Problem Species

Common Name	Scientific Name	Plants (FLEPPC* Category) Others (Invasive Status)
Plants		
alligator weed	*Alternanthera philoxeroides*	II
Australian pine	*Casuarina equisetifolia*	I
wild taro	*Colocasia esculenta*	I
carrotwood	*Cupaniopsis anacardioides*	I
water hyacinth	*Eichhornia crassipes*	I
Uruguayan water-primrose	*Ludwigia hexapetala*	I
Peruvian water-primrose	*Ludwigia peruviana*	I
Guinea grass	*Panicum maximum*	II
Brazilian pepper	*Schinus terebinthifolia*	I
Caesar's weed	*Urena lobata*	I
Flatworms		
oyster leech	*Stylochus cf. frontalis*	non-native
Annelids		
polychaete worm	*Boccardiella cf. hamata*	non-native
polychaete worm	*Mediomastus californiensis*	non-native
Mollusks		
red-rim melania	*Melanoides tuberculatus*	non-native
Asian green mussel	*Perna viridis*	non-native
island apple snail	*Pomacea insularum*	non-native
Arthropods		
striped acorn barnacle	*Amphibalanus cf. amphitrite*	non-native
acorn barnacle	*Amphibalanus reticulatus*	non-native
acorn barnacle	*Balanus trigonus*	non-native
green porcelain crab	*Petrolisthes armatus*	non-native
isopod	*Sphaeroma terebrans*	non-native
Bryozoans		
moss animal	*Sundanella sibogae*	non-native
moss animal	*Conopeum cf. seurati*	non-native
Sea squirts		
rough sea squirt	*Styela plicata*	non-native
Fishes		
pike killifish	*Belonesox belizanus*	non-native
Mayan cichlid	*Cichlasoma urophthalmus*	non-native
blue tilapia	*Oreochromis aureus*	non-native
chameleon blenny	*Protemblemaria punctata*	non-native
red lionfish	*Pterois volitans*	non-native

Birds		
black-hooded parakeet	*Aratinga nenday*	non-native
cattle egret	*Bubulcus ibis*	non-native
rock pigeon	*Columba livia*	non-native
budgerigar	*Melopsittacus undulatus*	non-native
monk parakeet	*Myiopsitta monachus*	non-native
Eurasian collared-dove	*Streptopelia decaocto*	non-native
European starling	*Sturnus vulgaris*	non-native

B.4 / Arthropod Control Plan

Spatial data (e.g. shapefiles) for the boundaries of the aquatic preserve have been made accessible to the appropriate mosquito control district. The aquatic preserve is deemed highly productive and environmentally sensitive. By policy of DEP since 1987, aerial adulticiding is not allowed, but larviciding and ground adulticiding (truck spraying in public use areas) is typically allowed. Mosquito control plans temporarily may be set aside under declared threats to public or animal health, or during a Governor's Emergency Proclamation. Mosquito control plans are typically proposed by local mosquito control agencies when they desire to treat on public lands.

B.5 / Archaeological and Historic Sites Associated with Pinellas County and Boca Ciega Bay Aquatic Preserves

The list below was derived from data obtained from the Florida Department of State, Division of Historical Resources on October 24, 2024, and includes sites within 50 meters (164 feet) of Boca Ciega Bay and Pinellas County aquatic preserves. There are 156 archaeological sites, 31 archaeological resource groups, and 45 historical bridges. In addition, there are 901 historical structures that are not listed here. These sites total 4,902 acres.

Site ID	Site Name	Site Description	Location
HI06758	GANDY BRIDGE	Bridge, built 1925.	Within PCAP.
HI11663	SR 93 over Old Tampa Bay	Bridge, built circa 1959.	Within PCAP.
MA01793	Old Sunshine Skyway Bridge	Bridge, built 1954.	Within PCAP.
PI00001	WEEDEN ISLAND	Building remains; Campsite (prehistoric)	Within PCAP.
PI00002	SAFETY HARBOR	Prehistoric burial mound(s); Platform mound (prehistoric)	Within PCAP.
PI00004	JOHN'S PASS MOUND	Prehistoric burial mound(s)	Within PCAP and BCBAP.
PI00009	HOG ISLAND MOUND	Prehistoric burial mound(s)	Within PCAP.
PI00011	LONG KEY MOUND	Prehistoric burial mound(s)	Within PCAP.
PI00016	MULLET KEY	Prehistoric shell midden	Within PCAP and BCBAP.
PI00017	DUNEDIN MOUND	Platform mound (prehistoric)	Within 164 ft (50 m) of PCAP.
PI00022	BIG BAYOU	Destroyed prehistoric shell midden	Within PCAP.
PI00031	MAXIMO PARK	Campsite (prehistoric)	Within 164 ft (50 m) of PCAP.
PI00032	BEAR CREEK 1	Prehistoric shell midden	Within 164 ft (50 m) of PCAP.
PI00033	BEAR CREEK 2	Destroyed prehistoric shell midden	Within PCAP and BCBAP.
PI00034	BEAR CREEK 3	Prehistoric shell midden	Within 164 ft (50 m) of PCAP.
PI00036	BOOTH POINT	Prehistoric shell midden	Within PCAP.
PI00038	ACROSS FROM MADEIRA	Prehistoric shell midden	Within 164 ft (50 m) of PCAP.
PI00041	BAYSHORE HOMES	Prehistoric burial mound(s); Platform mound (prehistoric)	Within 164 ft (50 m) of PCAP.
PI00042	SPONGE HARBOR	Artifact scatter-low density (< 2 per sq meter)	Within 164 ft (50 m) of PCAP.
PI00043	BURNT MILL	Prehistoric mound(s)	Within 164 ft (50 m) of PCAP.
PI00044	MURPHY'S MOUNDS	Habitation (prehistoric)	Within PCAP.
PI00046	INDIAN ISLAND	Lithic scatter/quarry (prehistoric: no ceramics)	Within 164 ft (50 m) of PCAP.
PI00048	FORT DESOTO BATTERIES	Historic fort	Within PCAP and BCBAP.
PI00051	CABBAGE KEY MOUND	Destroyed prehistoric burial mound(s)	Within PCAP and BCBAP.
PI00053	DAN'S ISLAND	Prehistoric shell midden	Within PCAP.

Site ID	Site Name	Site Description	Location
PI00054	Jungle Prada Site	Platform mound; Building remains	Within 164 ft (50 m) of PCAP.
PI00056	ROSS ISLAND	Prehistoric burial mound(s); Platform mound (prehistoric)	Within PCAP.
PI00057	CABBAGE PATCH POINT	Prehistoric midden(s)	Within PCAP.
PI00058	ABERCROMBIE PARK	Habitation (prehistoric)	Within PCAP and BCBAP.
PI00059	NN	Prehistoric mound(s)	Within 164 ft (50 m) of PCAP.
PI00060	NN	Prehistoric mound(s)	Within 164 ft (50 m) of PCAP.
PI00061	TENTH STREET (PINELLAS POINT MIDDEN)	Prehistoric shell midden	Within PCAP.
PI00064	BAY PINES	Prehistoric burial mound(s)	Within 164 ft (50 m) of PCAP.
PI00066	CRYSTAL BEACH	Campsite (prehistoric); Prehistoric shell midden	Within PCAP.
PI00067	COBB MOUND	Prehistoric mound(s)	Within 164 ft (50 m) of PCAP.
PI00069	SANDY POINT	Lithic scatter/quarry (prehistoric: no ceramics)	Within PCAP.
PI00075	OLDSMAR CITY PARK	Artifact scatter-low density (< 2 per sq meter)	Within PCAP.
PI00078	NN	Lithic scatter/quarry (prehistoric: no ceramics)	Within PCAP.
PI00082	MOCCASIN CREEK	Other	Within PCAP.
PI00085	NN	Lithic scatter/quarry (prehistoric: no ceramics)	Within 164 ft (50 m) of PCAP.
PI00086	LIONS CLUB RETREAT	Ceramic scatter	Within PCAP.
PI00087	NORTH LONS POINT	Lithic scatter/quarry (prehistoric: no ceramics)	Within PCAP.
PI00088	SOUTH DOLLY BAY SHORE	Lithic scatter/quarry (prehistoric: no ceramics)	Within PCAP.
PI00089	NORTHWEST DOLLY BAY SHORE	Lithic scatter/quarry (prehistoric: no ceramics)	Within PCAP.
PI00090	PASTURE FENCE POINT	Lithic scatter/quarry (prehistoric: no ceramics)	Within PCAP.
PI00091	PINEY POINT	Lithic scatter/quarry (prehistoric: no ceramics)	Within PCAP.
PI00096	BROOKER CREEK	Lithic scatter/quarry (prehistoric: no ceramics)	Within PCAP.
PI00097	NN	Prehistoric shell midden	Within PCAP.
PI00098	OLD FILL	Prehistoric shell midden	Within 164 ft (50 m) of PCAP.
PI00099	NEW FILL	Prehistoric shell midden	Within PCAP.
PI00109	BENNET	Prehistoric burial mound(s)	Within 164 ft (50 m) of PCAP.
PI00114	Don Ce Sar Hotel	Historic Structure; on National Register	Within 164 ft (50 m) of PCAP.

Site ID	Site Name	Site Description	Location
PI00115	OAK BLUFFS	Specialized site for procurement of raw materials	Within 164 ft (50 m) of PCAP.
PI00121	FORT DESOTO PARK	Designed Historic Landscape	Within PCAP and BCBAP.
PI00122	GANDY BRIDGE	Bridge, built 1924.	Within PCAP.
PI00131	ODET PHILIPPI ESTATE	House	Within PCAP.
PI00134	SHERATON SHORES	Prehistoric mound(s)	Within PCAP and BCBAP.
PI00135	OLD SUNSHINE SKYWAY BRIDGE	Bridge, built 1954.	Within PCAP.
PI00136	SPANISH WELLS	Prehistoric burial mound(s)	Within 164 ft (50 m) of PCAP.
PI00164	FORT HARRISON	Historic fort	Within 164 ft (50 m) of PCAP.
PI00171	GARDEN ISLAND	Inundated land site	Within 164 ft (50 m) of PCAP.
PI00224	SHARK ISLAND	Prehistoric shell midden	Within PCAP.
PI00225	BLOSSOM WAY MIDDEN	Prehistoric shell midden	Within PCAP.
PI00226	MAXIMO PARK	Prehistoric shell midden	Within PCAP and BCBAP.
PI00228	COQUINA KEY	Prehistoric shell midden	Within PCAP.
PI00229	HART CREEK	Redeposited site (to this location)	Within PCAP and BCBAP.
PI00230	NN	Redeposited site (to this location)	Within PCAP and BCBAP.
PI00231	NN	Redeposited site (to this location)	Within PCAP and BCBAP.
PI00232	CATS POINT 1	Prehistoric shell midden	Within PCAP and BCBAP.
PI00233	CATS POINT 2	Redeposited site (to this location)	Within PCAP and BCBAP.
PI00234	BAY PINES VETERANS ADMIN HIST DISTRICT	Historical District	Within PCAP and BCBAP.
PI00359	Casa De Muchas Flores	Historic Structure; on National Register	Within 164 ft (50 m) of PCAP.
PI00580	St. Petersburg Woman's Club	Historic Structure; on National Register	Within 164 ft (50 m) of PCAP.
PI00730	MAXIMO HERNANDEZ HOMESTEAD		Within PCAP and BCBAP.
PI00746	ALBERT WHITTED MUNICIPAL AIRPORT	FMSF Building Complex	Within PCAP.
PI00747	OSPREY BREEDING	Artifact scatter-low density (< 2 per sq meter)	Within PCAP.
PI00839	Casa Coe da Sol	Historic Structure; on National Register	Within 164 ft (50 m) of PCAP.
PI00840	TIERRA VERDE MIDDEN	Prehistoric midden(s)	Within PCAP and BCBAP.
PI00853	TARPON LAKE VILLAGE 8	Lithic scatter/quarry (prehistoric: no ceramics)	Within PCAP.
PI00855	BAYVIEW INDIAN MIDDEN	Habitation (prehistoric)	Within PCAP.
PI00856	SLOUTH	Prehistoric shell midden	Within 164 ft (50 m) of PCAP.
PI00862	KEPLER	Prehistoric shell midden	Within PCAP and BCBAP.

Site ID	Site Name	Site Description	Location
PI00864	POINT ALEXIS 1	Artifact scatter-low density (< 2 per sq meter)	Within 164 ft (50 m) of PCAP.
PI00865	POINT ALEXIS 3	Lithic scatter/quarry (prehistoric: no ceramics)	Within PCAP.
PI00866	POINT ALEXIS 4	Prehistoric shell midden	Within 164 ft (50 m) of PCAP.
PI00872	SOUTH COVE	Artifact scatter-low density (< 2 per sq meter)	Within 164 ft (50 m) of PCAP.
PI00881	TURTLECRAWL POINT	Prehistoric shell midden	Within PCAP and BCBAP.
PI00894 B	NEW HAVEN 1	Artifact scatter-low density (< 2 per sq meter)	Within 164 ft (50 m) of PCAP.
PI00895	NEW HAVEN 2	Artifact scatter-low density (< 2 per sq meter)	Within PCAP.
PI00896	NEW HAVEN 3	Artifact scatter-low density (< 2 per sq meter)	Within PCAP.
PI00900	NEW HAVEN 7	Artifact scatter-low density (< 2 per sq meter)	Within PCAP.
PI01195	COLONEY POINT	Redeposited site (to this location)	Within PCAP.
PI01196	22ND STREET	Redeposited site (to this location)	Within PCAP.
PI01201	MAXIMO MOORINGS	Paleontological in addition to cultural evidence	Within PCAP and BCBAP.
PI01210	BAKER MIDDEN	Prehistoric shell midden	Within PCAP.
PI01211	LEWIS ISLAND	Prehistoric lithics only, but not quarry	Within PCAP.
PI01221	NN	Artifact scatter-low density (< 2 per sq meter)	Within PCAP and BCBAP.
PI01222	CLAM BAYOU	Redeposited site (to this location)	Within PCAP and BCBAP.
PI01233	RIVIERA BAY 2		Within 164 ft (50 m) of PCAP.
PI01236	SPOIL ISLAND	Redeposited site (to this location)	Within PCAP.
PI01238	BAY VISTA PARK	Prehistoric shell midden	Within 164 ft (50 m) of PCAP.
PI01240	JUNGLE SHORES	Prehistoric shell midden	Within PCAP and BCBAP.
PI01241	VILLA PARK ESTATES	Prehistoric shell midden	Within PCAP and BCBAP.
PI01243	RIVIERA BAY 3	Campsite (prehistoric)	Within PCAP.
PI01245	RIVIERA BAY 4	Land-terrestrial	Within PCAP.
PI01247	GOOGE ISLAND	Prehistoric shell midden	Within 164 ft (50 m) of PCAP.
PI01254	BOCA CIEGA BAY MIDDEN	Prehistoric shell midden	Within PCAP and BCBAP.
PI01257	MEYERS COVE MIDDEN	Habitation (prehistoric)	Within PCAP.
PI01261	HARBOR OAKS RESIDENTIAL DISTRICT	Historical District	Within 164 ft (50 m) of PCAP.
PI01264	CABBAGE KEY MIDDEN	Prehistoric shell midden	Within PCAP and BCBAP.
PI01265	MADELAINE KEY	Prehistoric shell midden	Within PCAP and BCBAP.

Site ID	Site Name	Site Description	Location
PI01681	SAIL HARBOR	Artifact scatter-low density (< 2 per sq meter)	Within 164 ft (50 m) of PCAP.
PI01683	WATERBERRY HILLS	Lithic scatter/quarry (prehistoric: no ceramics)	Within 164 ft (50 m) of PCAP.
PI01685	ST LUKES	Lithic scatter/quarry (prehistoric: no ceramics)	Within 164 ft (50 m) of PCAP.
PI01691	PINE KEY MIDDEN/MOUND(S)	Prehistoric burial(s)	Within PCAP and BCBAP.
PI01692	TIERRE VERDE MOUND	Prehistoric burial(s)	Within PCAP and BCBAP.
PI01696	PASS-A-GRILLE HISTORIC DISTRICT	Historical District	Within PCAP and BCBAP.
PI01702	ST. NICHOLAS III (Sponge Diving Boat)	Historic Vessel; on National Register	Within PCAP.
PI01703	N.K. SYMI (Sponge Diving Boat)	Historic Vessel; on National Register	Within PCAP.
PI01704	DUCHESS (Sponge Hooking Boat)	Historic Vessel; on National Register	Within PCAP.
PI01705	ST. NICHOLAS VI (Sponge Diving Boat)	Historic Vessel; on National Register	Within PCAP.
PI01706	GEORGE N. CRETEKOS (Sponge Diving Boat)	Historic Vessel; on National Register	Within PCAP.
PI01712	TARPON SPRINGS HISTORIC DISTRICT	Historical District	Within PCAP.
PI01748	ANDERSON PARK SHELTER 3	Artifact scatter-dense (> 2 per sq meter)	Within 164 ft (50 m) of PCAP.
PI01754	WALL SPRINGS ISLAND	Specialized site for procurement of raw materials	Within 164 ft (50 m) of PCAP.
PI01757	HAMLIN		Within PCAP and BCBAP.
PI01758	MARIANI	Land-terrestrial	Within PCAP and BCBAP.
PI01888	GEORGE GANDY	Single artifact or isolated find	Within PCAP.
PI02250	TRENNER	Campsite (prehistoric)	Within PCAP.
PI02295	WAR VETERANS MEMORIAL PARK	Campsite (prehistoric)	Within PCAP and BCBAP.
PI02363	Gulfport Casino	Historic Structure; on National Register	Within 164 ft (50 m) of PCAP.
PI02728	Bridge 154209	Bridge, built 1950.	Within PCAP.
PI02729	Bridge 154208	Bridge, built 1950.	Within PCAP.
PI03354	ES 2 (ENGINEERING SCIENCE 2)	Other	Within 164 ft (50 m) of PCAP.
PI05656	ANCLOTE CAUSEWAY	Land-terrestrial	Within 164 ft (50 m) of PCAP.
PI05657	MARK'S PRIVY	Land-terrestrial	Within 164 ft (50 m) of PCAP.
PI08025	OLD MEMORIAL CAUSEWAY BRIDGE PIER	Bridge, built 1926.	Within PCAP.
PI08026	STAMAS	Land-terrestrial	Within 164 ft (50 m) of PCAP.

Site ID	Site Name	Site Description	Location
PI08030	MORTON EMBREE	Land-terrestrial	Within PCAP.
PI08724	MOCASSIN BRANCH	Bridge, built 1926.	Within PCAP.
PI08728	BLIND PASS BRIDGE	Bridge, built 1927.	Within PCAP and BCBAP.
PI08732	FISH BASIN	Bridge, built 1923.	Within 164 ft (50 m) of PCAP.
PI08733	MINNOW CREEK	Bridge, built 1923.	Within 164 ft (50 m) of PCAP.
PI08737	TIERRA VISTA [MADONNA BOULEVARD]	Bridge, built 1957.	Within PCAP and BCBAP.
PI08738	TIERRA VISTA [13TH STREET]	Bridge, built 1957.	Within PCAP and BCBAP.
PI08742	MULLETT CREEK	Bridge, built 1927.	Within 164 ft (50 m) of PCAP.
PI08748	SNELL ISLE	Bridge, built 1928.	Within PCAP.
PI08751	ZUZKA	Land-terrestrial	Within 164 ft (50 m) of PCAP.
PI09614	SCHARRER HOMESTEAD	Building remains	Within PCAP.
PI09618	COOPER'S BAYOU - WEST (GV)		Within PCAP.
PI09620	LOVER'S OAK SHELL MOUND	Prehistoric midden(s)	Within 164 ft (50 m) of PCAP.
PI09630	GULFPORT I	Historic refuse / dump	Within 164 ft (50 m) of PCAP.
PI09631	SAIEVA	Building remains	Within 164 ft (50 m) of PCAP.
PI09633	MARY DISSTON	Historic shipwreck	Within PCAP and BCBAP.
PI09636	BAYVIEW GARDENS	Campsite (prehistoric)	Within 164 ft (50 m) of PCAP.
PI09640	North Shore Historic District	Historical District	Within PCAP.
PI09647	SANTA BARBARA DRIVE	Linear Resource	Within 164 ft (50 m) of PCAP.
PI10296	DESERTERS HILL	Campsite (prehistoric)	Within 164 ft (50 m) of PCAP.
PI10298	SPIDER BITE	Campsite (prehistoric)	Within 164 ft (50 m) of PCAP.
PI10299	LEAPING MULLET	Campsite (prehistoric)	Within PCAP.
PI10566	LEONARDI	Campsite (prehistoric)	Within PCAP and BCBAP.
PI10574	TREASURE ISLAND CAUSEWAY	Bridge, built 1939.	Within PCAP and BCBAP.
PI10616	CLAM BAYOU MIDDEN #1	Specialized site for procurement of raw materials	Within PCAP and BCBAP.
PI10617	CLAM BAYOU MIDDEN #2	Campsite (prehistoric)	Within 164 ft (50 m) of PCAP.
PI10619	BOCA BAY LITHIC SCATTER #2	Campsite (prehistoric)	Within 164 ft (50 m) of PCAP.
PI10650	KUTTLER MOUND	Prehistoric shell midden	Within 164 ft (50 m) of

Site ID	Site Name	Site Description	Location
			PCAP.
PI11433	Belleair Beach Causeway	Historical District	Within PCAP.
PI11440	Danemann Point	Specialized site for procurement of raw materials	Within PCAP.
PI11441	Fish House Midden	Habitation (prehistoric)	Within 164 ft (50 m) of PCAP.
PI11454	Kennedy-Milazzo	Land-terrestrial	Within 164 ft (50 m) of PCAP.
PI11457	Lancaster	Land-terrestrial	Within 164 ft (50 m) of PCAP.
PI11471	NN	Linear Resource	Within 164 ft (50 m) of PCAP.
PI11472	NN	Land-terrestrial	Within 164 ft (50 m) of PCAP.
PI11473	NN	Building remains	Within 164 ft (50 m) of PCAP.
PI11475	NN	Artifact scatter-low density (< 2 per sq meter)	Within 164 ft (50 m) of PCAP.
PI11489	NN	Prehistoric shell midden	Within 164 ft (50 m) of PCAP.
PI11490	NN	Artifact scatter-low density (< 2 per sq meter)	Within PCAP.
PI11491	NN	Prehistoric shell mound(s)	Within PCAP.
PI11492	NN	Land-terrestrial; Tidal-estuarine	Within 164 ft (50 m) of PCAP.
PI11493	NN	Prehistoric shell midden	Within 164 ft (50 m) of PCAP.
PI11501	Linger Longer	Land-terrestrial	Within 164 ft (50 m) of PCAP.
PI11511	219 S Gulfview Boulevard	Historical District	Within PCAP.
PI11523	Smokey and the Bandits	Land-terrestrial	Within PCAP.
PI11536	Hutchinson Resource Group	FMSF Building Complex	Within PCAP.
PI11566	Lightning Welk	Campsite (prehistoric)	Within PCAP.
PI11569	Shoreline Midden Site	Prehistoric shell midden	Within PCAP.
PI11579	Dunedin Country Club Golf Course	Designed Historic Landscape	Within 164 ft (50 m) of PCAP.
PI11599	Keystone Road	Linear Resource	Within 164 ft (50 m) of PCAP.
PI11624	Shoreline Canoe	Log Boat - Historic or Prehistoric	Within PCAP.
PI11636	Cedar Point	Historic refuse / dump	Within PCAP.
PI11664	Sand Spit		Within PCAP.
PI11666	Clearwater Beach Island (Hog Island)		Within PCAP.
PI11701	Blatchley, Willis S., House	Historic Structure; on National Register	Within 164 ft (50 m) of PCAP.

Site ID	Site Name	Site Description	Location
PI11907	Craig Park	Designed Historic Landscape	Within PCAP.
PI11917	Pinellas County Wall Springs Park ped.	Linear Resource	Within 164 ft (50 m) of PCAP.
PI11959	Coast Guard Air Station St. Petersburg	Historical District	Within 164 ft (50 m) of PCAP.
PI11967	Kreamer Bayou South	Habitation (prehistoric)	Within 164 ft (50 m) of PCAP.
PI11968	Frenchman's Creek	Campsite (prehistoric)	Within PCAP and BCBAP.
PI11974	USCG Sector St Petersburg South Moorings	Historical District	Within 164 ft (50 m) of PCAP.
PI11976	Beach Drive SE	Linear Resource	Within 164 ft (50 m) of PCAP.
PI11977	Maurice and Thelma Rothman House	Historic Structure; on National Register	Within 164 ft (50 m) of PCAP.
PI11994	Structure E Pinellas Bayway	Bridge, built circa 1961.	Within PCAP and BCBAP.
PI12006	SR 93 over Old Tampa Bay	Bridge, built circa 1959.	Within PCAP.
PI12009	Ft. Desoto Youth Camp Midden	Prehistoric shell midden	Within PCAP and BCBAP.
PI12017	Beckett Bridge	Bridge, built 1924.	Within PCAP.
PI12056	150th Avenue Intracoastal Bridge	Bridge, built 1962.	Within PCAP and BCBAP.
PI12057	Corey Avenue Intracoastal Bridge	Bridge, built 1966.	Within PCAP and BCBAP.
PI12058	W. Bayshore Blvd./Curlew Creek Bridge	Bridge, built 1923.	Within PCAP.
PI12059	35th Avenue Intracoastal Bridge	Bridge, built 1962.	Within PCAP and BCBAP.
PI12060	Causeway Boulevard Intracoastal Bridge	Bridge, built circa 1963.	Within PCAP.
PI12061	Walsingham Road Intracoastal Bridge	Bridge, built 1958.	Within PCAP.
PI12067	45th Avenue South / Little Bayou Bridge	Bridge, built 1961.	Within PCAP.
PI12075	Old Safety Harbor Bay Bridge (SR 580)	Bridge, built 1923.	Within PCAP.
PI12096	128 Pinellas Bayway	FMSF Building Complex	Within PCAP and BCBAP.
PI12102	St. Petersburg Municipal Pier Hist Dist	Historical District	Within PCAP.
PI12163	Bayview Gardens Retirement Community	Historical District	Within PCAP.
PI12166	Tarpon Springs Greektown TCP	Historical District	Within PCAP.
PI12168	Foul Roost Shipwreck	Historic shipwreck	Within PCAP and BCBAP.
PI12705	FDOT Bridge # 154371	Bridge, built 1962+.	Within PCAP.
PI12806	Gulf Shore Park	Designed Historic Landscape	Within PCAP.

Site ID	Site Name	Site Description	Location
PI12831	Bayou Creek	Campsite (prehistoric)	Within 164 ft (50 m) of PCAP.
PI12832	Waterfront Park	Historic refuse / dump	Within 164 ft (50 m) of PCAP.
PI12836	Bridge 150013	Bridge, built circa 1941.	Within 164 ft (50 m) of PCAP.
PI12837	Bridge 155000	Bridge, built circa 1950.	Within PCAP.
PI12838	Bridge 155001	Bridge, built circa 1950.	Within PCAP.
PI12839	Bridge 150006	Bridge, built circa 1956.	Within PCAP.
PI12840	Bridge 155200	Bridge, built circa 1965.	Within PCAP.
PI12841	Bridge 155501	Bridge, built circa 1965.	Within PCAP.
PI12842	Bridge 155502	Bridge, built circa 1965.	Within PCAP.
PI12844	Vina Del Mar Bridge	Bridge, built circa 1954.	Within PCAP and BCBAP.
PI12845	Dunedin Causeway West Tide Relief Bridge	Bridge, built circa 1963.	Within PCAP.
PI12848	Corey Ave Intracoastal-Midway Str B	Bridge, built circa 1966.	Within PCAP and BCBAP.
PI12849	Corey Ave Intracoastal-E End Str C	Bridge, built circa 1966.	Within PCAP and BCBAP.
PI12852	Clearwater Memorial Causeway West End	Bridge, built 1960+.	Within PCAP.
PI12987	Dunedin Causeway	Linear Resource	Within PCAP.

B.6 / Public access sites and types in Pinellas County and Boca Ciega Bay aquatic preserves.

Access Site	Managing Entity	Address	Saltwater Ramp Lanes	Saltwater Jetty	Saltwater Beach	Salt water Pier	Saltwater Catwalk/ Boardwalk	Marine Slips	Paddling Trail	Bank Fishing Areas	Freshwater Jetty	Fresh water Ramp	Fresh water Board walk	Fresh water Pier	Paddling Launch	Pet Friendly?
Treasure Island 100th Ave Boat Ramp	City of Treasure Island	100th Ave & Gulf	X				X									
7th Street Park Boat Ramp	City of Belleair Beach	7th Street and Harbor Drive	X													
A. L. Anderson Park	Pinellas County	39699 US Hwy 19 N								X		X	X			X
Alligator Lake/City Park	City of Safety Harbor	940 7th St. S.							X	X		X				
Anclote River Park	Pasco County	1119 Baillies Bluff Rd	X		X					X						
Bay Vista Park	City of St. Petersburg	500 Pinellas Point Dr	X		X		X									
Belleair Boat Ramp	Pinellas County	3900 W Bay Dr.	X			X										
Caladesi Island State Park	Florida State Parks	1 Causeway Blvd			X			X	X	X						
Clearwater Beach Recreation Center	City of Clearwater	69 Bay Esplanade; Clearwater Beach	X							X						
Clearwater Municipal Marina	City of Clearwater	25 Causeway Blvd, Clearwater Beach				X		X								
Cliff Stephens Park	City of Clearwater	600 Fairwood Ave, Clearwater							X	X		X				X
Coffee Pot Park	City of St. Petersburg	1st St. NE & 35th Ave N	X													
Coopers Bayou Park	City of Clearwater	709 S Bayshore Blvd, Clearwater								X						

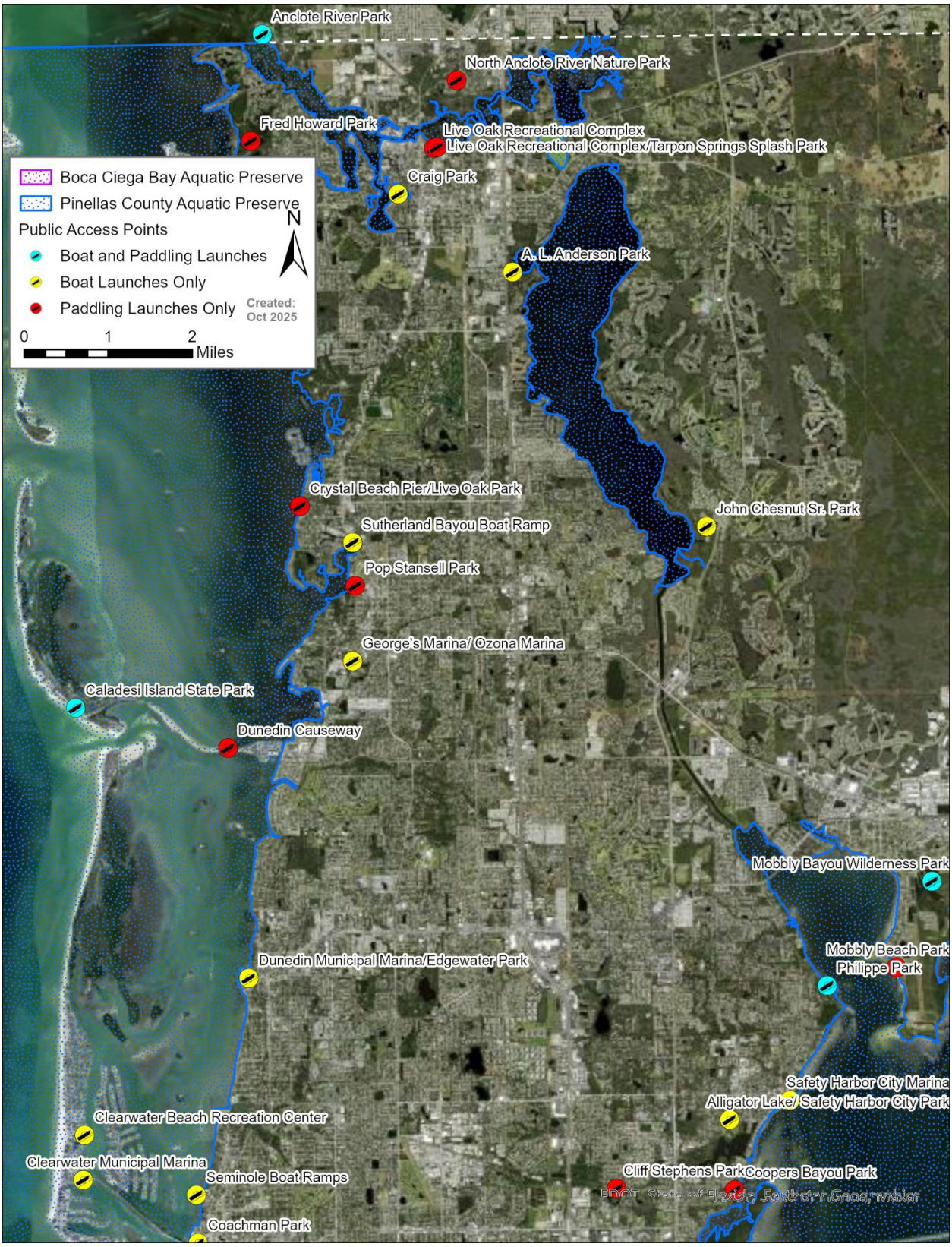
Access Site	Managing Entity	Address	Saltwater Ramp Lanes	Saltwater Jetty	Saltwater Beach	Salt water Pier	Saltwater Catwalk/ Boardwalk	Marine Slips	Paddling Trail	Bank Fishing Areas	Freshwater Jetty	Fresh water Ramp	Fresh water Board walk	Fresh water Pier	Paddling Launch	Pet Friendly?
Coopers Point Nature Park	City of Clearwater	3411 Gulf To Bay Blvd							X	X						
Coquina Key Park	City of St. Petersburg	3595 Locust St SE			X											X
Craig Park	City of Tarpon Springs	Spring Blvd & Bath St	X													
Crisp Park	City of St. Petersburg	Poplar St & 35 Ave NE	X	X												
Crystal Beach Pier		299 N Gulf Drive			X	X										X
Demens Landing	City of St. Petersburg	405 2nd Ave. SE	X													
Don Cesar Boat Ramp	City of St. Pete Beach	W Maritana Dr & Casablanca Ave	X													
Dunedin Causeway	City of Dunedin/Pinellas County	Causeway Blvd, Dunedin, FL 34698			X					X					X	
Dunedin Municipal Marina/Edgewater Park	City of Dunedin	666 Marina Place, Dunedin	X			X		X								
Egan Park	City of St. Pete Beach	Gulf Blvd & Captiva Cir	X													
Flora Wylie Park	City of St. Petersburg	1301 North Shore Dr NE		X	X											
Fred H. Howard Park	Pinellas County	1700 Sunset Dr			X					X					X	
Ft. De Soto Park	Pinellas County	3500 Pinellas Bayway S	X		X	X	X		X						X	X

Access Site	Managing Entity	Address	Saltwater Ramp Lanes	Saltwater Jetty	Saltwater Beach	Salt water Pier	Saltwater Catwalk/ Boardwalk	Marine Slips	Paddling Trail	Bank Fishing Areas	Freshwater Jetty	Fresh water Ramp	Fresh water Board walk	Fresh water Pier	Paddling Launch	Pet Friendly?
Gandy Wayside Park (small boats only)	Florida Department of Transportation (formerly)	SR 92 West end of Gandy Bridge - Old Tampa Bay	X													
George's Marina	Commercial	139 Shore Drive	X					x								
Grandview Park	City of St. Petersburg	6th Ave and 39th St S	X		X											
Gulf Boulevard Beach Access	Pinellas County	Gulf Blvd			X											
Gulfport Municipal Marina	City of Gulfport	4600 Tifton Dr. S, Gulfport	X					X								
Honeymoon Island State Park	Florida State Parks	2 Causeway Blvd		X	X		X		X	X						
Indian Rocks Beach Boat Ramp	City of Indian Rocks Beach	15th Ave., Indian Rocks Beach	X				X									
John Chesnut Sr. Park	Pinellas County	2200 East Lake Rd							X	X		X	X	X		X
John S. Taylor Park	Pinellas County	1100 8th Ave SW								X					X	
Jungle Prada de Narvaez Park	City of St. Petersburg	Park St. & Elbow Ln N	X		X	X										
Kapok Park	City of Clearwater	2950 Glen Oak Ave N, Clearwater								X			X			
Keegan Clair Park	City of Indian Rocks Beach	3rd Ave 1st e, Indian Rocks Beach	X												X	
Lake Maggiore	City of St. Petersburg	1101 Country Club Way S										X				

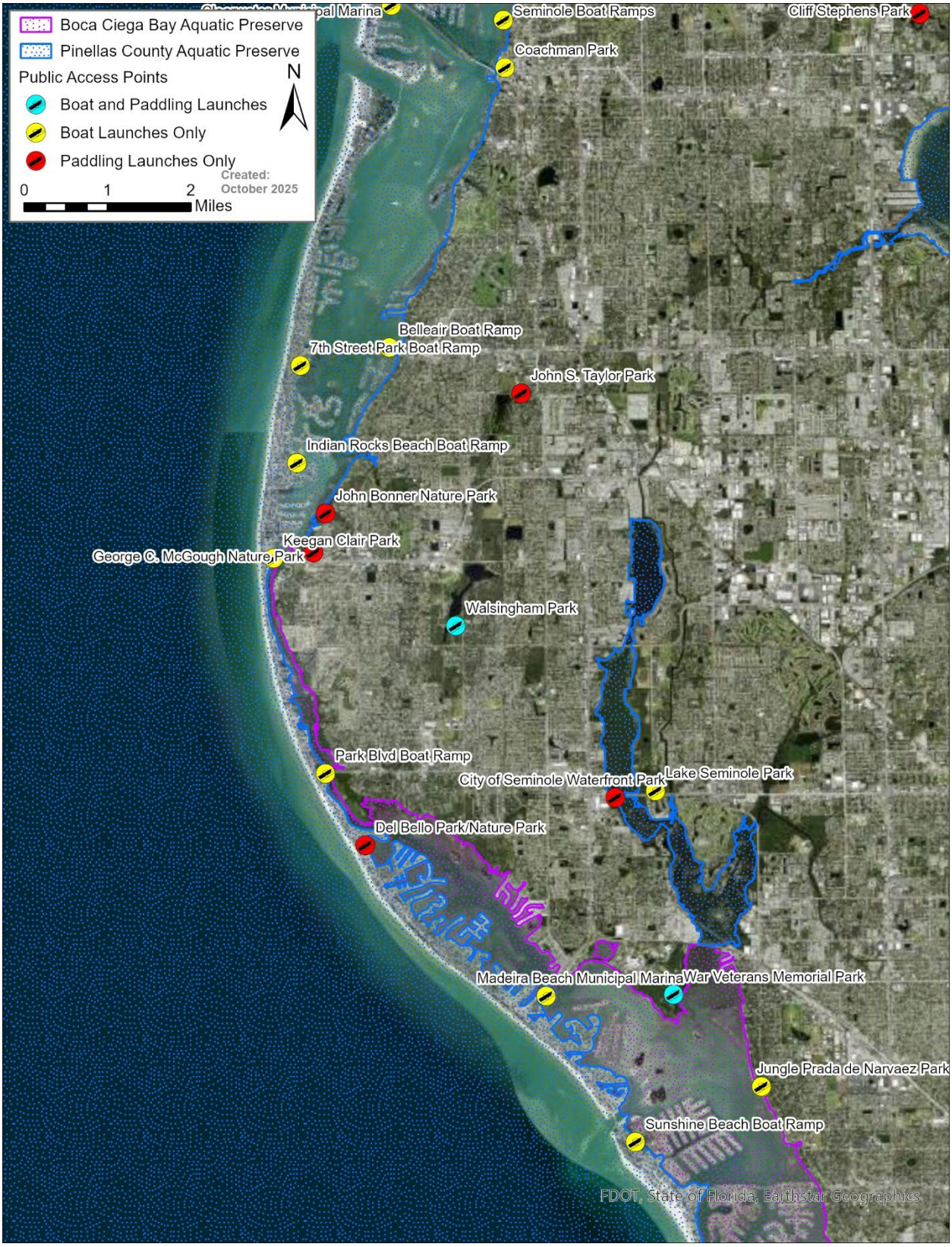
Access Site	Managing Entity	Address	Saltwater Ramp Lanes	Saltwater Jetty	Saltwater Beach	Salt water Pier	Saltwater Catwalk/ Boardwalk	Marine Slips	Paddling Trail	Bank Fishing Areas	Freshwater Jetty	Fresh water Ramp	Fresh water Board walk	Fresh water Pier	Paddling Launch	Pet Friendly?
Lassing Park	City of St. Petersburg	2042 Beach Dr SE			X											
Madeira Beach Municipal Marina	City of Madiera Beach	501 150th Ave., Madeira	X					X								
Maximo Park	City of St. Petersburg	34th St & Pinellas Point Dr	X		X					X						
Millenium Park	Pinellas County	12410 74th Ave. N.					X			X					X	X
North Anclote River Nature Park	City of Tarpon Springs	550 Dixie Hwy Tarpon Springs				X	X		X							
Mobbly Bayou Wilderness Park	City of Oldsmar	423 Lafayette Blvd., Oldsmar, FL 34677							X					X	X	X
North Shore Park	City of St. Petersburg	901 N Shore Dr NE			X											X
O'Neill's Marina	Commmercial	6701 34th St. S, St. Petersburg, FL	X				X	X								
Park Blvd Boat Ramp	Pinellas County	18651 Gulf Blvd, Indian Shores	X													
Pass-A-Grille Beach	City of St. Petersburg	113 11th Ave, St Pete Beach		X	X					X						
Philippe Park	Pinellas County	2525 Philippe Pkwy., Safety Harbor	X							X						
Pinellas Point Park	City of St. Petersburg	Amber Way S. & Manor Way S.			X											
Pop Stansell Park	Pinellas County	Florida Ave & 8th St	X			X									X	
Poynter Park	City of St. Petersburg	1000 3rd St. S		X												
R.E. Olds Park & Fishing Pier	City of Oldsmar	107 Shore Drive Pl, Oldsmar			X	X										X

Access Site	Managing Entity	Address	Saltwater Ramp Lanes	Saltwater Jetty	Saltwater Beach	Salt water Pier	Saltwater Catwalk/ Boardwalk	Marine Slips	Paddling Trail	Bank Fishing Areas	Freshwater Jetty	Fresh water Ramp	Fresh water Board walk	Fresh water Pier	Paddling Launch	Pet Friendly?
Safety Harbor Municipal Marina	City of Safety Harbor	110 Veteran's Memorial Lane, Safety Harbor	X			X		X								X
Sand Key Park	Pinellas County	1060 Gulf Blvd			X		X								X	X
Sawgrass Lake	Pinellas County	7400 25th St N											X			
Seminole Boat Ramps	City of Clearwater	Seminole St., Clearwater	X	X			X									
Spa Beach Park	City of St. Petersburg	615 2nd Ave. NE			X											
St. Pete - 4th Street North Undeveloped	Florida Department of Transportation	4th Street North	X			X									X	
Sunlit Cove	City of St. Petersburg	Bay St. NE & Sunlit Cove Dr	X													
Sunset Beach	City of Treasure Island	84th Ave & Bayshore	X				X									
Sunset Beach Park	City of Tarpon Springs	1800 Gulf Rd	X		X											
Sunshine Beach	City of Treasure Island	123rd Ave & Lagoon Lane	X		X											

Access Site	Managing Entity	Address	Saltwater Ramp Lanes	Saltwater Jetty	Saltwater Beach	Salt water Pier	Saltwater Catwalk/ Boardwalk	Marine Slips	Paddling Trail	Bank Fishing Areas	Freshwater Jetty	Fresh water Ramp	Fresh water Board walk	Fresh water Pier	Paddling Launch	Pet Friendly?
Sutherland Bayou Boat Ramp	Pinellas County	2119 US Alt. 19 North, Palm Harbor	X					X								
Veterans Memorial Park	Pinellas County	9600 Bay Pines Blvd.	X		X		X			X						
Vinoy Park	City of St. Petersburg	701 Bayshore Drive Northeast		X												
Wall Springs Park	Pinellas County	3725 De Soto Blvd., Palm Harbor				X	X			X						
Walsingham Park	Pinellas County	12615 102nd Ave., Large										X	X	X		X
Weedon Island Preserve	Pinellas County	1800 Weedon Drive NE, St. Petersburg				X	X		X						X	

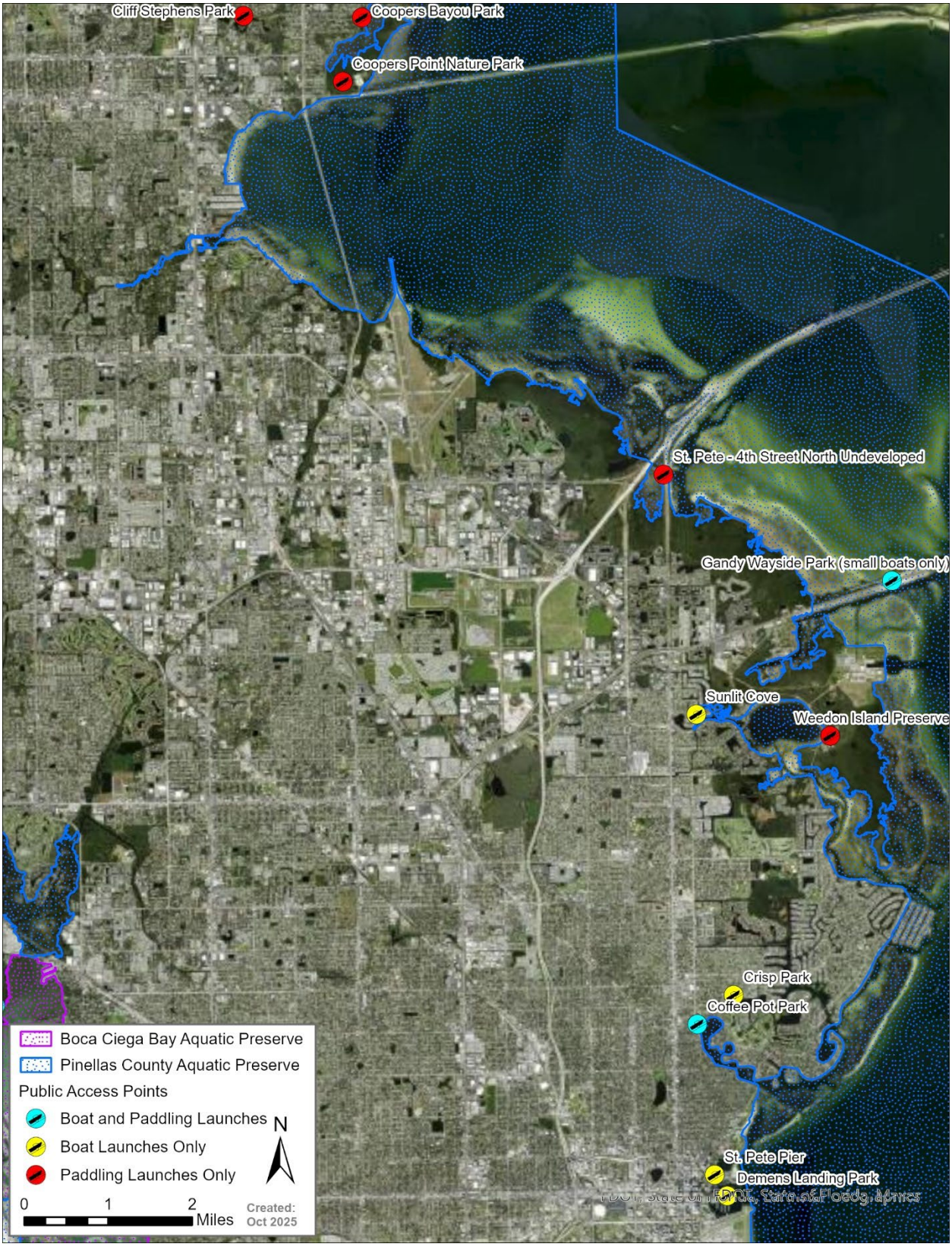


Map 16 | Boating and kayak launch sites in Pinellas County aquatic preserves – 1

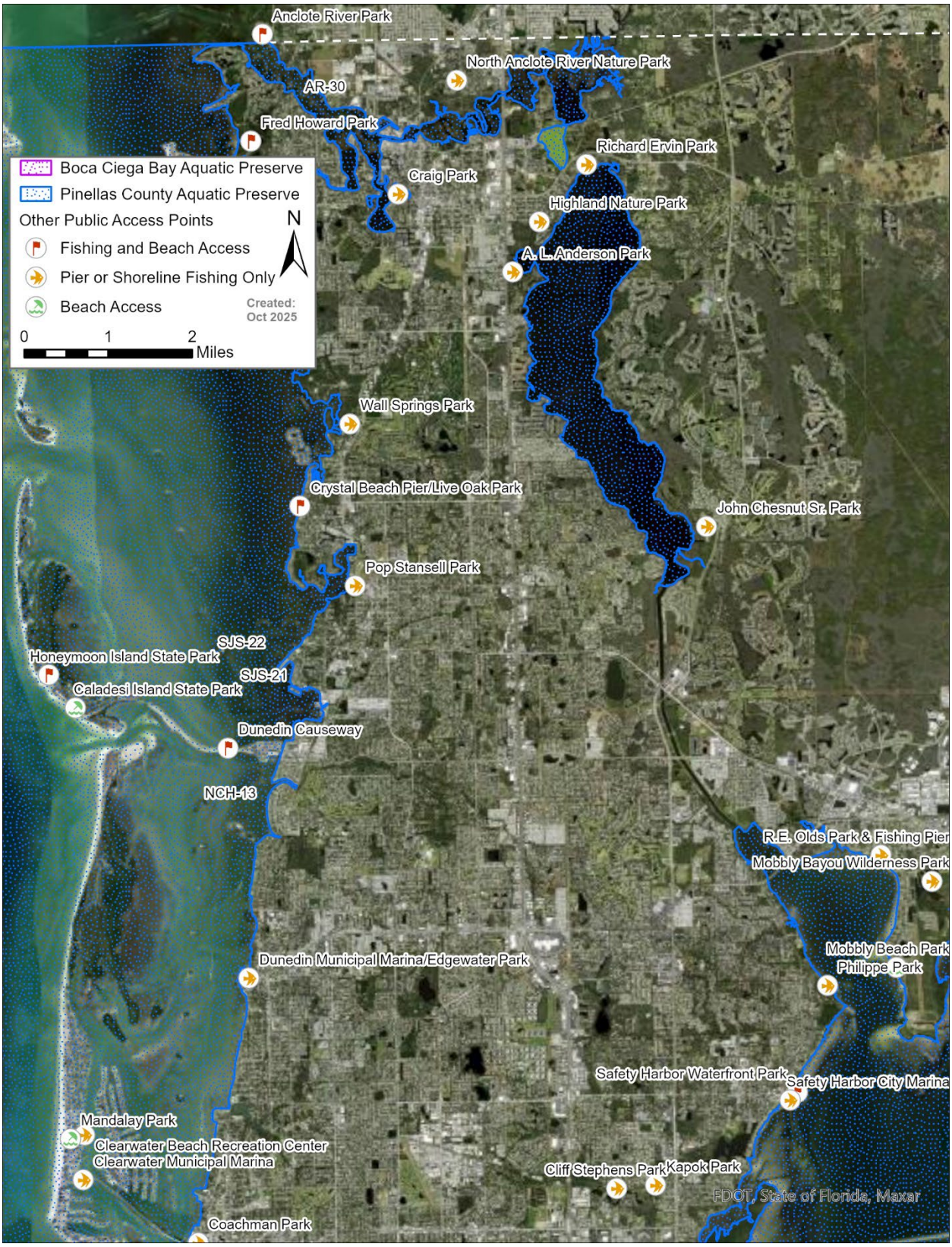


Map 17 | Boating and kayak launch sites in Pinellas County aquatic preserves – 2

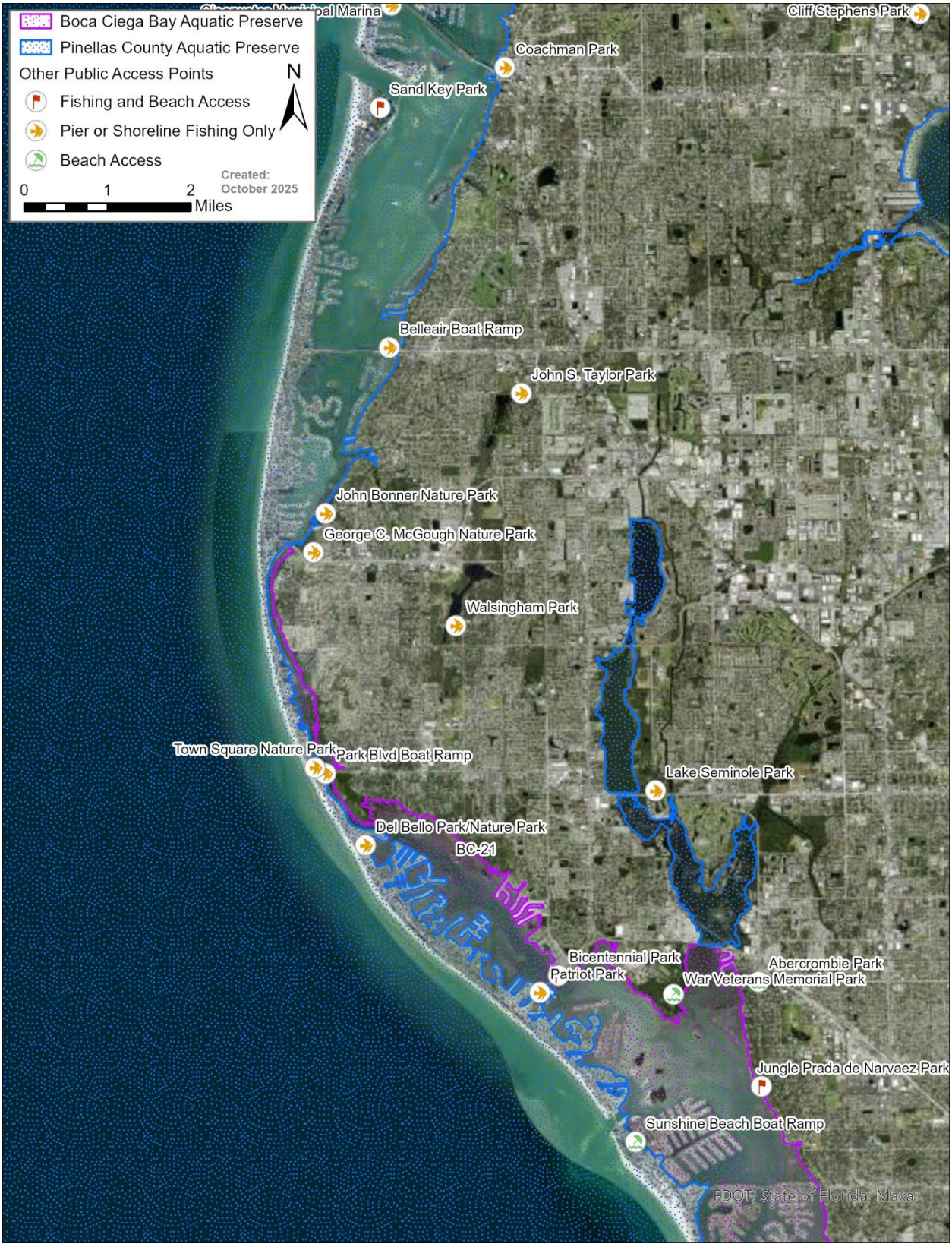
Map 18 | Boating and kayak launch sites in Pinellas County aquatic preserves – 3



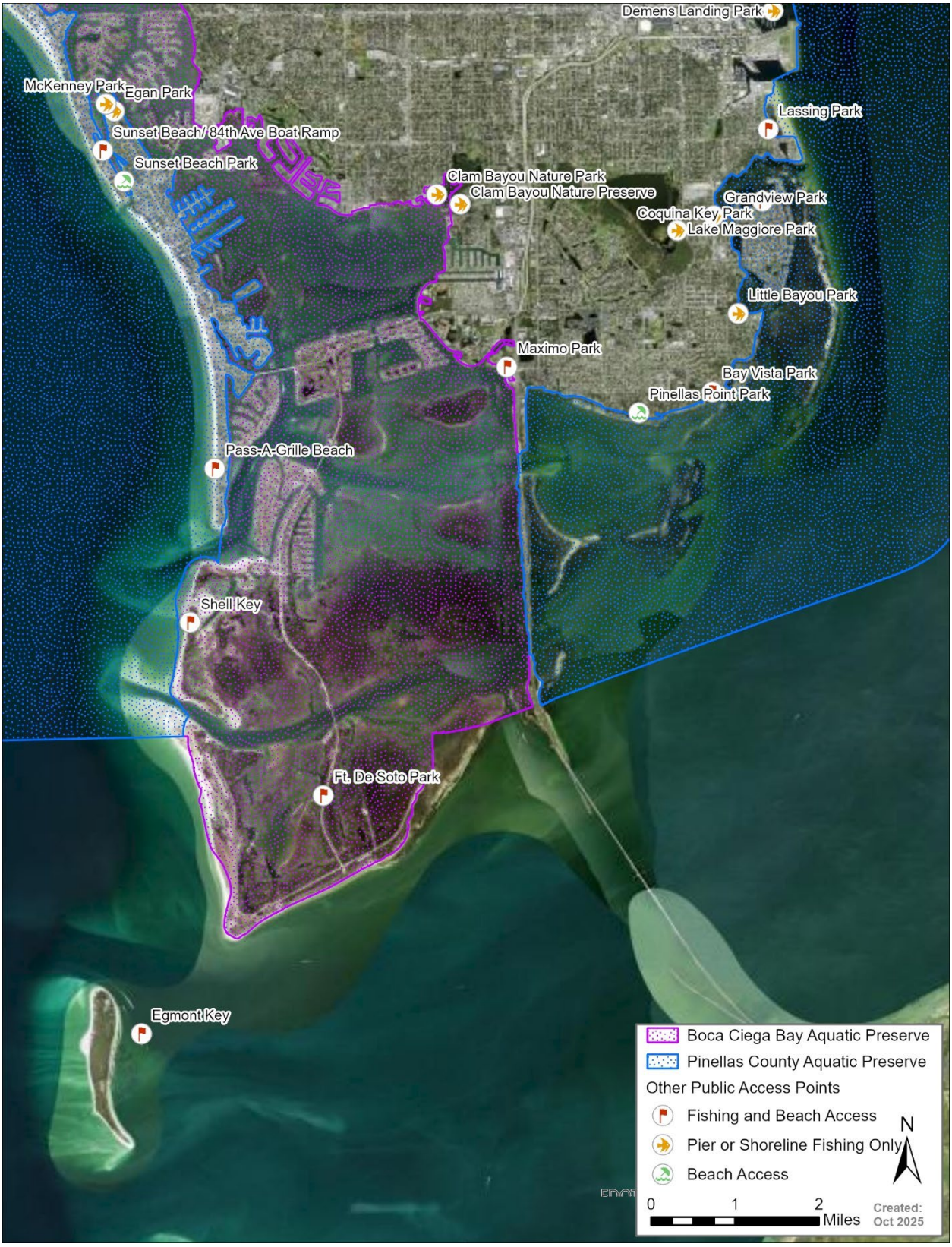
Map 19 | Boating and kayak launch sites in Pinellas County aquatic preserves – 4



Map 20 | Fishing and beach access sites in Pinellas County aquatic preserves – 1



Map 21/ Fishing and beach access sites in Pinellas County aquatic preserves – 2



Map 22 | Fishing and beach access sites in Pinellas County aquatic preserves – 3

Map 23 | Fishing and beach access sites in Pinellas County aquatic preserves – 4

Appendix C / Public Involvement

C.1 / Advisory Committee

The following Appendices contain information about the advisory committee meeting which was held in order to obtain input from the Pinellas County and Boca Ciega Bay Aquatic Preserves Management Plan Advisory Committee regarding the draft management plan.

C.1.1 / List of members and their affiliations

Committee Member	Affiliation
Terry Fortner	Private Landowner
Steve Harper	Pinellas County Parks and Conservation Resources
Rachael Kangas	Florida Public Archaeology Network
Jeff Leichty	National Audubon Society
Heather McClurg	DEP Regulatory
Katherine Peters	Pinellas County Commissioner
Randy Runnels	Aquatic Preserve Manager
Becky Schneider	Florida Fish and Wildlife Conservation Commission
Joe Walsh	Hillsborough County Soil & Water Conservation District

Section VI
Notice of Meetings, Workshops and Public Hearings

DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES
Division of Agricultural Environmental Services
The Pest Control Enforcement Advisory Council (PCEAC) announces a public meeting to which all persons are invited.
DATE AND TIME: March 11, 2026, 10:00 a.m. – 12:00 noon
PLACE: UF/IFAS Mid Florida Research and Education Center; 2725 South Binion Road; Classroom B111; Apopka, FL 32703
Virtually: Microsoft Teams
Join the meeting now
Meeting ID: 224 930 766 665 91
Passcode: kE7rx2uQ
Dial in by phone
+1(850)391-8548,,489211430# United States, Tallahassee
Find a local number
Phone conference ID: 489 211 430#
GENERAL SUBJECT MATTER TO BE CONSIDERED: To address the business of the Council.
A copy of the agenda may be obtained by contacting: Mr. Jerry Everton, Chief, Bureau of Licensing and Enforcement, (850)617-7997, Gerald.Everton@FDACS.gov.
For more information, you may contact: Mr. Jerry Everton, Chief, Bureau of Licensing and Enforcement, (850)617-7997, Gerald.Everton@FDACS.gov.

DEPARTMENT OF EDUCATION
The Florida Department of Education announces a public meeting to which all persons are invited.
DATE AND TIME: March 5, 2026, 2:00 p.m. - 3:00 p.m., ET or until business is concluded, whichever is earlier.
PLACE:
https://teams.microsoft.com/meet/21119550513511?p=WRmrZbEKonRiSCgBvB
GENERAL SUBJECT MATTER TO BE CONSIDERED: Commissioner of Education's Task Force on Holocaust Education Meeting.
A copy of the agenda may be obtained by contacting: Michael.Rosen@fldoe.org
Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 5 days before the workshop/meeting by contacting: Michael.Rosen@fldoe.org. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).
For more information, you may contact: Michael.Rosen@fldoe.org

---

DEPARTMENT OF LAW ENFORCEMENT
Criminal Justice Standards and Training Commission
RULE NO.: RULE TITLE:
11B-18.0051 Regional Training Council Meetings
The Regional Training Council Meeting announces a public meeting to which all persons are invited.
DATE AND TIME: April 22, 2026, 10:00 a.m.
PLACE: Microsoft Teams
Meeting ID: 258 094 536 623 20
Passcode: ot3fs6cX
GENERAL SUBJECT MATTER TO BE CONSIDERED: Discuss matters related to the Region XIV Trust Fund.
A copy of the agenda may be obtained by contacting: Christelle Cine (305)237-1329
Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 24 hours before the workshop/meeting by contacting: (305)237-1329. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).
For more information, you may contact: (305)237-1329

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND
The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection announces a public meeting to which all persons are invited.
DATE AND TIME: Monday, March 23, 2026, 9:00 a.m. – 12:00 noon
PLACE: Clearwater Historical Society Museum and Cultural Center, 610 S Fort Harrison Ave, Clearwater, FL 33756 or online via Microsoft Teams at https://floridadep.gov/rcp/picap-meeting or by phone 1(850)629-7330, conference ID 783107736#
GENERAL SUBJECT MATTER TO BE CONSIDERED: The Advisory Committee for the Pinellas County and Boca Ciega Bay Aquatic Preserves Management Plan will meet to review and discuss the draft update to the Pinellas County and Boca Ciega Bay Aquatic Preserves Management Plan, originally approved in 2019. The draft management plan is available online at https://floridadep.gov/rcp/aquatic-preserve/documents/pinellas-county-boca-ciega-bay-aquatic-preserves-draft-management. Members of the public are invited to attend and listen to comments. A separate public meeting will

be held to present the management plan and receive public comment.
A copy of the agenda may be obtained by contacting: Randy Runnels at Randy.Runnels@FloridaDEP.gov.
Public participation is solicited without regard to race, color, religion, sex, pregnancy, national origin, age, handicap, or marital status. Persons who require special accommodations under the American with Disabilities Act (ADA) or persons who require translation services (free of charge) are asked to contact DEP's Limited English Proficiency Coordinator at (850)245-2118 or LEP@FloridaDEP.gov at least ten (10) days before the meeting. If you have a hearing or speech impairment, please contact the agency using the Florida Relay Service, (800)955-8771 (TDD) or (800)955-8770 (voice).

PUBLIC SERVICE COMMISSION
The Florida Public Service Commission announces a hearing to which all persons are invited.
DATES AND TIMES: Three (3) virtual public customer service hearings to be held in Docket No. 20250137-SU: Tuesday, March 10, 2026, 2:00 p.m.; Tuesday, March 10, 2026, 6:00 p.m.; Wednesday, March 11, 2026, 10:00 a.m.
PLACE: Room 148, Betty Easley Conference Center, 4075 Esplanade Way, Tallahassee, FL 32399
GENERAL SUBJECT MATTER TO BE CONSIDERED: Docket No. 20250137-SU– Application for limited proceeding rate increase by Sunshine Water Services Company d/b/a Sunshine Water Services. The purpose of the service hearing is to give customers and other interested persons an opportunity to offer comments regarding the quality of service the utility provides, the proposed rate increase, and to ask questions and comment on other issues. One or more of the Commissioners of the Florida Public Service Commission may attend and participate in this meeting. For questions, contact Commission staff by telephone at (850)413-7080.
All witnesses shall be sworn under oath and be subject to cross-examination at the conclusion of their testimony. The service hearings will be governed by the provisions of Chapters 120 and 367, Florida Statutes, and Chapters 25-22 and 28-106, Florida Administrative Code.
As always, the public may view a live stream of the service hearings online using the link available at http://www.floridapsc.com/Conferences/AudioVideoEventCoverage.
PARTICIPATION IN VIRTUAL SERVICE HEARINGS
Virtual service hearings will give interested persons an opportunity to provide testimony over the telephone. Customers must register to speak at the virtual service hearing in one of the following ways: (1) register using the Commission's online registration form, which will be available at www.floridapsc.com, under the "Hot Topics" heading, (2) call the Commission at (850)413-7080 or (3) email speakersignup@psc.state.fl.us. Online registration for the virtual service hearing will open on February 24, 2026 at 9:00 a.m., and close at noon on March 9, 2026. All persons who wish to comment, either virtually or in-person, are urged to appear promptly at the scheduled times because the service hearings may be adjourned early if no customers are present to testify or when those present have testified.
Please note that the order in which customers will speak is based on the order in which they register. If you have questions about the sign-up process, please call (850)413-7080. One day prior to the virtual service hearings, customers who signed up to speak will be provided further instructions from Commission staff on how to participate, which will include the call-in number.
EMERGENCY CANCELLATION OF MEETING
If settlement of the case or a named storm or other disaster requires cancellation of the proceedings, Commission staff will attempt to give timely direct notice to the parties. Notice of cancellation will also be provided on the Commission's website (http://www.floridapsc.com) under the Hot Topics link found on the home page. Cancellation can also be confirmed by calling the Office of the General Counsel at (850)413-6199.
A copy of the agenda may be obtained by contacting: N/A
Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 5 days before the workshop/meeting by contacting: the Office of Commission Clerk at 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850 or (850)413-6770. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

WATER MANAGEMENT DISTRICTS
South Florida Water Management District
The South Florida Water Management District announces a hearing to which all persons are invited.
DATE AND TIME: Monday, March 2, 2026, 9:00 a.m., Collective Bargaining Special Magistrate Impasse Hearing
PLACE: SFWMD Headquarters, Storch Room, 3rd Floor B-1 Building, 3301 Gun Club Road, West Palm Beach, FL 33406
GENERAL SUBJECT MATTER TO BE CONSIDERED: Collective Bargaining Special Magistrate Impasse Hearing for a successor agreement between the South Florida Water Management District and the Local No. 30, 30-A, 30-B, 30-C, 30-D, 30-F, 30-G and 30-R of the International Union of Operating Engineers.
A copy of the agenda may be obtained by contacting: Lourdes Woytek at (561)682-6361 or lwoytek@sfwmd.gov.

C.1.3 / **Meeting Summary**

Advisory Committee Meeting Summary

Date: March 23, 2026

Attendees:

Committee: Randy Runnels, Steve Harper, Terry Fortner, Heather McClurg, Rachael Kangas, Joe Walsh, Jeff Leichty, Katherine Peters

Staff: Earl Pearson, Mindy Brown, Alexa Farraj, Jeff Carter, Angelique Kremer

Meeting Purpose:

- Focus on management plan's management issues
- Go through each issue, 40 minutes on each issue
- Go over management suggestions, what strategies to use, etc.

Issue 1: Protection of Submerged Resources

Goal 1

- Joe- **EDIT-** change wording of "may" so that is less ambiguous.
- Find specific statistics to track spatial extent of prop scarring from FWC – papers tracking propscars, citations from law enforcement, recovery efforts from signage and patrolling.
- Does the data show if over time there is recovery based off signage and patrolling
- Restore seagrasses in compatible areas – mitigation banks / slow speed, no wake zones
- Refine restoration methods

Goal 2

- Map data are not up to date –
- Randy- COMMENT-Things need to be seen from the ground vs aerials
- Joe – Are we including/excluding non-profits from the partner section, specifically citing Ecosphere
  - Randy: The list is not comprehensive.
  - Group suggestion to add "non-profits" to list of partners
- Outreach efforts on seagrass protection
  - How to increase law enforcement – provide hotspot areas to law enforcement
  - Have an app for boaters within aquatic preserves? Use AP website or county beating guides
  - Education through boat rental places since signage is expensive
  - Over-signage can also be a problem; coordinate signs at access points
  - QR codes at kiosks on boat ramps or at the boat rentals

Goal 3

- Heather – Let ERP know if a project is successful/ make information available
- Joe – Are there instances where the Army Corps has information on the resources, but it shared?
  - Randy – Explained that it's hard to get into their data portals
  - Heather – There is an exception to this through an agreement

Goal 4

- Heather – Add regulatory site visits (RPA assessments), assistance, knowledge and expertise
- Objective 3 – Provide field assistance (can add to Objective 1).

Goal 5

- Randy – Biggest issue – need for more knowledge, more prediction models
- Rachael – Need to be aware of what research is happening
- Increase coordination with Seminole Tribe and other partners, such as FPAN
- Change 20% of sites inspected per year
    - Many sites can't be accessed easily
    - Prioritize vulnerable sites instead (Rachael can help)
    - Focus on assessment after storms
- ARM training needed – Rachael will update when training is available.
- Include wreck of *Narcissus*?

Issue 2: Island Management

Goal 1

- Phased approach with removing exotics
    - Shell Key removed exotics in three phases
- Add State Parks or Division of Forestry to partners?
    - Island revegetation is on spoil islands, outside of park boundaries
    - Forest acreage is extremely small due to island size, and unlikely to be of Forestry interest
- May be appropriate to add Pinellas County as a partner in additional objectives.

Goal 2

- Recently added a kiosk on Clearwater Island with Ohio State University student volunteers
- Edit placing signage on islands to maintaining signage on islands as appropriate, not 2-3 a year
- Add QR codes to picnic tables
- Use social media /utilize Friends group
- Track success of kiosks/picnic tables by tracking click engagement per QR code
- Ask Freedom Boat Club to put QR codes on the inside of the boat to let boat renters know.
- Clarify distinction between Objective 1 and Objective 2
- Include more information on monitoring and prioritizing islands to maintain / treat

Goal 3

- Jeff Leichty – Boaters guides seem to be helping steer people to non-nesting islands, anecdotally; rookery island buoys and signage seem to be working
- Make digital version of boater's guide and update

Goal 4

- Edit phrasing to post and maintain (add maintain in performance measure)
- Edit to seasonal signage
- Page 76, fix SWFWMD

Issue 3: Shoreline Alterations

Goal 1

- Heather: Aquatic Preserves are tied to 18-21 sovereign submerged lands rule
    - Prefer green alternatives
    - Show history of erosion during ERP process
- USF's Resiliency Hub is a partner

- Discuss resiliency projects on spoil islands
- Living shorelines general permit is coming out soon
- Provide resources for grants to implement living shorelines
- Soon, there will be a new rule to incentive living shorelines and make the permitting process easier

Goal 2

- Speaking to local estuary programs and neighborhoods because people want to help fund this and participate
- Request for contact information for everyone

Issue 4: Marine Debris

- Page 80 – fix period
- Provide more information about derelict vessel removal?
    - Role in derelict vessel removal depends upon the event
- Randy - Provides outreach opportunities, such as color-able reusable grocery bags, guess the bobbers in the jar, etc.

Other

- Steve – What is TBAP's role in water quality monitoring
    - Randy – TBAP conducts episodic event-based sampling. Routine sampling is conducted by the county, but some water quality monitoring is done during hardbottom monitoring
- Randy – Can Pinellas County do beach infauna monitoring
    - Do more with pass closing, hydrodynamics, but need special studies
    - Joe – Be intentional with the resources you have

C.2 / Formal Public Meeting

The following Appendices contain information about the Formal Public Meeting which was held in order to obtain input from the public about the Pinellas County and Boca Ciega Bay Aquatic Preserves Draft Management Plan.

C.2.1 / Florida Administrative Register Posting

(This information will be provided in the final draft of this management plan.)

C.2.2 / Advertisement Flyer

(This information will be provided in the final draft of this management plan.)

C.2.3 / Newspaper Advertisement

(This information will be provided in the final draft of this management plan.)

C.2.4 / Summary of the Formal Public Meeting

(This information will be provided in the final draft of this management plan.)

Appendix D / Goals, Objectives, and Strategies

D.1 / Current Goals, Objectives, and Strategies Budget Table

The following table provides a cost estimate for conducting the management activities identified in this plan. The data is organized by year and Management Program with subtotals for each program and year. The following represents the actual budgetary needs for managing the resources of the aquatic preserve. This budget was developed using data from the Office of Resilience and Coastal Protection (ORCP) and other cooperating entities, and is based on actual costs for management activities, equipment purchases and maintenance, and for development of fixed capital facilities. This budget assumes optimal staffing levels to accomplish these strategies, and includes the costs associated with staffing such as salary or benefits. Budget categories identified correlate with the ORCP Management Program Areas. The Funding Source column depicts the source of funds with "S" designated for state, "F" for federal, and "O" for other funding sources (e.g. non-profit groups, etc.). Dollar figures in *italics* indicate funding not available at this time.

Large, beneficial projects, outside the current capacity of TBAP's funding and staffing, are identified in Appendix D.4, in case opportunities become available to support those projects in the ten-year span of this management plan.

Goals, Objectives & Integrated Strategies	Mgmt. Program	Start Date (Exp.)	Length of Initiative	Funding Source	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34	34-35	35-36
Issue 1: Protection of Submerged Resources														
Goal 1: Reduce damage to seagrass and other submerged resources.														
Objective 1: Increase public awareness of the importance of seagrass and other submerged resources.														
Strategy 1: Seagrass and other submerged resource awareness/protection information is included at access points like boat ramps and marinas.	Education/ Outreach	18-19	ongoing	F,S,O	$400	$150	$150	$150	$150	$150	$150	$150	$150	$150
Strategy 2: Information on the importance and protection of seagrass is included in exhibits, social media and other education/outreach materials.	Education/ Outreach	18-19	ongoing	F,S,O	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Objective 2: Reduce damage to seagrass beds and other submerged resources.														
Strategy 1: Mark seagrass beds in high-traffic areas.	Resource Mgmt.	18-19	ongoing		*$10K*	*$10K*	*$10K*	*$10K*	*$10K*	*$10K*	*$10K*	*$10K*	*$10K*	*$10K*
Strategy 2: Educate visitors who rent boats and personal watercraft about submerged resources, and how to avoid damage.	Education/ Outreach	22-23	ongoing	F,S,O	$400	$400	$400	$400	$400	$400	$400	$400	$400	$400

Goals, Objectives & Integrated Strategies	Mgmt. Program	Start Date (Exp.)	Length of Initiative	Funding Source	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34	34-35	35-36
Strategy 3: Identify other activities that harm submerged resources, and develop guidelines to reduce damage from those activities.	Public Use	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 4: Promote clean boating principles.	Public Use	18-19	ongoing	F,S,O	$1000	$500	$500	$500	$500	$500	$500	$500	$500	$500
Goal 2: Encourage and assist with restoration of damaged resources.														
Objective 1: Identify "hotspots" of damaged submerged resources to target for restoration.														
Strategy 1: Use GIS to track areas impacted by vessel groundings, prop scarring hotspots and restoration sites.	Ecosystem Science	18-19	ongoing	F,S	$300	$300	$300	$300	$300	$300	$300	$300	$300	$300
Strategy 2: Use aerial imagery to look for impacts, like scarring, along trafficsheds.	Ecosystem Science	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Objective 2: Recommend restorative measures for identified hotspots.														
Strategy 1: Create and maintain a database of possible mitigation projects that restore hotspots.	Ecosystem Science	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 2: Create and maintain a database of possible public interest projects that restore hotspots.	Ecosystem Science	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Goal 3: Encourage and assist with submerged resource inventories and research.														
Objective 1: Identify, encourage and assist third-party resource inventories in the aquatic preserves.														
Strategy 1: Compile and maintain a database of resource inventory projects in the aquatic preserves.	Ecosystem Science	19-20	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 2: Attend planning meetings for new resource inventory projects.	Ecosystem Science	18-19	ongoing	F,S	$300	$300	$300	$300	$300	$300	$300	$300	$300	$300
Strategy 3: Where needed, supply technical assistance for resource inventories.	Ecosystem Science	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Objective 2: Identify, encourage and assist third-party research in the aquatic preserves														
Strategy 1: Compile and maintain a database of research and monitoring projects in the aquatic preserves.	Ecosystem Science	19-20	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 2: Attend planning meetings for new research and monitoring projects.	Ecosystem Science	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200

Goals, Objectives & Integrated Strategies	Mgmt. Program	Start Date (Exp.)	Length of Initiative	Funding Source	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34	34-35	35-36
Strategy 3: Where needed, supply technical assistance for research and monitoring projects.	Ecosystem Science	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Goal 4: Provide regulatory review of projects that may impact submerged resources.														
Objective 1: Provide training and coordinate with regulatory staff.														
Strategy 1: Provide regulatory classroom training on aquatic preserve boundaries.	Education/ Outreach	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 2: Provide regulatory classroom training on appropriate statutes and rules.	Education/ Outreach	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 3: Provide regulatory classroom training on assistance available from TBAP.	Education/ Outreach	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 4: Provide regulatory field training on habitats.	Education/ Outreach	18-19	ongoing	F,S	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Strategy 5: Provide regulatory field assistance and coordination on applicable projects within the aquatic preserve boundaries.	Education/ Outreach	18-19	ongoing	F,S,	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Objective 2: Provide comments or other feedback on avoidance, minimization and mitigation, as appropriate, in the permitting process.														
Strategy 1: Encourage regulatory staff to provide application information to TBAP staff in a timely manner.	Ecosystem Science	18-19	ongoing	F,S	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50
Strategy 2: Conduct site visits in coordination with regulatory staff to provide local knowledge and resource and habitat expertise.	Ecosystem Science	24-25	ongoing	F, S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 3: Track actions taken to provide input.	Ecosystem Science	18-19	ongoing	F,S	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Objective 3: Potential public interest projects are readily available to regulatory staff to share with permit applicants.														
Strategy 1: Create and maintain a database of possible public interest projects. This database should include a tracking component and map interface.	Ecosystem Science	18-19	ongoing	F,S	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Goal 5: Support assessment and protection of submerged historical and cultural resources.														
Objective 1: Assess the knowledge and data gaps for historical and cultural sites in the aquatic preserve.														

Goals, Objectives & Integrated Strategies	Mgmt. Program	Start Date (Exp.)	Length of Initiative	Funding Source	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34	34-35	35-36
Strategy 1: Discuss future possible information gathering with the Florida Department of State, Division of Historical Resources, Florida Public Archaeological Network, and academia.	Ecosystem Science	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 2: Provide technical assistance (access, mapping, etc.) and assist with site visits where needed.	Ecosystem Science	18-19	ongoing	F,S	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250
Strategy 3: Provide up-to-date training for TBAP staff, when available.	Ecosystem Science	18-19	ongoing	F,S	$800	$0	$0	$0	$0	$800	$0	$0	$0	$0
Issue 2: Island Management														
Goal 1: Continue native revegetation of islands.														
Objective 1: Maintain existing native plant assemblages on islands and reduce nonnative coverage.														
Strategy 1: For invasive plant control, prioritize removing invasives directly adjacent to native plant communities.	Resource Mgmt.	18-19	ongoing	F,S	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K
Strategy 2: Acquire funds to clear invasives on publicly-owned islands using contractors.	Resource Mgmt.	23-24	2 years		$25K	*$25K*	*$25K*	$0	$0	$0	$0	$0	$0	$0
Strategy 3: Continue regular retreatment schedule on cleared islands.	Resource Mgmt.	18-19	ongoing	F,S	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K	$2.5K
Objective 2: Continue to revegetate island areas presently occupied by invasive plant species.														
Strategy 1: Maintain areas in lower elevations (high marsh and below) free of exotics to allow the natural recruitment of natives.	Resource Mgmt.	18-19	ongoing	F,S,O	$2K	$2K	$2K	$2K	$2K	$2K	$2K	$2K	$2K	$2K
Strategy 2: Plant native plants in higher elevations with volunteers or contractors.	Resource Mgmt.	18-19	ongoing	F,S,O	*$3K*	*$3K*	*$3K*	*$3K*	*$3K*	*$3K*	*$3K*	*$3K*	*$3K*	*$3K*
Goal 2: Continue education and outreach efforts for islands.														
Objective 1: Provide information about islands and their ecological importance and individual stewardship measures to the general public.														
Strategy 1: Provide information about islands at events, like Marine Quest, boat shows, etc.	Education/ Outreach	18-19	ongoing	F,S,O	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Strategy 2: Provide information (e.g., existing boaters' guides) about islands through the CSO.	Education/ Outreach	18-19	ongoing	F,S,O	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Objective 2: Provide information on islands and their ecological importance at points of access and														

Goals, Objectives & Integrated Strategies	Mgmt. Program	Start Date (Exp.)	Length of Initiative	Funding Source	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34	34-35	35-36
use.														
Strategy 1: Provide informational signage at boat ramps and other access points, including TBAP contact information and links to additional information such as DEP's website.	Education/ Outreach	18-19	ongoing	F,S,O	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Strategy 2: Provide informational signage on islands in high-usage areas, including TBAP contact information and links to additional information such as DEP's website.	Education/ Outreach	18-19	ongoing	F,S,O	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Goal 3: Improve public access on selected high-use islands.														
Objective 1: Provide limited amenities in selected high-use areas.														
Strategy 1: Recycled plastic picnic tables are placed on appropriate islands.	Public Use	18-19	ongoing	O	$1000	$1000	$0	$0	$0	$1000	$0	$0	$0	$1000
Strategy 2: Stewardship signage is placed on islands with amenities.	Education/ Outreach	18-19	ongoing	F,S,O	$800	$0	$800	$0	$800	$0	$800	$0	$800	$0
Objective 2: Improve and maintain interpretive trail on island NCH-13 .														
Strategy 1: Regularly maintain island interpretive trail on island NCH-13.	Public Use	18-19	annually		*$1K*	*$1K*	*$1K*	*$1K*	*$1K*	*$1K*	*$1K*	*$1K*	*$1K*	*$1K*
Strategy 2: Replace old and missing interpretive signs with new, site-specific ones.	Public Use	18-19	ongoing	S,O	$1000	$250	$250	$250	$500	$500	$500	$500	$500	$500
Goal 4: Seek ways to better protect rookery islands.														
Objective 1: Bird rookery islands are more effectively posted.														
Strategy 1: Use CSO outreach efforts to raise awareness of rookery islands.	Education/ Outreach	18-19	ongoing	F,S	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Strategy 2: In consultation with FWC and appropriate agencies and organizations, maintain existing posted buffer areas around rookery islands during nesting season and adjust signage and buoys as needed.	Resource Mgmt.	18-19	annually	F,S	$3K	$3K	$3K	$3K	$3K	$3K	$3K	$3K	$3K	$3K
Issue 3: Shoreline Alterations														
Goal 1: Minimize new alterations to natural shorelines.														
Objective 1: Increase awareness of the ecological and protective importance of natural shorelines.														

Goals, Objectives & Integrated Strategies	Mgmt. Program	Start Date (Exp.)	Length of Initiative	Funding Source	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34	34-35	35-36
Strategy 1: Provide information, including regulatory information, at outreach events.	Education/ Outreach	18-19	ongoing	F,S	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250
Strategy 2: Give presentations to civic groups and homeowner associations.	Education/ Outreach	18-19	ongoing	F,S	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Strategy 3: Provide information for CSO outreach efforts..	Education/ Outreach	18-19	ongoing	F,S	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Strategy 4: Document shoreline erosion in sensitive areas such as rookery islands.	Education/ Outreach	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 5: Provide applicable information and any available resources for grant opportunities.	Ecosystem Science	18-19	ongoing	F,S	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Objective 2: Provide regulatory input when appropriate.														
Strategy 1: Provide shoreline information to regulatory employees.	Resource Mgmt.	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 2: Provide input on shoreline alteration avoidance and minimization during the regulatory process.	Resource Mgmt.	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Goal 2: Seek opportunities to restore altered shorelines to a more natural state.														
Objective 1: Facilitate natural shoreline restoration through the regulatory process.														
Strategy 1: Maintain a database of potential shoreline restoration opportunities.	Resource Mgmt.	19-20	ongoing	F,S	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Strategy 2: Recommend shoreline restoration, when appropriate, as mitigation	Resource Mgmt.	18-19	ongoing	F,S	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Strategy 3: Recommend shoreline restoration, when appropriate, as public interest	Resource Mgmt.	18-19	ongoing	F,S	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Objective 2: Make technical advice and information available to interested parties.														
Strategy 1: Provide suggested approaches and how-to information to homeowner associations and waterfront associations that show interest.	Education/ Outreach	18-19	ongoing	F,S	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Issue 4: Marine Debris														
Goal 1: Reduce marine debris at the source.														
Objective 1: Reduce marine debris through physical means.														

Goals, Objectives & Integrated Strategies	Mgmt. Program	Start Date (Exp.)	Length of Initiative	Funding Source	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34	34-35	35-36
Strategy 1: Work with local resource managers to ensure that trash receptacles at access points are covered and emptied regularly to prevent discarded debris from entering the aquatic preserve.	Education/ Outreach	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 2: Encourage stormwater system retrofits that include mechanisms to intercept floatable debris.	Education/ Outreach	18-19	ongoing	F,S	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50
Strategy 3: Promote sound fish waste management through a combination of fish-cleaning restrictions, public education and proper disposal of fish waste.	Education/ Outreach	18-19	ongoing	F,S	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Objective 2: Reduce marine debris through increased awareness.														
Strategy 1: Provide awareness messages at access point kiosks and other informational locations to raise awareness about marine debris and its effects on the aquatic preserve.	Education/ Outreach	18-19	ongoing	F,S,O	$800	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 2: Provide awareness messages on marine debris at outreach events.	Education/ Outreach	18-19	ongoing	F,S,O	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Strategy 3: Encourage local communities to mark storm drains.	Education/ Outreach	18-19	ongoing	F,S,O	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Strategy 4: Encourage studies that identify types and possible sources of marine debris within the aquatic preserves.	Ecosystem Science	18/19	ongoing	F,S,O	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Goal 2: Remove debris that has entered the aquatic preserves.														
Objective 1: Coordinate and encourage debris removal activities.														
Strategy 1: Facilitate shoreline cleanups of marine debris, focusing on islands, debris hotspots and relatively remote areas.	Education/ Outreach	19-19	ongoing	F,S	$400	$400	$400	$400	$400	$400	$400	$400	$400	$400
Strategy 2: Encourage boaters to remove floating debris.	Education/ Outreach	18-19	ongoing	F,S	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200
Strategy 3: Encourage and support derelict vessel removal operations using Best Management Practices (BMPs) to protect natural resources..	Education/ Outreach	18-19	ongoing	F,S	$5000	$300	$300	$300	$300	$300	$300	$300	$300	$300

D.2 / Budget Summary Table

Fiscal Year	Ecosystem Science	Resource Management	Education & Outreach	Public Use	Annual Total
2026-2027	$4,200	$48,800	$13,350	$4,200	$70,550
2027-2028	$3,400	$48,800	$7,000	$2,950	$62,150
2028-2029	$3,400	$48,800	$7,800	$1,950	$61,950
2029-2030	$3,400	$23,800	$7,000	$1,950	$36,150
2030-2031	$3,400	$23,800	$7,800	$2,200	$37,200
2031-2032	$4,200	$23,800	$7,000	$3,200	$38,200
2032-2033	$3,400	$23,800	$7,800	$2,200	$37,200
2029-2030	$3,400	$23,800	$7,000	$2,200	$36,400
2033-2034	$3,400	$23,800	$7,800	$2,200	$37,200
2034-2035	$3,400	$23,800	$7,000	$3,200	$37,200
Ten Year Totals	$35,600	$313,000	$79,550	$26,250	$454,400

D.3 / Major Accomplishments Since the Approval of the Previous Plan

Effective Partnerships: TBAP has established, and maintains, productive partnerships with many government programs, nongovernmental organizations and academic institutions. These partnerships provide valuable insights and data to help guide the program's approach to issues. Many of these partners also provide manpower for field work and other program needs. In recent years, groups of volunteers have come from as far away as Ohio State University and University of North Carolina.

Island Management: Over the past 20 years, TBAP has established management of state-owned islands and has made significant progress in replacing invasive plants on dredged material islands with native plants. In order to maintain habitat for wildlife and shade for boaters, this work must be accomplished gradually. The scattered distribution and inaccessibility of these islands would make this sort of work prohibitively expensive to contract over the long term. While some selected projects are contracted, much of the work has been done with coordinated volunteer efforts. In 2002, the program produced an island management plan based on staff assessments and public input.

The islands managed by TBAP represent different stages in island habitat restoration. Some islands in the Anclote River now require only a few hours of maintenance per year, though they required numerous days of work annually when first treated. As the maintenance burden diminishes on some islands, others are targeted for intensive initial revegetation. Keeping the public informed about TBAP's efforts and intentions has kept the boating and conservation communities largely supportive.

Another important accomplishment in TBAP's management of islands has been the establishment of buffer zones around some of the rookery islands using informational buoys. Buffers have been established around two islands in Pinellas County and it is intended that these informational zones become a valuable adaptive management tool for future colonial waterbird nesting islands.

Regulatory Review: In addition to training regulatory staff in matters related to permitting in aquatic preserves, TBAP regularly provides site-specific information about specific proposed projects, including

several large infrastructure projects like pipelines. TBAP also coordinates environmental projects sometimes required to meet public interest criteria in 18-20.004(2) Florida Administrative Code.

Community Engagement: TBAP has increased the program's capacity to reach out to the community to raise awareness of the county's aquatic preserves and to give interested citizens ways to get involved in supporting the program's mission. A citizen support organization (CSO), named the Friends of the Tampa Bay Aquatic Preserves, was formed and officially partnered with the agency in 2019. This group has already been raising awareness of the aquatic preserves through events, presentations and social media.

TBAP's move to office and storage space at the Clearwater Historical Society's facility in Clearwater is better located geographically and gives better public exposure to the program. The facility makes the program more resilient in times of hurricanes, and that increases its capacity to serve the public. An additional benefit has been the close working relationship of the CSO with the historical society. Soon after the move, the two organizations began collaborating on a series of public outreach events.

TBAP has worked to use the potential of current media technology to raise public awareness about the county's submerged natural, historical and cultural resources. The program operates several exhibits per year at events with appropriate target audiences. On-site informational signage and social media posts provide nearly real-time information for residents and visitors to the aquatic preserves. The program has established an interpretive trail on an island frequented by boaters to educate visitors about native plants and wildlife. A 360-degree virtual reality video will help people experience aspects of the aquatic preserves that, presently, may be unknown to them.

In addition to the four aquatic preserves, TBAP gained management authority for a 76-acre floodplain swamp adjacent to the Lake Tarpon portion of Pinellas County Aquatic Preserve in 2015. This parcel was given to the state decades ago, but was not being actively managed. TBAP is working with scientists and volunteer groups to address issues with this parcel to benefit the adjacent aquatic preserve.

D.4 / Gulf Restoration Priority Projects

Florida's expansive coastline and wealth of aquatic resources have defined it as a subtropical oasis, attracting millions of residents and visitors, and the businesses that serve them. Florida's submerged lands play important roles in maintaining good water quality and hosting a diversity of wildlife and habitats (including economically and ecologically valuable nursery areas). The following projects are proposed by the Office of Resilience and Coastal Protection as top priorities for the Pinellas County and Boca Ciega Bay aquatic preserves in regards to creating and maintaining healthy ecosystems and economies, and the table identifies the Pinellas County and Boca Ciega Bay aquatic preserves management plan's issues, goals, objectives, and strategies with the projects. For project details go to https://floridadep.gov/wra/deepwater-horizon.

Project Name	Amount	Partners	Location in aquatic preserve mgmt. plan
Pinellas County Conservation Land Habitat Restoration and Coastal Resiliency	$120,000	N/A	Issue II, Goal I, Objective I
Clearwater Beach Shore Bird Habitat	$385,000	N/A	Issue II, Goal I, Objective I
City of Oldsmar, Florida Stormwater Master Plan	$10,000,000	N/A	
Sewer System Expansion, City of Clearwater	$10,000,000	N/A	
Pinellas Island Habitat Restoration	$400,000	USF, Eckerd College, St. Petersburg College, Ohio State University, University of NC, Louisiana State University, Florida Native Plant Society, and boating groups	Issue II, Goal I, Objective I
Pinellas County Surface Water Quality Monitoring Program within the Tampa Bay Estuary Program Boundary	$2,345,510	Tampa Bay Estuary Program	Issue I, Goal III, Objective II
Hunter Property: Strategic Bird Habitat		DOD, USFWS	
Coastal Bird Perpetual Management Fund	$150,000,000	Tampa Bay Estuary Program	Issue II, Goal IV, Objective I
Ft Desoto Recirculation Phase II	$400,000	Tampa Bay Estuary Program	Issue I, Goal III, Objective I & II

Project Name	Amount	Partners	Location in aquatic preserve mgmt. plan
Clearwater Harbor and St. Joseph Sound Seagrass Monitoring and Assessment	$166,000	Tampa Bay Estuary Program	Issue I, Goal II, Objective I & Goal III, Objective I
Sewer System Expansion	$10,000,000	Tampa Bay Estuary Program	
Pinellas Island Habitat Restoration	$10,000,000	FDEP, Florida Coastal Office (Office of Coastal and Aquatic Managed Areas)	Issue II, Goal I, Objective I & II
Use of Video Cameras to Measure Nesting Success, Disturbance, and Effectiveness of Video as a Deterrent to People Entering a Protected Area (Gulf Coast Bird Restoration Initiative)	$52,360	American Bird Conservancy	Issue II, Goal IV, Objective I
Wastewater Collection System Improvements	$44,400,000	City of St. Petersburg	
Purchase of the Rahal Estate on Boca Ciega Bay	$4,067,400	City of St. Petersburg	
Seminole Boat Ramp Rehabilitation and Facility Enhancement	$1,000,000	DOD, USFWS	
Clearwater Beach Dune Restoration and Relocation	$300,000	Tampa Bay Estuary Program	Issue III, Goal II, Objective I
Annexation and Improvement of County Ponds (Lake Carol and Lake Louise) Adjacent to Kapok Park	$100,000	Tampa Bay Estuary Program	
Pinellas County Cross Bayou Watershed Flood Control, Water Quality Improvements, and Habitat Restoration	$10,000,000	Tampa Bay Estuary Program	

Project Name	Amount	Partners	Location in aquatic preserve mgmt. plan
DeSoto Estates Sanitary Sewer Project	$1,000,000	Tampa Bay Estuary Program	
Installation, Data Collection, and Maintenance of flow Stations in Pinellas County Streams in the Clearwater Harbor and St. Joseph Sound Watershed	$348,130	Tampa Bay Estuary Program	
Boyd Hill Nature Preserve Wetlands Restoration	$900,000	City of St. Petersburg	Issue II, Goal I, Objective I
Comprehensive Management & Resiliency Plans for Pinellas County Coastal Parks and Conservation Areas: Ft. De Soto, Sand Key, Fred Howard, Boca Ciega, War Veterans', Philippe and Wall Springs County Parks.	$500,000	Tampa Bay Estuary Program	
Morris Street Storm Drainage Improvement	$2,400,000	City of St. Petersburg	
Pinellas County Conservation Land Habitat Restoration and Coastal Resiliency Management Plans	$1,100,000	Pinellas County Office of Management & Budget	
Coastal Ocean Monitoring and Prediction System (COMPS): Publically assessable, real time wind, waves and currents from Pass-a-Grill Channel, Pinellas County.	$415,910	University of South Florida	
Clearwater Harbor Intracoastal Islands Restoration	$2,709,055	FWC	Issue II, Goal IV, Objective I
Restoring gulf sea turtle populations by reducing hatchling disorientation on the beaches of panhandle Florida	$200,000	FWC	

Project Name	Amount	Partners	Location in aquatic preserve mgmt. plan
Single and multi-species assessments incorporating environmental effects	$50,000,000	FWC	
An ecological baseline supporting ecosystem services, resilience, and restoration for Florida's Gulf coast estuaries	$8,100,726	FWC	
Cooper's Point Master Plan Project Implementation	$1,000,000	City of Clearwater	
Living Shoreline Demonstration Project	$2,000,000	Pinellas County Environmental Management	Issue III, Goal II, Objective I & II
Septic Tank and Sewer Upgrades Program	$5,475,000	Pinellas County Environmental Management	
Land Acquisition for Floodplain Restoration and Resiliency	$9,300,000	Pinellas County Environmental Management	
Nutrient Source Evaluation In Pinellas County Streams	$450,000	Pinellas County Environmental Management	Issue I, Goal III, Objective I
Salt Creek Restoration	$2,700,000	City of St. Petersburg	
Conducting habitat suitability measures to identify optimal oyster restoration locations along the Florida Gulf Coast	$1,982,000	FWC	Issue I, Goal III, Objective II
Shoreline restoration at Clearwater Harbor Bird Island I-25	$737,950	Audubon Florida	Issue III, Goal II, Objective I
City of Oldsmar, Florida Stormwater Master Plan	$250,000	City of Oldsmar	Issue IV, Goal I, Objective I
Mobbly Bayou Restoration Project	$1,100,000	SWFWMD SWIM Program	

Appendix E / Other Requirements

E.1 / Acquisition and Restoration Council Management Plan Compliance Checklist

Land management Plan Compliance Checklist: Required for State-owned conservation lands over 160 acres

Section A: Acquisition Information Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
1	The common name of the property.	18-2.018 & 18-2.021	
2	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	
5	A map showing the approximate location and boundaries of the property, and the location of any structures or improvements to the property.	18-2.018 & 18-2.021	
6	An **assessment** as to whether the property, or any portion, should be declared surplus. *Provide Information regarding **assessment and analysis** in the plan, and provide **corresponding map**.*	18-2.021	
7	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. *Please clearly indicate parcels on a map.*	18-2.021	
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	
9	A statement of the purpose for which the lands were acquired, the projected use or uses as defined in 253.034 and the statutory authority for such use or uses.	259.032(10)	
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	

Section B: Use Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
11	The designated single use or multiple use management for the property, including use by other managing entities.	18-2.018 & 18-2.021	
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	
13	A description of alternative or multiple uses of the property considered by the lessee and a statement detailing why such uses were not adopted.	18-2.018	
14	A description of the management responsibilities of each entity involved in the property's management and how such responsibilities will be coordinated.	18-2.018	

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
15	Include a provision that requires that the managing agency consult with the Division of Historical Resources, Department of State before taking actions that may adversely affect archeological or historical resources.	18-2.021	
16	Analysis/description of other managing agencies and private land managers, if any, which could facilitate the restoration or management of the land.	18-2.021	
17	A determination of the public uses and public access that would be consistent with the purposes for which the lands were acquired.	259.032(10)	
18	A finding regarding whether each planned use complies with the 1981 State Lands Management Plan, particularly whether such uses represent "balanced public utilization," specific agency statutory authority and any other legislative or executive directives that constrain the use of such property.	18-2.021	
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	
20	An assessment of the impact of planned uses on the renewable and non-renewable resources of the property, including soil and water resources, and a detailed description of the specific actions that will be taken to protect, enhance and conserve these resources and to compensate/mitigate damage caused by such uses, including a description of how the manager plans to control and prevent soil erosion and soil or water contamination.	18-2.018 & 18-2.021	
21	*For managed areas larger than 1,000 acres, an analysis of the multiple-use potential of the property which shall include the potential of the property to generate revenues to enhance the management of the property provided that no lease, easement, or license for such revenue-generating use shall be entered into if the granting of such lease, easement or license would adversely affect the tax exemption of the interest on any revenue bonds issued to fund the acquisition of the affected lands from gross income for federal income tax purposes, pursuant to Internal Revenue Service regulations.	18-2.021 & 253.036	
22	If the lead managing agency determines that timber resource management is not in conflict with the primary management objectives of the managed area, a component or section, prepared by a qualified professional forester, that assesses the feasibility of managing timber resources pursuant to section 253.036, F.S.	18-021	
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	

*The following taken from 253.034(10) is not a land management plan requirement; however, it should be considered when developing a land management plan: The following additional uses of conservation lands acquired pursuant to the Florida Forever program and other state-funded conservation land purchase programs shall be authorized, upon a finding by the Board of Trustees, if they meet the criteria specified in paragraphs (a)-(e): water resource development projects, water supply development projects, storm-water management projects, linear facilities and sustainable agriculture and forestry. Such additional uses are authorized where: (a) Not inconsistent with the management plan for such lands; (b) Compatible with the natural ecosystem and resource values of such lands; (c) The proposed use is appropriately located on such lands and where due consideration is given to the use of other available lands; (d) The using entity reasonably compensates the titleholder for such use based upon an appropriate measure of value; and (e) The use is consistent with the public interest.

Section C: Public Involvement Items

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
24	A statement concerning the extent of public involvement and local government participation in the development of the plan, if any.	18-2.021	
25	The management prospectus required pursuant to paragraph (9)(d) shall be available to the public for a period of 30 days prior to the public hearing.	259.032(10)	
26	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located. *Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.*	259.032(10)	
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	
28	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. *Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.*	253.034(5) & 259.032(10)	
29	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. *Include manager's replies to the team's findings and recommendations.*	259.036	
30	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	
31	If manager is not in agreement with the management review team's findings and recommendations in finalizing the required 10-year update of its management plan, the managing agency should explain why they disagree with the findings or recommendations.	259.036	

Section D: Natural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
32	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types. *Use brief descriptions and include USDA maps when available.*	18-2.021	
33	Insert FNAI based natural community maps when available.	ARC consensus	
34	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding outstanding native landscapes containing relatively unaltered flora, fauna and geological conditions.	18-2.021	

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
35	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding unique natural features and/or resources including but not limited to virgin timber stands, scenic vistas, natural rivers and streams, coral reefs, natural springs, caverns and large sinkholes.	18-2.018 & 18-2.021	
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	
37	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding mineral resources, such as oil, gas and phosphate, etc.	18-2.018 & 18-2.021	
38	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding fish and wildlife, both game and non-game, and their habitat.	18-2.018 & 18-2.021	
39	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding State and Federally listed endangered or threatened species and their habitat.	18-2.021	
40	The identification or resources on the property that are listed in the Natural Areas Inventory. *Include letter from FNAI or consultant where appropriate.*	18-2.021	
41	Specific description of how the managing agency plans to identify, locate, protect and preserve or otherwise use fragile, nonrenewable natural and cultural resources.	259.032(10)	
42	Habitat Restoration and Improvement	259.032(10) & 253.034(5)	
42-A.	Describe management needs, problems and a desired outcome and the key management activities necessary to achieve the enhancement, protection and preservation of restored habitats and enhance the natural, historical and archeological resources and their values for which the lands were acquired.	259.032(10) & 253.034(5)	
42-B.	Provide a detailed description of both short (2-year planning period) and long-term (10-year planning period) management goals, and a priority schedule based on the purposes for which the lands were acquired and include a timeline for completion.	259.032(10) & 253.034(5)	
42-C.	The associated measurable objectives to achieve the goals.	259.032(10) & 253.034(5)	
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. *Include fire management plans - they can be in plan body or an appendix.*	259.032(10) & 253.034(5)	
42-E.	A detailed expense and manpower budget in order to provide a management tool that facilitates development of performance measures, including recommendations for cost-effective methods of accomplishing those activities.	259.032(10) & 253.034(5)	
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. *See footnote.*	253.034(5)	
44	Sustainable Forest Management, including implementation of prescribed fire management	18-2.021, 253.034(5) & 259.032(10)	
44-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	18-2.021, 253.034(5) & 259.032(10)	

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
44-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	18-2.021, 253.034(5) & 259.032(10)	
44-C.	Measurable objectives (see requirement for #42-C).	18-2.021, 253.034(5) & 259.032(10)	
44-D.	Related activities (see requirement for #42-D).	18-2.021, 253.034(5) & 259.032(10)	
44-E.	Budgets (see requirement for #42-E).	18-2.021, 253.034(5) & 259.032(10)	
45	Imperiled species, habitat maintenance, enhancement, restoration or population restoration	259.032(10) & 253.034(5)	
45-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	
45-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	
45-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	
45-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. *See footnote.*	253.034(5)	
47	Place the Arthropod Control Plan in an appendix. If one does not exist, provide a statement as to what arrangement exists between the local mosquito control district and the management unit.	BOT requirement via lease language	
48	Exotic and invasive species maintenance and control	259.032(10) & 253.034(5)	
48-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	
48-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	
48-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	
48-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	

Section E: Water Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
49	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation. *If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.*	18-2.018 & 18-2.021	

50	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding water resources, including water classification for each water body and the identification of any such water body that is designated as an Outstanding Florida Water under Rule 62-302.700, F.A.C.	18-2.021	
51	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding swamps, marshes and other wetlands.	18-2.021	
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. *See footnote.*	253.034(5)	
53	Hydrological Preservation and Restoration	259.032(10) & 253.034(5)	
53-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	
53-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	
53-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	
53-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	

Section F: Historical Archaeological and Cultural Resources

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
54	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archeological and historical resources. *Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.*	18-2.018, 18-2.021 & per DHR's request	
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	
56	A description of actions the agency plans to take to locate and identify unknown resources such as surveys of unknown archeological and historical resources.	18-2.021	
57	Cultural and Historical Resources	259.032(10) & 253.034(5)	
57-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	
57-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	
57-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	
57-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	

**While maps of Native American sites should not be included in the body of the management plan, the DSL urges each managing agency to provide such information to the Division of Historical Resources for inclusion in their proprietary database. This information should be available for access to new managers to assist them in developing, implementing and coordinating their management activities.

Section G: Facilities (Infrastructure, Access, Recreation)

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
58	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage. *See footnote.*	253.034(5)	
59	Capital Facilities and Infrastructure	259.032(10) & 253.034(5)	
59-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	
59-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	
59-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	
59-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	
61	Public Access and Recreational Opportunities	259.032(10) & 253.034(5)	
61-A.	Management needs, problems and a desired outcome (see requirement for # 42-A).	259.032(10) & 253.034(5)	
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	
61-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	
61-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	
61-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	

Section H: Other/ Managing Agency Tools

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
62	Place this LMP Compliance Checklist at the front of the plan.	ARC and managing agency consensus	
63	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	
64	If this LMP is a 10-year update, note the accomplishments since the drafting of the last LMP set forth in an organized (categories or bullets) format.	ARC consensus	
65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	
66	Summary budget for the scheduled land management activities of the LMP including any potential fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitat, which fees shall be used to restore, manage, enhance, repopulate, or acquire imperiled species habitat for lands that have or are anticipated to have imperiled species or such habitat onsite. The summary budget shall be prepared in such a manner that it facilitates computing an aggregate of land management costs for all state-managed lands using the categories described in s. 259.037(3) which are resource management, administration, support, capital improvements, recreation visitor services, law enforcement activities.	253.034(5)	

Item #	Requirement	Statute/Rule	Page Numbers and/or Appendix
67	Cost estimate for conducting other management activities which would enhance the natural resource value or public recreation value for which the lands were acquired, include recommendations for cost-effective methods in accomplishing those activities.	259.032(10)	
68	A statement of gross income generated, net income and expenses.	18-2.018	

*** = The referenced inventories shall be of such detail that objective measures and benchmarks can be established for each tract of land and monitored during the lifetime of the plan. All quantitative data collected shall be aggregated, standardized, collected, and presented in an electronic format to allow for uniform management reporting and analysis. The information collected by the DEP pursuant to s. 253.0325(2) shall be available to the land manager and his or her assignee.

E.2 / Management Procedures for Archaeological and Historical Sites on State-Owned or Controlled Lands

(revised June 2021)
These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. Historic Property Definition

Historic properties include archaeological sites and historic structures as well as other types of resources. Chapter 267, Florida Statutes states: " '*Historic property' or 'historic resource' means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state."*

B. Agency Responsibilities

Per Chapter 267, *F.S.* and state policy related to historic properties, state agencies of the executive branch must provide the Division of Historical Resources (Division) the opportunity to comment on any undertakings with the potential to affect historic properties that are listed, or eligible for listing, in the National Register of Historic Places, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the undertaking. (267.061(2)(a))

State agencies must consult with the Division when, as a result of state action or assistance, a historic property will be demolished or substantially altered in a way that will adversely affect the property. State agencies must take timely steps to consider feasible and prudent alternatives to the adverse effect. If no feasible or prudent alternatives exist, the state agency must take timely steps to avoid or mitigate the adverse effect. (267.061(2)(b))

State agencies must consult with Division to establish a program to locate, inventory and evaluate all historic properties under ownership or controlled by the agency. (267.061(2)(c))

State agencies are responsible for preserving historic properties under their control. State agencies are directed to use historic properties available to the agency when that use is consistent with the historic property and the agency's mission. State agencies are also directed to pursue preservation of historic properties to support their continued use. (267.061(2)(d))

C. Statutory Authority

The full text of Chapter 267, F.S. and additional information related to the treatment of historic properties is available at:

https://dos.myflorida.com/historical/preservation/compliance-and-review/regulations-guidelines/

D. Management Implementation

Although the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual and do not include detailed project information. Specific information for individual projects must be submitted to the Division for review and comment.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. The Division's recommendations may include, but are not limited to: approval of the project as submitted, recommendation for a cultural resource assessment survey by a qualified professional archaeologist, and modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions or alterations to historic structures as well as new construction must also be submitted to the Division for review. Projects involving structures fifty years of age or older must be submitted to the Division for a significance determination**.** In rare cases, structures under fifty years of age may be deemed historically significant.

Adverse effects to historic properties must be avoided when possible, and if avoidance is not possible, additional consultation with the Division is necessary to develop a mitigation plan. Furthermore, managers of state property should make preparations for locating and evaluating historic properties, both archaeological sites and historic structures.

E. Archaeological Resource Management (ARM) Training

The ARM Training Course introduces state land managers to the nature of archaeological resources, Florida archaeology, and the role of the Division in managing state-owned archaeological resources. Participants gain a better understanding of the requirements of state and federal laws with regard to protecting and managing archaeological sites on state managed lands. Participants also receive a certificate recognizing their ability to conduct limited monitoring activities in accordance with the Division's Review Procedure, thereby reducing the time and money spent to comply with state regulations. Additional information regarding the ARM Training Course is available at:

https://dos.myflorida.com/historical/archaeology/education/arm-training-courses/

F. Matrix for Ground Disturbance on State Lands

The matrix is a tool designed to help streamline the Division's Review Procedure. The matrix allows state land managers to make decisions about balancing ground disturbance and stewardship of historic resources. The matrix establishes types of undertakings that are either minor or major disturbances and then guides the land manager to consult the Division, conduct ARM-trained project monitoring, or proceed with the project.

Additional information regarding the matrix is available at:
https://dos.myflorida.com/historical/archaeology/education/dhr-matrix-for-ground-disturbance-on-state-lands/

G. Human Remains Treatment

Chapter 872, *Florida Statutes* makes it illegal to willfully and knowingly disturb human remains. In the event human remains are discovered, cease all activity in the area that may disturb the remains. Leave the bones and nearby items in place. Immediately notify law enforcement or the local district medical examiner of the discovery and follow the provisions of Chapter 872, FS. Additional information regarding the treatment of human remains and cemeteries is available at:

https://dos.myflorida.com/historical/archaeology/human-remains/
https://dos.myflorida.com/historical/archaeology/human-remains/abandoned-cemeteries/what-are-the-applicable-laws-and-regulations/

H. Division of Historical Resources Review Procedure

Projects on state owned or controlled properties may submit projects to the Division for review using the streamlined State Lands Consultation Form. The form provides instructions to submit projects for review

and outlines the necessary information for the Division to complete the review process. The State Lands Consultation Form and additional information about the Division's review process is available at:

https://dos.myflorida.com/historical/preservation/compliance-and-review/state-lands-review/

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Compliance and Review Section
Bureau of Historic Preservation Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

StateLandsCompliance@dos.myflorida.com

Phone: (850) 245-6333
Toll Free: (800) 847-7278
Fax: (850) 245-6435

E.3 / Letter of Compliance with County Comprehensive Plan

(This information will be provided in the final draft of this management plan.)

E.4 / Division of State Lands Management Plan Approval Letter

(This information will be provided in the final draft of this management plan.)

Pinellas County and Boca Ciega Bay Aquatic Preserves Management Plan
Florida Department of Environmental Protection
Office of Resilience and Coastal Protection
2600 Blair Stone Road., MS #235
Tallahassee, FL 32399
www.FloridaCoasts.org