



Coupon Bight Aquatic Preserve 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



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A bird's eye view of the islands near Long Beach in Coupon Bight.

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: Coupon Bight Aquatic Preserve (CBAP)

Location: Monroe County, Florida

Acreage: 5,400

Management Agency: DEP's ORCP, National Oceanic and Atmospheric Administration (NOAA)

Designation: Aquatic Preserve

Unique Features: Coupon Bight Aquatic Preserve is recognized as an exceptional water resource of the state. The aquatic preserve encompasses 5,400 acres of seagrass meadows, hard bottom communities, mangrove wetlands, and coral patch reefs that provide nursery and settlement habitat for a wide variety of marine species. In addition to marine areas, the Coupon Bight Buffer Preserve, managed in collaboration with the U.S. Fish and Wildlife Service's National Key Deer Refuge, has added more than 1,900 acres of saltmarsh, pinelands, hammocks, and beach/berm communities to resources of the aquatic preserve. Both the terrestrial and marine environments offer valuable habitat for more than 100 animal and plant species that are rare, threatened, endangered, or species of special concern.

Archaeological/Historical Sites: The Florida Division of Historical Resources has documented 12 historical structure and archeological sites that fall within or adjacent to the aquatic preserve, including artifacts, prehistoric campsites, and prehistoric shell scatters. The Henry Flagler railroad closed in 1935, where the state then purchased the residual infrastructure and used the remainder of it to construct the Overseas Highway from Lower Matecumbe Key to Little Torch Key.

FNAI Natural Community	Global Rank	Local Rank	Acreage	Percentage of Acreage
Coral Reef and Hardbottom	G2/G3	S1/S3	2962	54.9%
Mangrove Swamp	G5	S4	648	12.0%
Seagrass Beds	G3	S2	1712	31.7%
Unconsolidated Substrate	G5	S5	47	0.9%
Coastal Berm	G3	S2	11	0.2%
Keys Tidal Rock Barren	G3	S3	18	0.3%

Management Needs

Ecosystem Science: Research is critical to determining the status of existing resources and to provide a baseline from which to compare current trends. Little research has been conducted regarding water quality involving Coupon Bight Aquatic Preserve until a water quality program was established in 2017. The management issue associated primarily with ecosystem science is continuing the water quality monitoring and implementing long term monitoring of benthic communities and wildlife which will be crucial in understanding the impacts water quality have on these resources. Continued water quality monitoring will help establish water quality trends and may help identify sources of pollution (pages 52-54).

Resource Management: The primary management objectives for resource management are the protection and restoration of seagrass beds, monitoring of coral hardbottom habitats, rookery monitoring, and the reduction of marine debris. Boat traffic leads to impacts from prop scars, grounding events, and fishing-associated marine debris. Many of these impacts could be prevented or minimized with improved channel and seagrass bank marking, enhanced enforcement, and public education campaigns. The management plan established goals and objectives to address these and other management issues (pages 56-60).

Education and Outreach: Education, outreach, and encouraging engagement in stewardship activities will be critical in achieving management goals. Many of the issues affecting the aquatic preserve can be ameliorated by enhanced outreach to the public, especially in regards to the seagrass damage from improper boating activities and other impacts from marine debris. Outreach to residents, and visitors will be critical in achieving our management goals (pages 61-62).

Public Use: While there are no public boat ramps in Coupon Bight, there are several nearby including two approximately one mile away: The area in Coupon Bight doesn't sustain a huge amount of boat traffic but the area directly outside of Coupon Bight, within the aquatic preserve, does due to an array of coral patch reefs. It is also an area that is frequently utilized by recreational fishermen who often go fishing for tarpon, snook, barracuda, and bonefish. To adequately manage visitor use conflict and enhancing visitor access throughout the aquatic preserve are key management goals (pages 65).

Public Involvement: Public support is vital to the success of conservation programs. The goal is to create and foster an understanding of the challenges that these ecosystems are facing and the steps to manage these precious resources. CBAP staff held a public meeting on Thursday, April 14, 2022 at the Lower Keys Chamber of Commerce on Big Pine Key. An advisory committee meeting was held Monday, July 24, 2023, and the draft management plan was presented at the Tuesday, October 17, 2023 FKNMS Advisory Council meeting to receive public input. An additional public meeting will be held in Tallahassee when the Acquisition and Restoration Council reviews the management plan.

Coastal Zone Management Issues:

The main impacts to the aquatic preserve's natural resources stem mainly from recreational activities: boating and fishing. The area directly outside Coupon Bight experiences boat traffic because of its near shore patch reef communities, mangroves, and seagrass beds which attract fishermen, snorkelers, and divers. Major impacts from boating include prop scars and blowholes on the seagrass beds as well as grounding on the patch reef. Fishing can also contribute to discarded fishing line and other debris, such as derelict traps, which can harm the coral patch reefs surrounding the area. Water quality is also an issue as the preserve lies directly adjacent to Big Pine Key, which can contribute to amplifying poor water quality. Big Pine Key also is one of the few islands in the Florida Keys with a freshwater lens, which facilitates the survival of the endemic Key deer, often found swimming through Coupon Bight between Newfound Harbor Keys and Big Pine Key. Extensive areas within the preserve have been ditched for drainage and mosquito control, which can have cascading effects on the local ecosystem. Despite large infrastructure investments in recent years, pollution from stormwater run-off and septic leachate in both freshwater and marine areas of the preserve still persists.

Goals:

Many of the issues impacting Coupon Bight Aquatic Preserve could be prevented or minimized with improved channel markings, enhanced enforcement, and public education campaigns. Better resource monitoring and analysis will guide our management practices and make them more effective overall. Reducing user conflict at nearby access points will also reduce other negative impacts associated with overuse and encourage more sustainable use of the aquatic preserve.

Issue One – Water Quality

Goal One: Improve CBAP's long-term water quality monitoring in order to understand current status and future changes in CBAP's natural resources.

Objective One: Understand water quality trends in CBAP from existing data and through ongoing data collection.

Objective Two: Seek ways to improve existing water quality collection.

Goal Two: Restore, enhance, or maintain water quality within CBAP.

Objective One: Identify water quality problem areas within CBAP, both point and non-point sources of pollution.

Objective Two: Reduce or eliminate identified water quality problem areas.

Issue Two – Wildlife and Habitat Protection

Goal One: Conduct and maintain natural resource inventories

Objective One: Conduct and maintain a natural resource inventory of submerged resources for the aquatic preserve.

Objective Two: Inventories of wading and diving birds and their habitats within the aquatic preserve are conducted and maintained.

Goal Two: Restore habitat within the aquatic preserve.

Objective One: Restore or enhance suitable habitats or resources where feasible.

Goal Three: Protect submerged resources.

Objective One: Minimize potential damage to submerged resources of state-owned lands in the aquatic preserve.

Goal Four: Protect emergent vegetation and habitats.

Objective One: Collaborate with the US Florida Fish and Wildlife Service on management of the publicly-owned islands with Coupon Bight Aquatic Preserve and the Coupon Bight Buffer Preserve.

Objective Two: When appropriate, work with partner agencies or organizations to perform ecosystem restoration activities on upland areas.

Goal Five: Protect listed species and their habitat.

Objective One: Determine which portions of the aquatic preserve serve as habitat for listed species.

Objective Two: Protect all listed species of animals and plants.

Goal Six: Maintain or enhance the functional integrity of habitats.

Objective One: Determine the primary factors that influence the survival of marine grass beds and algae.

Objective Two: Determine the primary and secondary factors that affect the species of the hardbottom and coral patch reefs.

Objective Three: Encourage applied research directed toward enhancing the management of the preserve's resources.

Goal Seven: Identify and locate unknown archaeological and historical resources within CBAP.

Objective One: Assist with management and monitoring of existing archaeological and historical resources.

Issue Three – Public Awareness

Goal One: Enhance knowledge of natural resources in CBAP and how visitors can be good stewards.

Objective One: Improve education and outreach programs of the Florida Keys Aquatic Preserves regarding awareness of the Florida Aquatic Preserve Program and how the public can help protect it.

Objective Two: Provide a permanent space for the public to learn about the Florida Keys Aquatic Preserves.

Goal Two: Improve education and outreach programs of CBAP to protect the wildlife and habitats found within the aquatic preserve.

Objective One: Use outreach and communication on how to be good stewards of the seagrass beds and decrease prop scarring and other seagrass damage by raising awareness of how to safely navigate the aquatic preserve.

Objective Two: Use outreach and communication regarding the marine debris issue and how aquatic preserve users can reduce their impact to the aquatic preserve.

Goal Three: Increase awareness of management activities inside the aquatic preserve.

Objective One: Provide timely and accurate water quality data to the public and other interested parties

Objective Two: Improve public knowledge of aquatic preserve status and trends.

Issue Four: Public Access

Goal One: Improve visitor access potential into CBAP.

Objective One: Facilitate access to CBAP through enhanced visibility of existing designated access points.

Objective Two: Attempt to understand levels of use and potential carrying capacity limits to protect preserve resources.

Objective Three: Partner with ecotourism operators to provide visitors with an educational experience that increases their appreciation of the resources.

ORCP approval date: October 31, 2023

ARC approval date: February 9, 2024

State approval date: February 9, 2024

Acronym List

Abbreviation	Meaning
AGM	Annual Geometric Mean
CBAP	Coupon Bight Aquatic Preserve
CSO	Citizen Support Organization
DEAR	Division of Environmental Assessment and Restoration
DEP	Florida Department of Environmental Protection
F.A.C.	Florida Administrative Code
FWC	Florida Fish and Wildlife Conservation Commission
FNAI	Florida Natural Areas Inventory
FKNMS	Florida Keys National Marine Sanctuary
F.S.	Florida Statutes
FTE	Full Time Equivalent
HUC	Hydrologic Unit (Code)
NERR	National Estuarine Research Reserve
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
OFW	Outstanding Florida Water
OPS	Other Personal Services
ORCP	Office of Resilience and Coastal Protection
ROGO	Rate of Growth Ordinance
SEACAR	Statewide Ecosystem Assessment of Coastal and Aquatic Resources
SPA	Sanctuary Preservation Area
TNC	The Nature Conservancy
Trustees	Board of Trustees of the Internal Improvement Trust Fund
WIN	Watershed Information Network

Table of Contents

Chapter 1 / Introduction	1
1.1 / Management Plan Purpose and Scope	2
1.2 / Public Involvement	3
Chapter 2 / The Florida Department of Environmental Protection’s Office of Resilience and Coastal Protection	5
2.1 / Introduction	5
2.2 / Management Authority	7
2.3 / Statutory Authority	8
2.4 / Administrative Rules	9
Chapter 3 / Coupon Bight Aquatic Preserve.....	11
3.1 / Historical Background.....	11
3.2 / General Description.....	17
3.3 / Resource Description	19
3.4 / Values	37
3.5 / Citizen Support Organizations and Other Working Groups	37
3.6 / Adjacent Public Lands and Designated Resources.....	38
3.7 / Surrounding Land Use	40
Chapter 4 / The Coupon Bight Aquatic Preserve Management Programs and Issues.....	43
4.1 / The Ecosystem Science Management Program.....	44
4.1.1 / Background of Ecosystem Science at Coupon Bight Aquatic Preserve.....	44
4.1.2 / Current Status of Ecosystem Science at Coupon Bight Aquatic Preserve	46
4.1.3 / Ecosystem Science Issue / Issue One: Water Quality	51
4.2 / The Resource Management Program.....	53
4.2.1 / Background of Resource Management at Coupon Bight Aquatic Preserve.....	53
4.2.2 / Current Status of Resource Management at Coupon Bight Aquatic Preserve	54
4.2.3 / Resource Management Issue / Issue Two: Wildlife and Habitat Protection.....	55
4.3 / The Education and Outreach Management Program.....	59
4.3.1 / Background of Education and Outreach at Coupon Bight Aquatic Preserve	60
4.3.2 / Current Status of Education and Outreach at Coupon Bight Aquatic Preserve	60
4.3.3 / Education and Outreach Issue / Issue Three: Public Awareness	60
4.4 / The Public Use Management Program.....	62
4.4.1 / Background of Public Use at Coupon Bight Aquatic Preserve	62
4.4.2 / Current Status of Public Use at Coupon Bight Aquatic Preserve.....	63
4.4.3 / Public Use Issue / Issue Four: Public Access	65
Chapter 5 / Administrative Plan.....	66
Chapter 6 / Facilities Plan	68
List of Appendices.....	70
Appendix A / Legal Documents	72

A.1 / Aquatic Preserve Resolution	72
A.2 / Florida Statutes	73
A.3 / Florida Administrative Code.....	74
A.4 / Resolution No. 72-5: Coupon Bight Aquatic Preserve Designation	75
Appendix B / Resource Data.....	79
B.1 / Glossary of Terms	79
B.2 / References	83
B.3 / Species Lists	95
B.3.1 / Native Species.....	95
B.3.2 / Listed Species	114
B.3.3 / Invasive Non-native and/or Problem Species	116
B.4 /- Arthropod Control Plan	118
B.5 / Archaeological and Historical Sites Associated with Coupon Bight Aquatic Preserve.....	118
Appendix C / Public Involvement.....	119
C.1 / Public Forum.....	119
C.1.1 / Florida Administrative Register Posting	119
C.1.2 / Meeting Summary	120
C.1.3 / Additional Comments.....	121
C.2 / Advisory Committee.....	123
C.2.1 / List of invited members and their affiliations	123
C.2.2 / Florida Administrative Register Posting	124
C.2.3 / Meeting Summary	126
C.3 / Formal Public Meeting.....	130
C.3.1 / Florida Administrative Register Posting	130
C.3.2 / Newspaper Advertisement.....	131
C.3.3 / Summary of the Formal Public Meeting	132
Appendix D / Goals, Objectives, and Strategies.....	137
D.1 / Current Goals, Objectives, and Strategies Budget Table	137
D.2 / Budget Summary Table	154
D.3 / Major Accomplishments Since the Approval of the Previous Plan	154
D.4 / Gulf Restoration Priority Projects	156
Appendix E / Other Requirements	157
E.1 / Acquisition and Restoration Council Management Plan Compliance Checklist.....	157
E.2 / Management Procedures for Archaeological and Historical Sites on State-Owned or Controlled Lands.....	165
E.3 / Letter of Compliance with County Comprehensive Plan	168
E.4 / Division of State Lands Management Plan Approval Letter.....	170



Florida's Aquatic Preserve's like Coupon Bight Aquatic Preserve protect ecologically important seagrass beds.

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 42 aquatic preserves, three National Estuarine Research Reserves (NERRs), the Florida Keys National Marine Sanctuary (FKNMS), and the Kristin Jacob Coral Reef Ecosystem Conservation Area (Map 1). This 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 the Rookery Bay NERR in southwest Florida, designated in 1978; the Apalachicola NERR in northwest Florida, designated in 1979; and the 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.

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 to serve and support the growing population. 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.

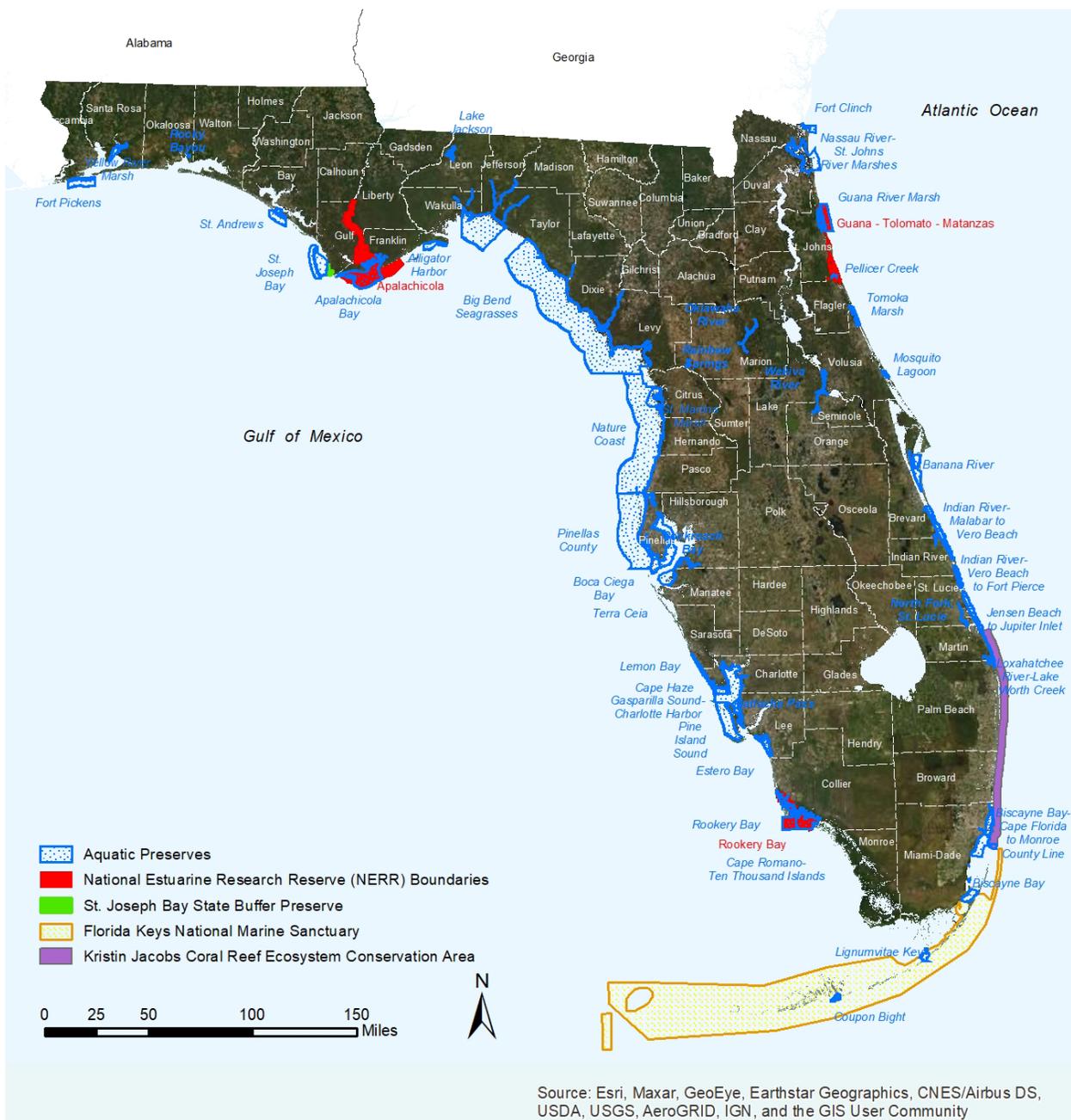
The previous plan for Coupon Bight Aquatic Preserve was approved in 1992.

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 gathered public input on the most pressing issues impacting the aquatic preserve and potential ways of addressing them. Staff then composed 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 was 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.



Map 1 / Office of Resilience and Coastal Protection system.

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 42 aquatic preserves, three National Estuarine Research Reserves (NERRs), the Florida Keys National Marine Sanctuary (FKNMS), and the Kristin Jacobs Coral Reef Ecosystem Conservation Area, 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 Beach and Inlet Management Program. The three NERRs and FKNMS 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. In the southeast region, where there is no NERR, the regional administrator oversees the Coral Reef Conservation Program, the co-management of FKNMS, and Biscayne Bay Aquatic Preserves and the Florida Keys Aquatic Preserves.

FKNMS, established in 1990 by Congress and confirmed by the Board of Trustees of the Internal Improvement Trust Fund (Trustees), covers 2.3 million acres of state and federal submerged lands. FKNMS contains unique and nationally significant marine resources, including the southern portion of Florida's Coral Reef, extensive seagrass 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 (FWC) and NOAA. Lignumvitae Key and Coupon Bight Aquatic Preserves are completely within FKNMS as well as the Card Sound portion of Biscayne Bay Aquatic Preserve.

The Coral Reef Conservation Program coordinates research and monitoring, develops management strategies and promotes partnerships to protect the northern portion of the Florida Coral Reef 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 executive coordination team in the multi-agency Florida's Coral Reef Resilience Program.

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 Resilient Florida 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 provides 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 adjacent coastal systems, the Legislature adopted the Florida Beach and Shore Preservation Act (Chapter 161 F.S.) in 1986. 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 water line. This comprehensive approach allows DEP's Beaches Programs to collaborate with coastal communities to address erosion caused by managed inlets, imprudent construction, rising seas and storm impacts. DEP's Beaches Programs consist of the following: Beach Survey Services, Coastal Engineering and Geology Group, the Coastal Construction Control Line Program, the Beaches, Inlets and Ports Program and the Beach Management Funding Assistance 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 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 with the newest aquatic preserve being designated in 2020.

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 Trustees 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 FWC law enforcement, DEP Environmental Crimes Unit, 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 (the entire Florida Keys are designated an OFW). 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 Trustees 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, a designation that 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.

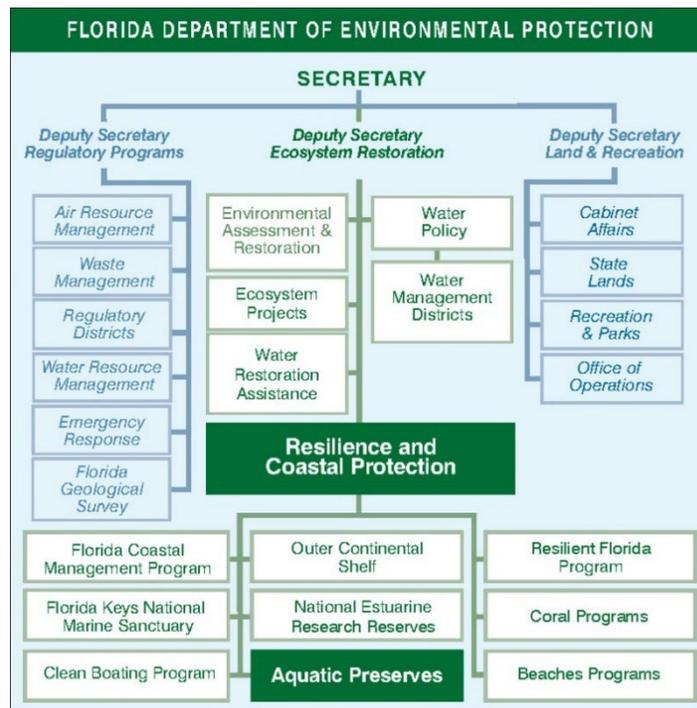


Figure 1 / State management structure.



A tricolored heron surveys Coupon Bight Aquatic Preserve.

Chapter 3 / Coupon Bight Aquatic Preserve

3.1 / Historical Background

Historical Context: Brief History of the Florida Keys

It is difficult to say when the first humans inhabited the Florida Keys, as early Native American movement south into Florida occurred during the early Holocene when sea level was more than 400 feet lower than today (Shinn & Lidz, 2018). The first settlers of Northern Florida may have arrived as early as 14,500 years ago (Halligan et al., 2016); however, much of the then-coastal land is currently covered by water and therefore numerous Native American archaeological sites are now inaccessible to researchers. The earliest definitive evidence of humans in South Florida comes from the Cutler Fossil Site (Palmetto Bay, FL) which is approximately 9,620 years old (Carr, 1986).

The Calusa and the Tequesta are recognized as two of the first indigenous groups in South Florida (Jutro, 1975; Widmer, 1988). Detailed early histories of these groups are lacking and Spanish accounts dating to the 1500s are often contradictory (Lamb, 2003); however, evidence suggests they were present in south Florida approximately 5,000 years ago (Carr, 1997).

The Calusa, who ranged from Charlotte Harbor down the west coast of Florida to the Keys and inland to Lake Okeechobee (Marquardt, 2004; Widmer, 1988), and used the Caloosahatchee River (River of the Calusa) as their main waterway and had an estimated population of 50,000 (National Park Service, n.d.-a). Existing evidence of the Calusa comes from two sources, physical evidence left behind in the form of burial grounds, ceremonial sites, and shell middens (trash piles composed of shells, inedible food parts, and other wastes) as well as written history in the form of letters and logs from early European explorers (Bertelli, 2014). It is believed that the Calusa dominated most of South Florida, including the Keys, both politically and economically (Carr, 1997; Williams, 1991) and the Spanish refer to them as “militarily powerful” in their writings (Snapp, 1999). They were considered fisher-gatherer-hunters (Marquardt, 2004) who relied heavily on the marine environment for food and used the bones and teeth of marine

animals to create tools and fishing equipment, while supplementing their diet with fruits, roots and small native mammals (Williams, 1991).

The Tequesta were a smaller, yet also powerful tribe, who were likely related to the Calusa (McNicoll, 1941) with a main settlement on the mouth of the Miami River (Palm Beach County History Online, 2009). They were hunter-gatherers who lived in huts made of thatched palms in fixed villages for a portion of the year but also spent a significant portion of the year living in the open (Palm Beach County History Online, 2009). They used dugout canoes to move from place to place in search of food such as deer, turtles, fish, alligator, shellfish, roots, plants and the occasional manatee (Palm Beach County History Online, 2009). Though it is possible that they were related, the Tequesta were often at odds with the Calusa since they were friendly with the Spanish while the Calusa were not (Andrews, 1943).

Another indigenous group, called the Matecumbes, also appear in the writings of Spanish explorers though little is known about them (Jutro, 1975). It is unclear if they were a subset of the Calusa or the Tequesta and it is entirely possible that because the Matecumbe groups were much smaller that power over them fluctuated between the Calusa and Tequesta (Goggin, 1950). The Matecumbes were excellent archers and they traveled between the Keys by canoe following the availability of local fish and fruits (Goggin, 1950). They were able to subsist on a rich diet of marine organisms including turtles, clams and fish. They obtained water by digging wells to reach a rainfall-driven freshwater lens that accumulates above sea level during the rainy season on some of the Keys (Kessel, 2004). A Spanish account states "...the Matecumbeses, and all live in camps with no fixed abodes" (Gabriel Diaz Vara Calderon to Queen Mariana, 1675 as cited in Jutro, 1975). The Matecumbes were probably somewhat migratory; however, historical records show that there were at least two well-established settlements in the Keys, Guarugunve (unknown location) and Cuchiyaga (or Guchiyagua, translating to "place where there has been suffering") on Matecumbe Key (Kohl, 1858, as cited in Jutro, 1975). It is possible that one of these settlements was on the island now known as Lower Matecumbe due to reliable freshwater sources in the form of deep sinkholes. Another village site in North Key Largo dated as 3,800 years old may be Matecumbe based on midden artifacts (Wilkinson, n.d.-f). Archaeologists continue to research the Florida Keys in order to establish how people were interacting in this environment prior to European colonization. At the time of European colonization, it is unclear what the relationship between the people of the Keys and the Tequesta and Calusa was. The people living in the Keys were also in contact with groups in Cuba by this time (LeFebvre et al., 2022).

The first documentation of European explorers in the area is by Ponce de Leon in 1513 (Lamb, 2003; Scisco, 1913). No permanent settlements were created by the Spanish or English throughout the 16th and 17th centuries; however, Bahamian and Cuban fishermen traveled to the Florida Keys regularly to fish and harvest sponges, turtles and lumber. (Lott, Dye, & Sullivan, 1996). Bahamians were mentioned in Spanish writings as early as 1680s and came to harvest wood in the Keys after depopulating the Bahamian islands of hardwood trees such as mahogany (*Swietenia mahagoni*), manchineel (*Hippomane mancinella*) and lignum vitae (*Guaiaacum sanctum*) (Leigh, 2015).

Once Ponce de Leon discovered the Gulf Stream was the fastest way to leave the Gulf of Mexico and western Caribbean, most ships utilized this course which flowed northerly along Florida's Coral Reef. European ships following this route and sailing past the Keys in the 15th through 17th centuries faced many perils, including, hurricanes, lack of fresh water, and the possibility of becoming shipwrecked among the shallow, poorly charted waters. An estimated 1,000 shipwrecks lie off the Florida Keys today (Swanson, 1997). When shipwrecked, experiences with the local Indians were mixed. In 1549, Hernando de Escalante Fontaneda was shipwrecked and captured by the Calusa, and while Fontaneda lived among the Calusa for nearly 20 years and returned home in 1575 to record his experiences, many of the shipwreck survivors including Fontaneda's brother were immediately killed by the Calusa (Ferdinando, 2010). In a different event, the Nuestra Senora del Rosario ran aground in 1605 near Matecumbe Key, and the local tribes offered the stranded passengers food, water and assistance in freeing their ship (Lamb, 2003).

From the mid-1700s onward there is little information about the Indians of the Florida Keys and it is assumed the populations were in decline (Lamb, 2003) most likely due to continued contact with

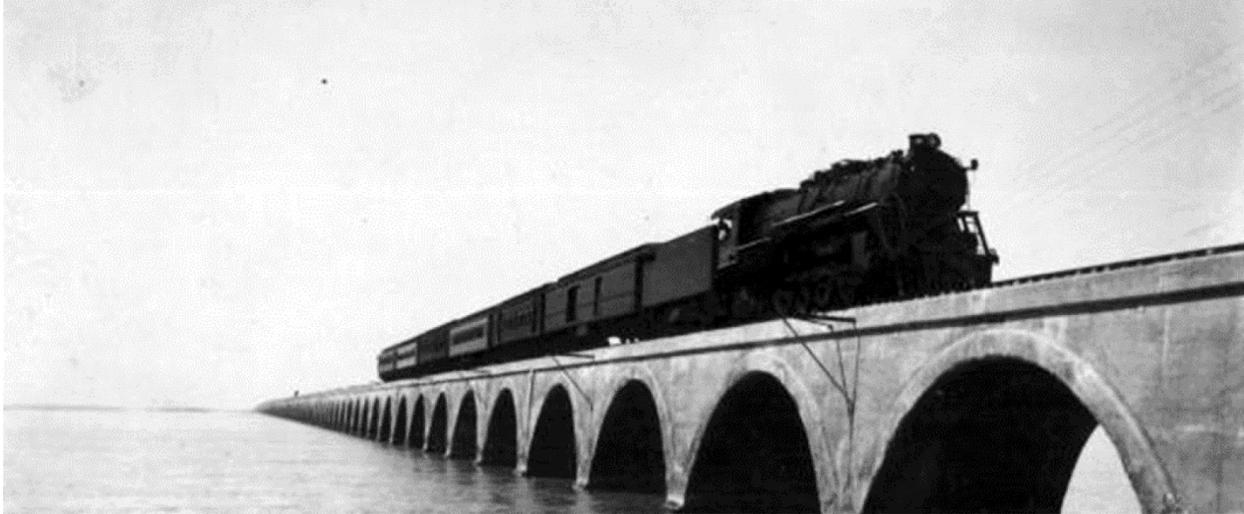
Europeans who brought diseases for which the natives had no immunity (Lott et al., 1996). In addition to disease, Indigenous groups in this area were also subjected to raids by the English governor of South Carolina. Creek people displaced from other parts of the southeast mixed with Indigenous people in Florida to form what is now the Seminole Tribe of Florida (Bidney, 2020).

While the Calusa are considered the first people to benefit from wrecking (Dodd, 1944; Lamb, 2003), pirates and salvagers roamed the Keys during the 16th and 17th centuries, looking to “rescue” the cargo off shipwrecked vessels. These salvagers became known as wreckers and included Europeans and Bahamians, and in later years- Americans (Viele, 2001). There was a fine line between wreckers and pirates, and piracy is often mentioned in early Spanish and English writings from the time (Jutro, 1975). Wrecking was a local industry based on the large number of ships carrying goods, treasure and human cargo that often ran aground among the shallow coral reefs along the Keys. Wreckers would be called upon to save the crew, salvage the cargo and, when possible, the boat itself in exchange for a portion of the salvaged cargo. In its heyday in the early 1800s, wrecking was a regulated industry under the federal court system and wrecking captains in the Florida Keys were required to be licensed by the federal court and could lose their licenses for wrongdoing (Viele, 2001). The wrecking industry moved into a gradual decline after the Civil War and petered out in the early 20th century with the advent of better navigational charts and more lighthouses (Viele, 2001).

The early 1900s were a time of dramatic change in the Florida Keys. The Keys became connected to the mainland by railway and then highway, and as a result, the population increased substantially, nearly doubling from approximately 18,000 people in 1900 to almost 30,000 by 1950 (World Population Review, 2020). In 1905, Henry Flagler began work on the Overseas Railroad with the dream of connecting Key West to mainland Florida. Flagler recognized the potential of connecting these areas as both an opportunity to build commercial hotels and as a way to connect shipping from the east coast to the west coast of the Americas through the newly announced construction of the Panama Canal (Henry Morrison Flagler Museum, n.d.). The building of such a railroad would require incredible feats of engineering innovation as the railroad would cross more than 30 islands and 75 miles of open water (Hopkins, 1986). During the seven-year construction period, Flagler employed more than 6,000 men to handle thousands of tons of steel and concrete and dig more than 20 million cubic yards of rock, marl and sand mostly without the use of machines or animals (Hopkins, 1986). Presumably, a dredge and fill operation was chosen because the shallow seagrass beds were easier and cheaper to “fill in” than the cost of constructing a bridge; however, this led to disastrous changes to the hydrology of the area and ultimately contributed to the destruction of that portion of the railway during the 1935 Labor Day Hurricane.

The railroad was completed on January 22, 1912 and Flagler rode the first train into Key West to much fanfare (Henry Morrison Flagler Museum, n.d.). While the completion of the \$50 million (Florida Department of Environmental Protection [DEP], n.d.-b) Overseas Railroad took what had been an all-day car and ferry trip from Miami to Key West and reduced it to a four-hour train ride (Grosscup, 1998). Unfortunately, the railroad was never profitable and became known as “Flagler’s Folley (sic.)”. Around the time of its completion, approximately 80 percent of Key West residents were on welfare, agriculture was on the decline, and the cigar and sponging industries had begun to relocate to the mainland (Hopkins, 1986). Flagler’s dream to attract tourists to the area and the shipping industry to the west coast came too late for his railroad (Hopkins, 1986).

In 1935, the worst hurricane in Keys’ history, the Labor Day Hurricane, made landfall in the Upper Keys and served as the death knell for the railroad. This was the most intense hurricane recorded in U.S. history, a Category Five with winds near 200 mph and the lowest pressure reading ever recorded (National Hurricane Center and Central Pacific Hurricane Center, n.d.). Severe damage was done to nineteen miles of railroad tracks and some of the tracks were shifted off the roadbed and destroyed, including the Lignumvitae pass (DEP, n.d.-b; Hurricanes: Science and Society, n.d.). Due to the buildup of water behind the Lignumvitae Causeway, water pressure built up behind the “dam” until parts of the causeway and railroad catastrophically washed out. The storm resulted in major flooding in Upper and Lower Matecumbe Keys – 375 people in the Islamorada area perished (Flanders, 1966).



The Flagler Railroad in operation.

Photo Credit: Overseas Heritage Trail State Park

Due to the financial difficulties of rebuilding and maintaining the railroad, it was decided not to rebuild, and the railroad was sold to the state of Florida and Monroe County for \$640,000 (DEP, n.d.-b). Although some tracks in the Upper and Middle Keys were completely destroyed, the majority of the railroad was intact and extremely well built, so the state used large sections of the remaining railroad to construct the Overseas Highway (US-1, SR 5). The Lignumvitae Causeway was then separated into three islands, now known as the Fills, to allow for more tidal water flow and prevent the catastrophic hurricane flooding that happened during the 1935 Labor Day Storm (Flanders, 1966). The project took 15 months and more than 1,000 men, but by 1938 the Overseas Highway from Miami to Key West was opened and the Florida Keys would forever be connected to mainland Florida (Hopkins, 1986).

History of Coupon Bight and Nearby Islands:

Coupon Bight's name originates from a shortening of the original proposed name, Curlew Pond Bight. The white ibis, a wading bird that inhabits the Florida Keys, is called a curlew by native Floridians. It is one of the more common birds you will see in the Florida Keys and also within Coupon Bight Aquatic Preserve. Hence, why the name was deemed appropriate for the aquatic preserve (Florida Hikes, n.d.). Considering the formation of the aquatic preserve, many developments were suggested in the area that were opposed (Personal communication, B. Becker, March 21, 2023). Many saw the area that is now CBAP as a valuable geological and ecological asset as it is the only area in the Florida Keys where there is a transition from Key Largo Limestone to Miami Oolite. The area also has freshwater lenses for, providing vital drinking water for many terrestrial species, including the endangered Key deer.

A major portion of the land area adjacent to Coupon Bight is undeveloped and has low density commercial and residential use. Big Pine Key is the most populated area near the aquatic preserve due to its development and larger land area. CBAP encompasses Little Munson Island, Big Munson Island, Cooks Island, Hopkins Island (collectively known as the Newfound Harbor Keys), and the southern portion of Big Pine Key known as Long Beach. While development varies across the islands, the majority of the development is focused on the land area north of US-1 with residential, commercial, institutional, and limited industrial uses. The Long Beach Area and Newfound Harbor Keys are mainly low density residential and undeveloped, thanks to the protection of the aquatic preserve (Florida Department of Environmental Protection [DEP], 1992).

Little Munson Island

Little Munson Island, also called Little Palm Island, is only accessible by boat and is completely within the southwestern portion of CBAP. The island has had a series of owners, with the original owner being Charles Newton Munson and his wife who bought three of the neighboring islands in 1923 (Big Munson

Island, Carrier's Island and Cook's Island). Newton soon employed Edward Bayly as the manager for the island, where a house and cistern was built for accommodation. After Munson's passing in 1934, the land was deeded to Ruth Ellison, his secretary. Ellison operated the island as a stopover point and as a fishing camp for a brief stint before selling it to Samuel A. Anderson, a brass manufacturer that hailed from Chicago who recruited caretakers. With the tragic aftermath of the 1935 Labor Day Hurricane, this prompted the caretakers of Little Munson to build two concrete houses situated on top of a cistern. These houses were replicated from the Red Cross houses built by the Federal Emergency Relief Administration in the Upper Keys (Wilkinson, n.d.-b). With the passing of Anderson in 1965, the island was sold yet again to John Spottswood of Key West who began to clean up the island (Little Palm Island Resort & Spa, n.d.). Many people of high ranking began frequenting the island after his purchase including President Truman, John Foster Dulles, and George Wallace (Wilkinson, n.d.-b). Spottswood contacted movie producers from Warner Brothers and the island soon became the setting of the film "PT 109," a depiction of President John F. Kennedy's World War II experiences (Wilkinson, n.d.-b). Spottswood himself played Lt. Cluster and Cliff Robertson was casted as the role of John F. Kennedy. It is rumored that Kennedy demanded they install public facilities were installed while filming. Subsequently after, John F. Kennedy arranged to have electric wires strung from the nearest Key, around 3.5 miles away (Cooke, 1992).

Post filming, John Spottswood sold it to County Johnson, whose goal was to use the island for the Caribbean Veterinarian Education Trust, an organization aimed at furthering research for 32 veterinarian professionals (Wilkinson, n.d.-b). With this goal not being fulfilled, it was sold yet again to Henry Formby who used the island as a winter escape from his home in Manhattan. Formby later tried to sell the island, which proved unsuccessful as the buyers were caught for smuggling in cocaine, in which the lease returned again to Formby. Ben Woodson and his partners (Arcadia Management Corporation) bought the island in 1986, as him and his partners were seeking a remote island to create an isolated ecologically friendly resort (Little Palm Island Resort & Spa, n.d.). After obtaining the permits, Woodson and his partners began improvements and renovations on the island. The island was then opened to the public in 1988 where it was named Little Palm Beach Club. Today, guests can now rent one of the 30 bungalows present on the island for \$5,000 a night (Wilkinson, n.d.-b).

Big Munson Island

Big Munson Island is a 100 acre island located directly east of Little Munson Island. The island was gifted to Boy Scouts of America's Florida Seabase in 1984, by Henry Formby, owner of Formby Furniture Polish. The Florida Keys Seabase is home to the National High Adventure Program, with a complete aquatic facility including sailing, deep sea fishing, kayaking, and snorkeling. The base serves over 10,000 Scouts and their leaders, with Big Munson serving as a key feature of their "Out Island Adventure" program with activities devoted to get to the Boy Scouts fully immersed into the island including fishing, snorkeling, and paddleboarding. In 1999, the building of the Brinton Environmental Center began and soon opened its doors in 2001 (Boy Scouts of America, n.d.). Located on Summerland Key, Boy Scouts leave this center and travel 5.5 miles by Polynesian war canoe to Big Munson Island (Wendell, 2017).

Hopkins Island

Hopkins Island has one residence currently and has the same water and sewage facilities as Cooks Island utilizes. Access to the waters and to CBAP are given by a mangrove-concealed canal and a 'wheel channel' that exists between Hopkins and Cooks Island, with the wheel channel also giving the residents of Cooks Island access to CBAP (DEP, 1992). No further development is planned because of the 12.5 acre size of the island (Private Islands Inc., n.d.). The island has a relatively minimal history as it has been owned by a consecutive series of owners, all for residential purposes.

Cooks Island

Cooks Island is a 67-acre island located just off Big Pine Key and towards the southwest portion of CBAP. Newton Munson originally owned the island but was willing to trade the island for a motorboat, leading him to place an ad in a yachting magazine. While there is no written account of how Munson

gave away the island, allegedly Captain Percy Cook (related to Captain James Cook) saw the advertisement and inquired about the island. While Cook had little money, he was a big game hunter who wanted to have his own private island. In order to prove his value, Munson took Cook out on his sailboat in the neighboring area of the island. Munson spotted a sea turtle and asked Cook how he would capture the sea turtle. Shortly thereafter, Cook jumped into the water and maneuvered the sea turtle to where Munson could lasso it in and capture it. After showing his merit, it is rumored that the island was given to Cook for his impressive feat. After he acquired the island, Cook built a fishing lodge that served as a popular vacation destination (Little Palm Island Resort & Spa, n.d.).

The Atlantic side of Cooks Island had planned to have 20 single family developments, but as of today only 11 are developed with residences. Electricity is available through an aerial transmission line that goes through the waters of CBAP but is not available to residents of Cooks Island as it is privately owned and exclusively used for Little Munson Island. To combat this, the island is now powered exclusively by solar power and the freshwater is provided by cisterns (Little Palm Island Resort & Spa, n.d.). The island has also recently been nicknamed “Lethargy Island,” due to its relaxed atmosphere (Islands of America, 2003).

Big Pine Key

Big Pine Key, an island located north of Coupon Bight, is named for the pine forests that cover a large swath of the island. A portion of Big Pine Key is located in the aquatic preserve, specifically south of US-1. Long Beach Road extends southwest into another portion of Big Pine which includes the CBAP kayak launch and three commercial resort facilities - Big Pine Key Resort, previously known as the Big Pine Key Fishing Lodge, an RV resort, and two bed and breakfasts located within the preserve’s boundaries: Barnacle Bed and Breakfast and Deer Run on the Atlantic.

Big Pine Key’s history, specifically as it pertains to the region in the aquatic preserve, is not very well known. Big Pine Key was settled by a select few families in 1843 (Born, 2007). While a large swath of people occupied the Upper and Middle Keys in the early 1800s, there were few people on Big Pine Key due to its mosquitos and the inability to eradicate them, until screen doors and effective methods of mosquito control arose. By 1870, only one person called Big Pine Key home and that was George Wilson. George Wilson was a charcoal burner, a complex process that was needed for cooking. The wood was cut, hauled, and stacked in a pyramid. The pile would then be covered with seaweed to contain the heat and prevented oxygen exchange allowing full combustion, with the fire being in the center and the rate controlled by openings in the top and bottom. The process of charcoal burning was lengthy, and the finished product was sent to Key West (Wilkinson, n.d.-a).

No homesteading was possible until the first original survey of land on Big Pine Key took place in 1873, with the first property owner on Big Pine being William Wood, a Bahamian shipbuilder and captain (Wilkinson, 2002). This soon began to change, as many railroad workers constructing the Overseas Railroad, an extension of the Florida East Coast Railway, came south and upon on the area of Big Pine Key as their temporary residence. While the creation of the railroad affected much of the Keys, the impact it had on Big Pine was relatively minimal at the time as the population was so small. The Big Pine Inn, which later burned down in 1977, housed many of the railroad workers. In 1912, the railroad was officially finished (Wilkinson, n.d.-a).

City Electric brought power lines for the island in 1953, which drastically changed the real estate market on Big Pine. The island also saw a decrease in some of its wildlife, such as the Key deer, with fewer than 50 remaining on the island due to hunting and a loss of habitat due to housing developments. In 1949, President Truman established the nearby Everglades as a National Park. Shortly after, the National Key Deer Refuge was established in 1957 by the National Wildlife Federation. Directly adjacent to the preserve, the Refuge is now managed by U.S. Fish and Wildlife Service (FWS) to protect and preserve the Key deer and other resources located on Big Pine Key (Born, 2007).

At the southernmost portion of Big Pine, there is a housing development that falls within the Long Beach area of the preserve, where access is provided by Long Beach Road which distinguishes the berm from the mangrove wetlands of CBAP (DEP, 2022a). There were many planned housing developments within

CBAP that fell through due to the establishment and protection of the preserve. The undeveloped areas of Big Pine Key that fall within the aquatic preserve are zoned Areas of Critical County Concern, established in 1986 by the Florida Environmental Land and Water Management Act of 1972, after an increased demand for land (DEO, 2017).

Seacamp Association is north of the aquatic preserve and is a private non-profit 501(c)(3) dedicated to marine science education. This particular association has had a strong tie to the formation of the aquatic preserve. Irene Hooper starts Seacamp, with its original location being on Summerland Key until she obtained a mortgage on Big Pine and moved the base of Seacamp in 1966. Today, this facility is on a ten-acre peninsula within CBAP. The facilities within this region include dormitories, classrooms, a cafeteria, and a marina. These are 18-day sessions where children can come to the area and choose classes that interest them including marine science, scuba diving, sailing, windsurfing, etc.

A developer (Wacouta Corporation) had secured permits to build a residential development and canals within the boundaries of today's aquatic preserve, except for the final vote before the cabinet. The application was advertised in the Key West Citizen and many objections were received due to zoning and not considering the conservation areas. Within the sale, the applicant (Wacouta Corporation) would convey to the trustees that 4.63 acres of uplands are seen as ecologically valuable as conservation lands.

Barrett Johnson took then director of Seacamp, Irene Hooper, to see and talk to the Florida Cabinet. When decision regarding the development of the marina came before the Cabinet, the decision was made to postpone to a later date. There were also other developments proposed including a 500-unit canal development, and even a proposal to subdivide the region into long thin strips from the northernmost portion of the Bight to the south (Personal communication, B. Becker, March 21, 2023). Barrett Johnson, along with members of the public, was adamant that area within the Bight not be developed until eventually the lawyers' developer client dropped the idea to develop within this area (Personal communication, B. Johnson, March 20, 2023).

3.2 / General Description

International/National/State/Regional Significance

CBAP is one of two aquatic preserves that fall entirely within the Florida Keys. With intense development having occurred around the Keys, it makes these protected areas places of vital importance. CBAP was established in 1969 by the Florida Board of Trustees to ensure that the natural resources within the boundaries would remain for future generations to enjoy (DEP, 2022a). In order to protect the existing water quality, the aquatic preserve was designated an Outstanding Florida Water (OFW) in 1979 (Rule 62-302.700 (9), Florida Administrative Code) by DEP (DEP, n.d.-g). The aquatic preserve falls within the Florida Keys National Marine Sanctuary (FKNMS) which affords the area additional protections through both state and federal laws.

CBAP is the southernmost aquatic preserve in the state. The recreational opportunities, beautiful scenery, and abundance of flora and fauna make this aquatic preserve a unique treasure in the Florida Keys. Directly offshore is North America's only coral barrier reef which draws millions of tourists from around the world each year, for fishing, boating, snorkeling, and diving. Tourism in the Florida Keys is, and has been, a driving force within the economy for decades. More than five million people visited the Keys in 2018, spending more than two billion dollars (Rockport Analytics, 2019), and more than half the residents are employed in a tourism related field (Monroe County Tourist Development Council, 2020).

While there are no large marinas in CBAP, people are utilizing the area within the aquatic preserve, as well as surrounding it. There are no public boat ramps directly within the aquatic preserve, but two less than one mile away that are frequently visited (Eden Pines and Spanish Harbor boat ramps). Many residential homes and commercial business surround the aquatic preserve.

Newfound Harbor Key Sanctuary Preservation Area is also mostly within CBAP and is a half mile square inshore patch reef that offers a plethora of natural communities to view while snorkeling. These species include boulder corals, star corals, butterflyfish, surgeonfish, damsels and wrasses (FKNMS, n-d.). This



Map 2 / Coupon Bight Aquatic Preserve

area is also the only inshore preservation area in the Florida Keys, which contributes to the biological diversity and importance of the area.

Bahia Honda State Park, located eleven miles north of Big Pine Key, is a popular spot for picnicking, swimming, and snorkeling. Anglers will often use the shallow sand flats to fish for the common bonefish (*Albula vulpes*), permit (*Trachinotus falcatus*), and barracuda (*Sphyraena barracuda*). Bahia Honda State Park is now under the management of the Florida State Park service and attracts many visitors to the surrounding area.

Location/Boundaries

CBAP is located in the lower half of the Florida Keys in Monroe County. It lies south of the main land mass of Big Pine Key and is bounded on the north and east by the extension of that land area and on the south by the 12-foot depth contour in the Atlantic Ocean. The western boundary goes from the 12-foot Atlantic contour along the depth of the contour of Newfound Harbor Channel in a north-easterly direction to the southwestern tip of Big Pine Key (DEP, 2022a). The resolution establishing Coupon Bight Aquatic Preserve and its accompanying legal description can be found in Appendix A.4.

3.3 / Resource Description

Surrounding Population Data and Future Projected Changes

Beginning in the 1830s, the Florida Keys has seen rapid population growth almost every decade with some decade's population growth was close to or above 100 percent (World Population Review, 2020). In 1972, the Regional Evacuation Transportation Analysis, the model used to determine if a local area can evacuate in an emergency, determined that the Florida Keys would not be able to evacuate its residents in 24 hours for a hurricane if the building rates continued at their current level due to the existence of only one road in and out of the islands (Forestell, 2020). Growing concerns of evacuation times began to rise, but another decade of more than 20 percent population growth continued. Eventually, Monroe County implemented a Rate of Growth Ordinance (ROGO) in 1992 to slow the population growth by reducing the number of residential building permits that were granted (Monroe County Growth Management Division, n.d.). This program also originally planned to put a stop to new building permits in Monroe County entirely in 2023. Since then, the population for the Florida Keys has remained relatively stable. In 2019, Monroe County had a population of 77,823 (Bureau of Economic and Business Research, 2020) with about 5.1 million additional visitors from tourism (Rockport Analytics, 2019). Big Pine Key, which falls partially within the aquatic preserve, had 4,887 residents in 2018 (United States Census Bureau, 2018).

Topography and Geomorphology

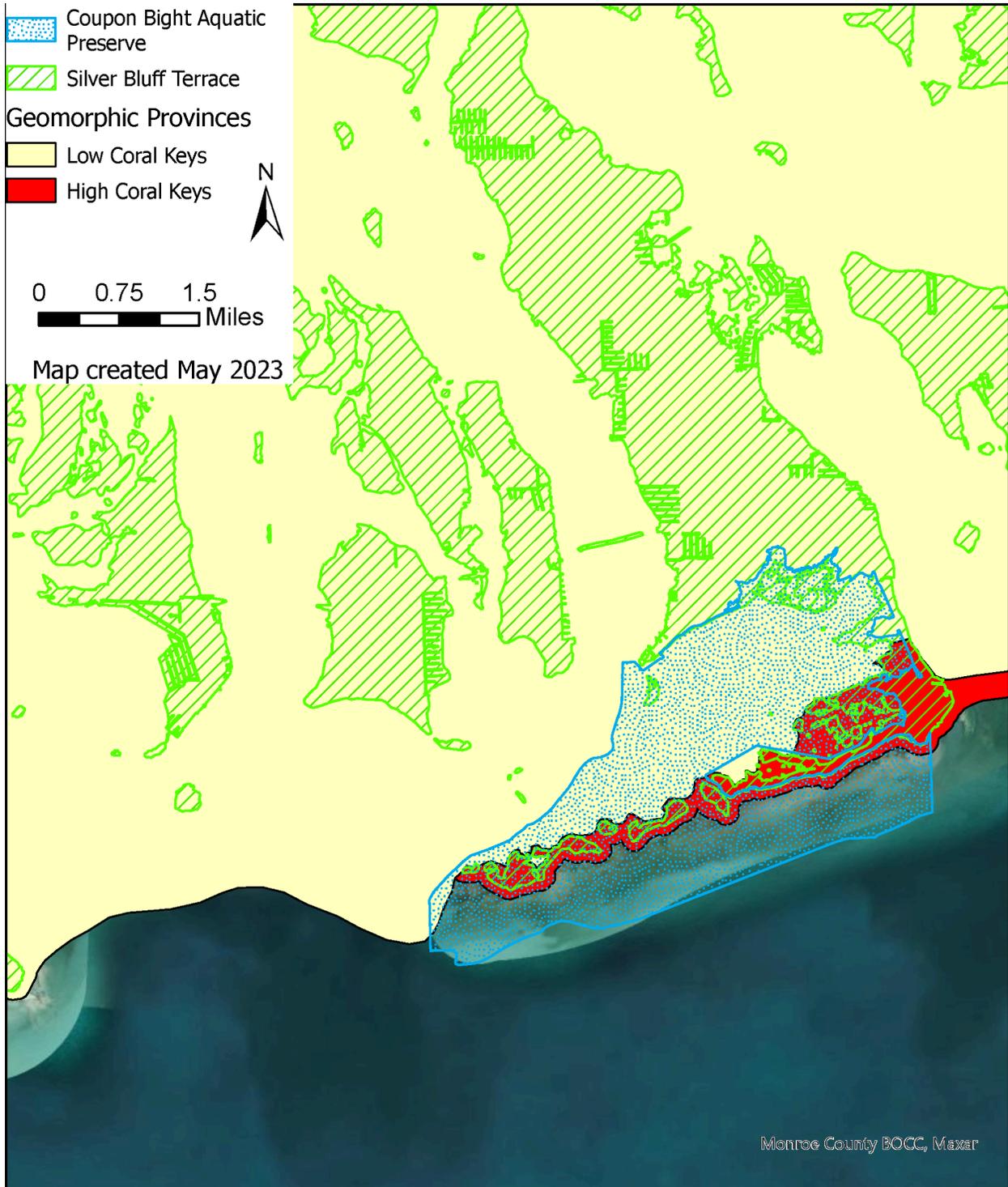
All of the Florida Keys, including the aquatic preserve, sit atop the Floridian Plateau, a submarine extension of peninsular Florida which extends out to the continental shelf to the 600' bathymetric line (Chiappone, 1996). Between the Florida Keys and Florida's Coral Reef lies Hawk Channel, a V-shaped basin sloping downward from the islands of the Keys, to water up to 34 feet deep, before sloping upward again to meet the reef crest. Beyond the reef and about seven miles off the land is the edge of the continental shelf where the water depth drops off and quickly reaches thousands of feet deep.

The Florida Keys are divided into three regions based on their geomorphology and geology. The Upper Keys, from Soldier Key to Lignumvitae Key, are distinguished by Key Largo Limestone, remains of the ancient coral reefs that used to surround the area. The porous aggregate of the fossil skeletal remains can cause elevations of 15-18 feet in some portions of the keys. The area has little water exchange between Florida Bay and the Atlantic, causing well-developed reefs due to the absence of freshwater influx (Multer, 1977; Hoffmeister & Multer, 1964). The Middle Keys region is also characterized by Key Largo Limestone with islands that run northeast-to-southwest, but have large breaks between the Keys here. These serve as tidal channels between Florida Bay and the Atlantic, and the resulting influx of water from Florida Bay means reefs in the Middle Keys are generally less developed than those in the Upper Keys. The Lower Keys region is characterized by Miami Limestone and islands oriented east-northeast to west-southwest, and less Florida Bay influence. Florida Bay is a large 700 square mile (1,800 square km) estuary composed of shallow basins separated by seagrass-covered mud banks, with water depth ranging from 5-16 feet (1.5-5 meters) depth. Excepting a few of the wettest years, it is a negative estuary system, where evaporation is greater than freshwater input from the Everglades and rainfall (Fourqurean, Zieman, & Powell, 1992).

CBAP also lies downstream of onshore developments on Big Pine Key. The island also has shallow, subsurface freshwater lenses, a convex layer of groundwater that floats above the denser saltwater and can be found on coral islands such as Big Pine Key. These lenses provide a consistent water supply for any vegetation growing on the island or surrounding it, accounting for much of the diversity of the plant and animal species that occur in the area, including the namesake, salt-intolerant pine trees (Spennemann, 2006). These freshwater lenses also allow for a water source for the Key deer, a species who would not survive in the area without the lenses. Water quality within the aquatic preserve is a prominent issue as increases in land density on Big Pine Key which could subsequently lead to issues in CBAP.

Coupon Bight and south of Big Pine Key, is composed of Key Largo Limestone, a fossilized coral reef from the Pleistocene era. It is overlain with Miami Limestone or Miami oolite, composed mainly of ooids (small coated carbonate grains) with quartz sand and mollusk fossils (Halley and Evans, 1983). The

Miami limestone was formed in a high energy, shallow water environment with low silt content and high levels of calcium carbonate. The spherical ooid films were cemented together in dense layers around a core material, usually a grain of sand (Multer, 1977). The junction of the Key Largo Limestone and the Miami Limestone is exposed near the Long Beach portion of CBAP, at the eastern boundary of the preserve. It is often difficult to differentiate between the submerged portions of the intersection as much



Map 3 / Geomorphology of Coupon Bight Aquatic Preserve

of it has been buried by silt and detritus. Howard et. al.'s (1970) observations describe the Key Largo Limestone as underneath around one third of CBAP.

In the past, it has been calculated that sea level rose slowly at a rate of about two inches every 100 years (Hoffmeister, 1974; Wanless, 1969); however, more recent calculations by National Oceanic and Atmospheric Administration (NOAA) scientists show an acceleration of sea level rise due to thermal expansion of the ocean and increased glacier and ice sheet melting (Sweet et al., 2017). In 2017, scientists were predicting with very high confidence (greater than 90 percent chance) that sea level will rise as much as 8.2 feet by the year 2100 (Lindsey, n.d.). The middle to higher end of these predictions would place much of the Florida Keys underwater, including a significant part of the elevated lands within CBAP.

Geology

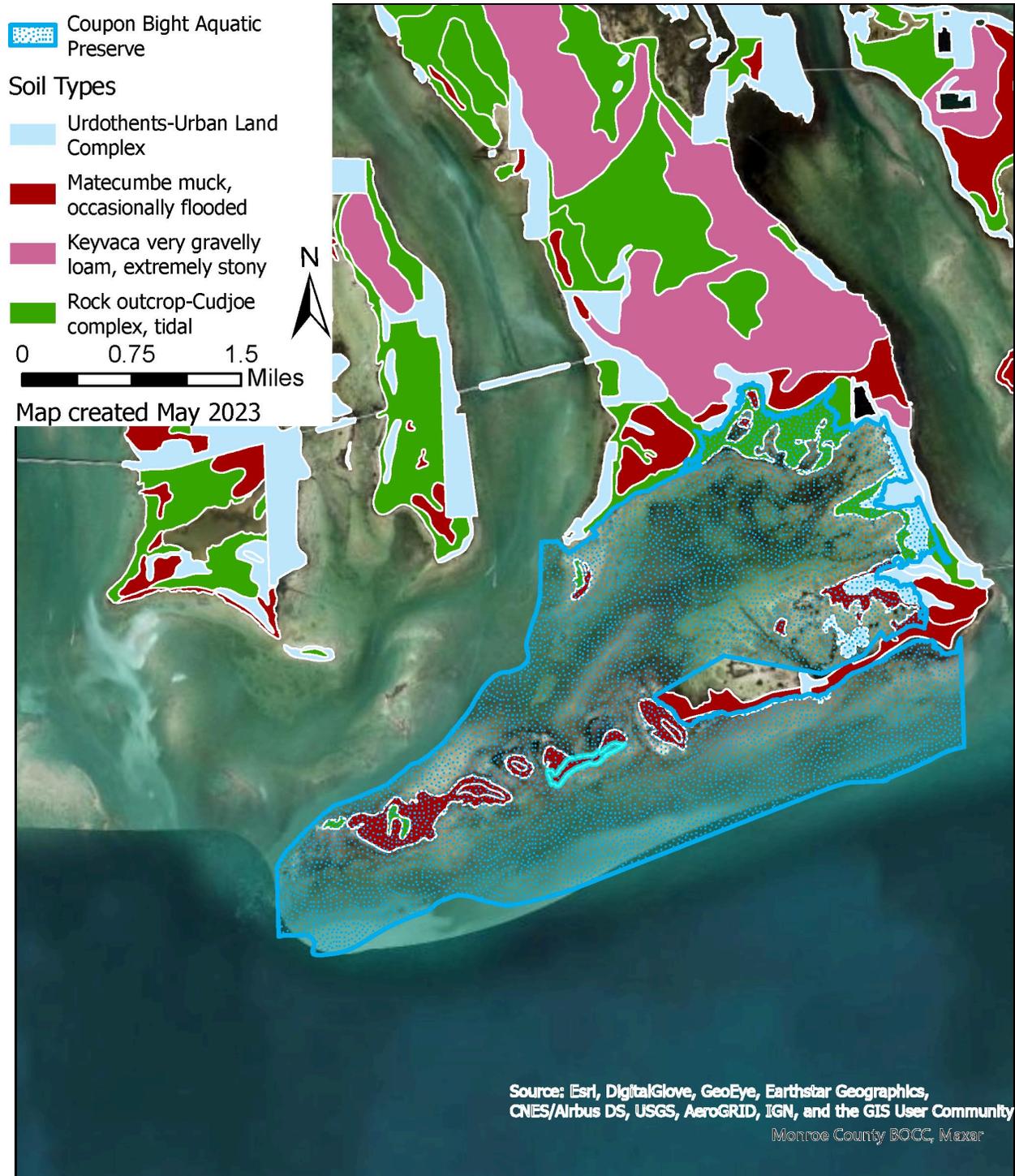
The Florida Keys are an archipelago formed from ancient coral reefs, starting in Key Biscayne, Miami and terminating in the Dry Tortugas (Chiappone, 1996). The formation of the Florida Keys began during the Sangamon Interglacial Period of the Pleistocene, 125,000-100,000 years ago. As the global climate warmed, ice sheets melted and sea level rose 20-26 feet (six to eight meters) higher than present levels, completely submerging the entire Florida Platform (Chiappone, 1996). The shallow waters and warm temperatures in the area that would become the Florida Keys were favorable for reef-building corals and other carbonate-secreting organisms (MacIntyre, 1988). By the end of this interglacial period, the submerged Florida Keys had formed an almost continuous reef system composed of similar stony coral species found on present day reefs (Hoffmeister & Multer, 1968). During the last major glaciation period (the Wisconsin Ice Age) approximately 28,000-11,000 years ago, the waters began to recede as polar sea ice reformed (Wilkinson, n.d.-d), and sea level dropped to approximately 100 feet (30 meters) lower than present day. Most of the Florida Keys and Florida Bay became swamp and then dry land which allowed the reefs and other carbonate deposits to cement into rock through freshwater processes, which are now referred to as Key Largo Limestone and Miami Limestone (Chiaponne, 1996). During the current Holocene interglacial epoch, sea level rose to its present level, and as relatively higher points, the Florida Keys remained emergent as a chain of islands, differentiated from mainland Florida.

There are two distinct geologic regions in the Florida Keys with a transition zone in Big Pine Key. Key Largo Limestone is the bedrock of the coral keys, from Soldier Key to the eastern edge of Big Pine Key, and Miami Limestone (formerly called Miami Oolite) is the bedrock of the "oolite keys" from Big Pine southwest (Hurt, Noble, & Drew, 1995). Key Largo Limestone is a porous aggregate of fossilized coralline algae and coral skeletons (Chiaponne, 1996) – essentially exposed areas of reef in which many of the coral species are recognizable as the progenitors of species that inhabit the reef today (Hoffmeister & Multer, 1964). Three major rock types are found in the Key Largo Limestone: calcarenite, coralline limestone, and calcilutite. Calcarenite is composed of mollusks, calcareous algae (mainly *Halimeda* spp.), coralline algae, bryozoans, and coral fragments. Coralline limestone is composed mainly of large, intact coral heads and makes up almost half of the Key Largo Limestone. The community assemblage preserved in the coralline limestone appears to be dominated by large boulder corals such as boulder star coral (*Orbicella annularis*), massive starlet coral (*Siderastrea siderea*), and knobby brain coral (*Pseudodiploria clivosa*), with branching corals (*Acropora* spp.) being notably absent. Calcilutite is composed of well-cemented fine sediments (Hoffmeister & Multer, 1964). At its thickest, Key Largo Limestone is 60m deep, representing robust reef growth not currently seen along Florida's Coral Reef.

The Miami Limestone serves as the substratum of the Lower Keys from Big Pine Key southwest, which overlays and formed at the same time as the Key Largo Limestone in the Lower Keys (Shinn & Lidz, 1988). The Key Largo limestone extends through the westernmost section of Newfound Harbor Keys within CBAP and ends at Newfound Harbor Channel, 110 miles away from the beginning where Miami Limestone begins (Hoffmeister and Multer, 1968). The calcium carbonate precipitated out of the seawater via inorganic precipitation and formed aragonitic ooliths about 0.5mm in diameter (Hoffmeister & Multer, 1968). Ooids are small spherical grains which are formed in high-energy shallow water, created when a particle of sand or other nucleus is coated with layers of calcite or other minerals (University of Kansas, n.d.). When the sea levels were at their lowest during the Pleistocene, ooid bars that were

exposed were further subjected to rainwater and subsequent calcite precipitation, cementing the ooids into oolite rock (Chiappone 1996). It is also believed that the orientation of the Lower Keys came about from underwater topography that was shifted by tidal currents (Hoffmeister & Multer, 1968).

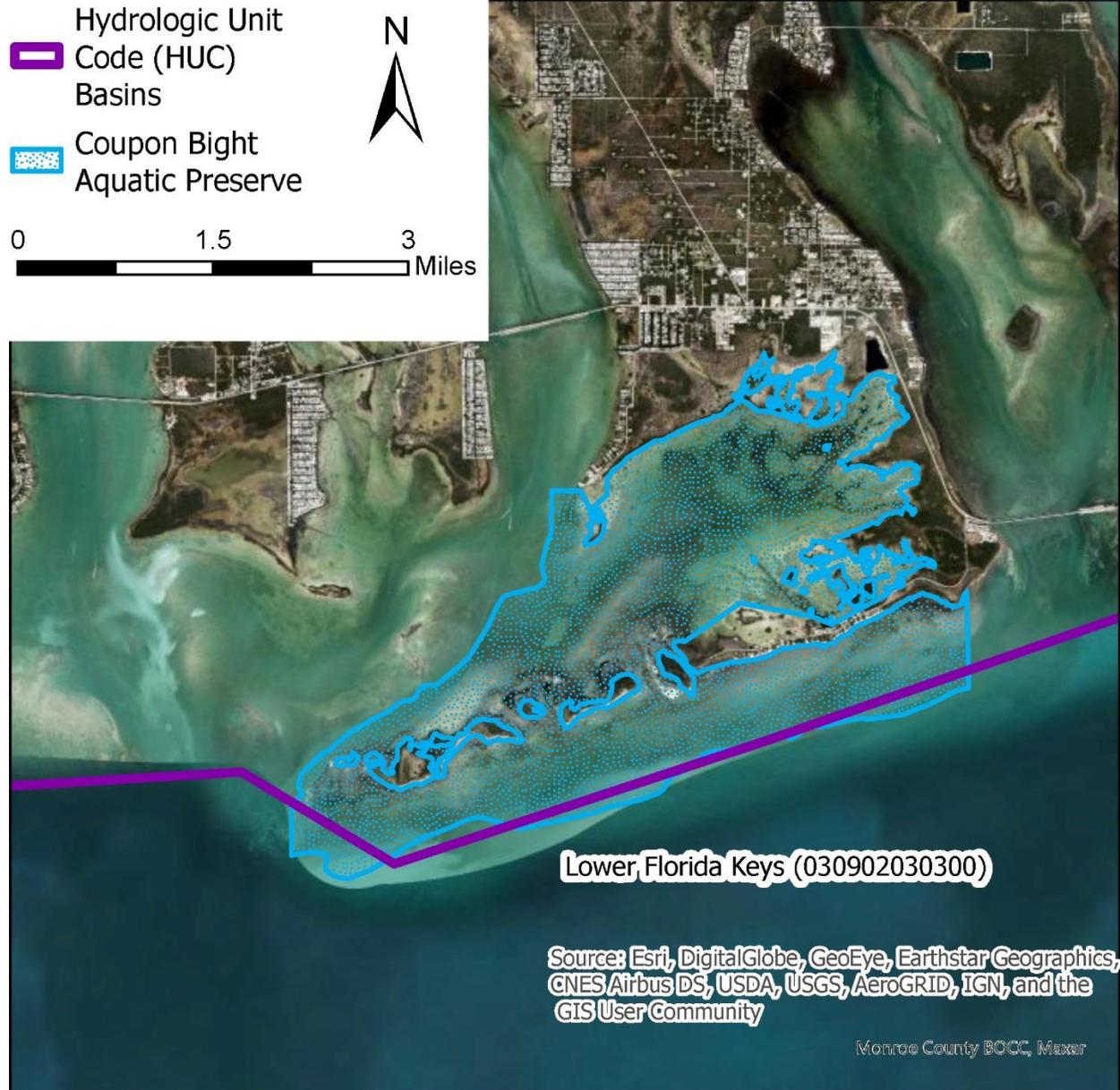
There are no known mineral resources within the aquatic preserve.



Map 4 / Soils of Coupon Bight Aquatic Preserve

Soils

There are four different soil types found within and near CBAP- Matecumbe muck, Keyvaca loam, Udorthents-Urban land complex and Rock outcrop-Cudjoe complex (United States Department of Agriculture, 2019). Rock outcrop-Cudjoe complex is associated with the salt marsh and mangrove regions within Big Pine Key and surrounding islands and is in regions with exposed bedrock. Udorthents-Urban land complex is placed in constructed upland regions where the land has been altered from dredging or other developments.



Map 5 | Coupon Bight Aquatic Preserve Drainage Basin

Hydrology and Watershed

The United States is divided and sub-divided into watersheds, termed hydrologic units (HUCs) by the United States Geologic Service. CBAP falls within the Southern Florida hydrologic draining subunit (HUC 6 – 030902, Florida Bay to Florida Keys), which includes draining waters roughly from Lake Okeechobee south. On a finer scale, most of CBAP is within the Lower Florida Keys HUC – 030902030300. A freshwater lens is found within CBAP, which allows for the wide range of diversity regarding the flora and

fauna life seen within the aquatic preserve. There are two separate lenses, one in the northern half of the island and another in the southern section of Big Pine Key. The depth configuration of the lenses vary based on a variety of factors including rainfall, evapotranspiration, lateral and vertical losses, and pumpage from local wells in the area (United States Geological Survey, 2021).

The Florida Keys are bordered by Florida Bay to the north and the Atlantic Ocean to the south. The hydrology of CBAP is controlled by three main factors: currents, wind, and tides. The main current that influences the area is the Florida Current which is formed from the joining of the Yucatan Current and Gulf of Mexico Loop Current (NOAA, 2023). The Florida Current later becomes the Gulf Stream in the southeastern United States after passing the Florida Keys. The Florida Current has three temperature layers - the upper layer water is warmest, with temperatures above 24 degrees Celsius, the mid-level ranges from 12-24 degrees Celsius and the cooler lower layer with temperatures ranging from 7-12 degrees Celsius (Chiaponne, 1996).

The tide cycles within the Florida Keys are semidiurnal with two highs and two low tides within each lunar period. The water within Florida Bay and the Atlantic Ocean differ, as Florida Bay contains mostly shallow, warmer, and higher salinity water. In contrast, the Atlantic Ocean is vastly deeper, cooler, and less saline. The tidal flood enters into CBAP with the channel on the north of the bay mouth bar and through the passes between Newfound Harbor Keys. The tidal ebb moves in the opposite direction (Howard et. Al, 1970). Florida Bay and Atlantic Ocean mix in the Lower Keys due to the numerous north/south channels that encompass the area. The uneven movement of water creates a division of tides in the shallow waters of the keys. Tidal levels can fluctuate at the same time in places only a small distance away because of the friction of the shallow waters of the Florida Bay and uneven distribution of water between the Upper, Middle, and Lower Keys (Chiaponne, 1996). Predominantly, water levels in Florida Bay seem to be slightly higher than those that are in the Atlantic, meaning the water moves from the bay to the ocean (Reich et. Al, 2002). Due to the way the water moves, pollutants in the ground water or run-off from the land have a likelihood of reaching the Atlantic side, which will eventually hit the reef (Darden, 2001). This can further alter the productivity and reef building ability of the coral (Nelson, 2015).

There is a distribution of patch reefs within Coupon Bight that are affected by the proximity of the two channels to the east and west of the aquatic preserve boundaries and the barrier that is created by the Newfound Harbor Keys. The turbid waters from Pine Channel are deflected to the southwest by Little Munson and Big Munson Island and the bay mouth bar on the west side of Coupon Bight. The water circulation surrounding the islands are affected by bars that shoal the passes between the islands. The land mass of Big Munson acts as a barrier to the cool and turbid waters of Florida Bay and Coupon Bight which allows the larger patch reefs to survive, where they lie in the sheltered side of the island (DEP, 1992).

Hydrological regime within Coupon Bight also plays a part in the diversity and distribution of the biological communities found within the area of the lagoon. The water flow and circulation varies based on its proximity to the Big Pine Channel, where diversity varies based on the areas where more water volume is circulated (Howard et. al, 1970). Most of the aquatic preserve also has relatively shallow water, where wind plays a role in the suspension of sediments.

The Coupon Bight area has experienced a variety of long-lasting impacts to the water quality and hydrology to the area. Like much of the neighboring Keys, the formation of the Overseas Highway and other development caused alterations to the natural topography of the aquatic preserve. A preexisting mangrove creek was connected by Spanish Harbor Channel at the southeast corner of the CBAP, but due to the construction of the US Highway 1 and the marina/campground that exists at the channel's edge, this creek has been closed (DEP, 1992). Little research has been done concerning the past activities that has potentially altered the hydrology of the waters in CBAP, such as the construction of the railroad. The construction of the railroad also most likely resulted in increased turbidity and sedimentation, which may have affected the reefs within CBAP, as shown by below average coral rates from 1905-1912 (Hudson et. al, 1989). Tidal flow rate was also altered, nearly doubling in some regions where open channels remained changing the benthic community composition and previously deeper channels became shallow in which flow rate was reduced (Gallagher, 1997).

Partially as a response to water quality degradation, Congress passed the Florida Keys National Marine Sanctuary and Protection Act, creating the FKNMS and shifting many agencies to create a water quality monitoring program. The Water Quality Protection Program, administered by the U.S. Environmental Protection Agency and DEP, was created in 1994 to “protect and improve water quality, coral reefs, seagrasses, fisheries and recreational opportunities” and was the first of its kind in the nation (Diersing, 2009). The program focuses on making corrective action recommendations to improve water quality, such as the creation of “No Discharge Zones” for marine vessels in FKNMS waters in 2002, the creation of a stormwater management master plan for Monroe County, the creation of mooring fields and mobile pump-out services for live-aboard vessels and the continuous monitoring of water quality, corals reefs, and seagrass beds since its establishment (United States Environmental Protection Agency, 2013). This type of anthropogenic nutrient loading has created excessive macroalgal growth causing it to overgrow seagrasses and corals and even diminish the recruitment of juvenile corals (Lapointe et al., 2004). Over the past three decades, Florida’s coral reef has experienced increases in macroalgae which is correlated with losses of hard coral cover, meaning an environment subsisting of largely soft coral and algae (Lapointe et. al., 2004).

To support the many functions it serves and the attention it has received from the public, the Florida Keys were designated as part of the Areas of Critical State Concern Program in 1974. This program is “designed to protect resources of state significance from uncontrolled development that would cause substantial deterioration of such resources” (Florida Department of Economic Opportunity, 2019). The program aims to “protect and improve the nearshore water quality of the Florida Keys” with wastewater improvement projects, such as ensuring that no homes in the Florida Keys will be using septic or cesspit systems (Florida Department of Economic Opportunity, 2017).

Climate

Due to its proximity to the Gulf Stream and the Gulf of Mexico the Florida Keys has a mild, tropical climate, with hot humid summers and short mild winters punctuated by occasional cold fronts. June through September are the hottest months and December through February are the coolest (National Weather Service [NWS], n.d.). The Florida Keys averages 259 days of sun per year with an average annual temperature of 77.8°F and daily temperature variations of approximately ten degrees throughout the year (NWS, n.d.). The average annual high temperature is 82.4°F and the average annual low temperature is 73.2°F (United States Climate Data, n.d.). The Florida Keys experience high humidity year-round with Key West being the most humid city in Florida, having average summer dew points between 74 and 75 and winter dew points reaching over 55 (Zierden & Griffen, 2014).

Average annual precipitation is 39.75 inches (United States Climate Data, n.d.), and more than 60 percent of the average rainfall occurring between June and October (NWS, n.d.). The average annual wind speed is 10 mph (NWS, n.d.) with gentle breezes predominately out of the east-southeast in the summer and stronger winds predominantly out of the east-northeast in the winter.

Tropical storms and hurricanes are a constant threat in the Florida Keys. Florida’s location near the warm waters of the Gulf of Mexico and Caribbean Sea make it more likely than any other state to get hit by a hurricane. On average, a hurricane strikes Florida every other year and a strong hurricane strikes once every four years (Malmstadt et al., 2009). Hurricane season lasts from June 1 through November 30, when the Gulf of Mexico and Atlantic Ocean surface waters heat up and wind shear is at its lowest. The months of August through October account for 84 percent of hurricanes that make landfall in Florida (Malmstadt et al., 2009). Hurricanes impact Florida in many ways. Damage to residential and commercial properties, infrastructure, and the environment is primarily caused by high winds, waves, and storm surge; however, secondary effects, such as decreased salinity due to large amounts of rainfall, freshwater runoff, and lack of sunlight due to increased turbidity can have a large impact on the environment and local flora and fauna including coral reefs over the long term (Lugo, et al., 2000).

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 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).

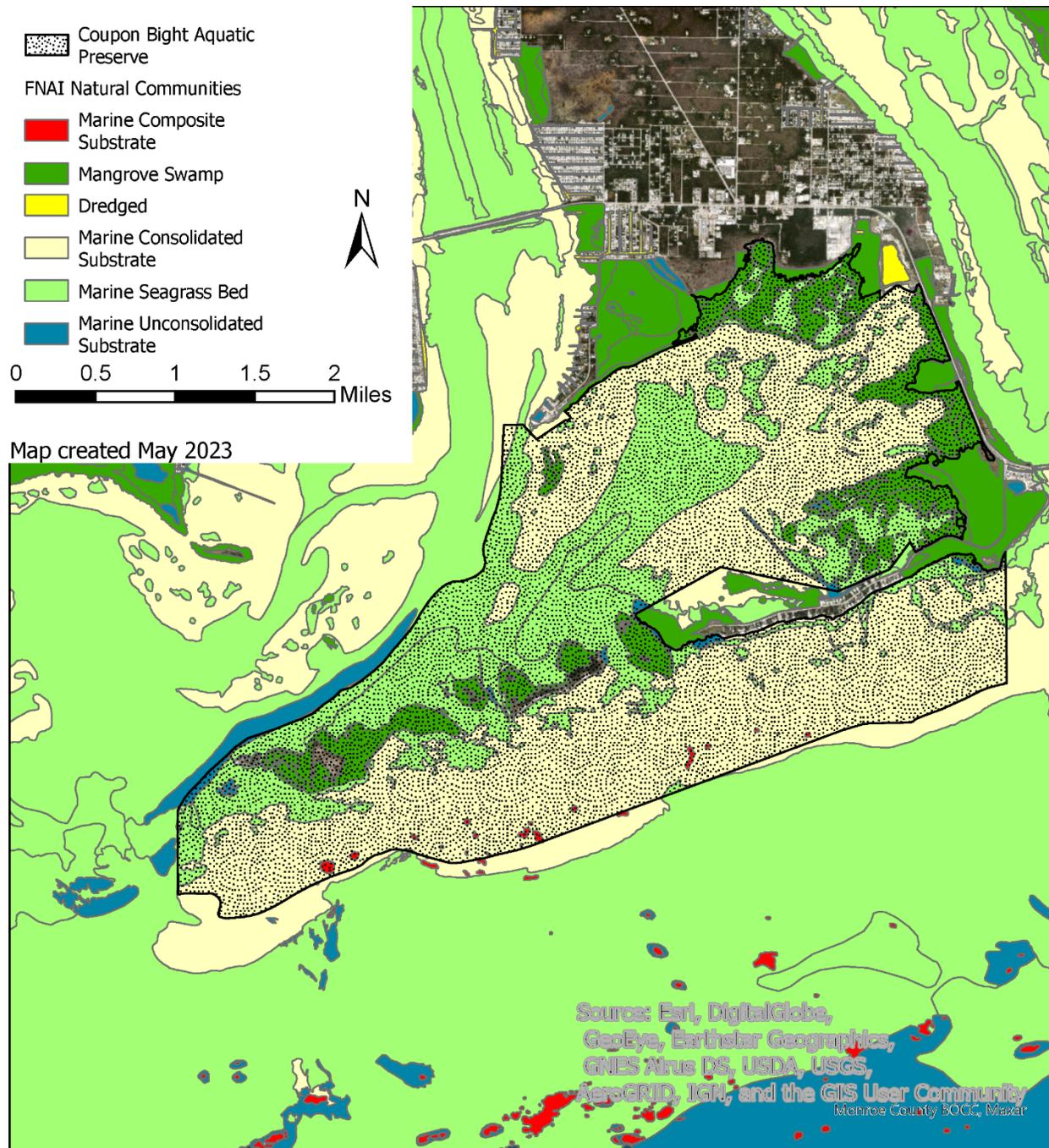
FNAI Natural Community	Global Rank	Local Rank	Acreage	Percentage of Acreage
Coral Reef/Hardbottom	G2/G3	S1/S3	2962	54.9%
Mangrove Swamp	G5	S4	648	12.0%
Seagrass Beds	G3	S2	1712	31.7%
Unconsolidated Substrate	G5	S5	47	0.9%
Coastal Berm	G3	S2	11	0.2%
Keys Tidal Rock Barren	G3	S3	18	0.3%

Marine Seagrass Bed

FNAI (2010) classifies seagrass beds as “expansive stands of vascular plants which occur in subtidal zones in clear coastal waters where wave energy is moderate.” Within CBAP, the seagrass beds are largely located in the northwestern region of the aquatic preserve and make up approximately 31.7% of the submerged acreage. Seagrass beds are one of the most productive natural biotic communities in the world (Smithsonian, 2018).

Seagrasses are the planet’s only true marine angiosperms (Hartog & Kuo, 2006). Seagrasses are vascular plants and have some of the highest light requirements of all plants due to their below ground rhizome and root structures (Duarte, 1991). Seagrasses stabilize sediments, reduce wave energy, cycle nutrients, and provide substrate for floral and faunal communities (Orth et al, 2006). Abundant food and cover from predators make seagrass beds a natural nursery area for many recreational and commercial fish species, as well as a foraging ground for nearby geographically isolated habitats such as patch reefs and mangrove communities. Seagrass beds also act as huge carbon sinks, on par with forests, helping to keep CO₂ from the atmosphere and slow climate change (Duarte et al., 2010; Fourqurean et al., 2012). Dominant marine seagrasses in the aquatic preserve include turtle grass (*Thalassia testudinum*), manatee grass (*Syringodium filiforme*), and shoal grass (*Halodule wrightii*) (DEP, 2022a). Shoal grass, with its ability to tolerate extreme salinity and temperature ranges, acts as the pioneer species and is the first to colonize disturbed areas and create a more stable environment for manatee grass and turtle grass - the climax species (Whitman et al., 2004).

More than 60 species of epiphytic algae, and several species of benthic algae can be found intermixed among the seagrass beds including *Halimeda* spp., *Penicillus* spp., *Caulerpa* spp., *Acetabularia* spp. and *Udotea* spp. (DEP, 2022a). A multitude of commercially important species live, forage, breed in, or use the seagrass beds as a nursery including pink shrimp, spiny lobster, spotted sea trout (*Cynoscion nebulosus*), red drum, snook, and mullet (*Mugil* spp.). Additionally, several protected species such as the queen conch (*Aliger gigas*), West Indian manatee (*Trichechus manatus*), Atlantic green sea turtle (*Chelonia mydas*), Atlantic loggerhead sea turtle (*Caretta caretta*), and Atlantic hawksbill sea turtle (*Eretmochelys imbricata*) utilize the seagrass beds of the aquatic preserve (DEP, 2022a).



Map 6 / Florida Natural Areas Inventory Natural Communities of Coupon Bight Aquatic Preserve

Seagrass beds have been subject to many anthropogenic activities that have altered their natural ecology (Lyimo, 2016). One of the main impacts that has caused damage is the direct removal of grass beds by prop scarring and channel dredging (DEP, 1992). Approximately 10-20% of the seagrass beds in the Florida Keys alone have been lost due to boat groundings and prop scarring, amounting to around 30,000 acres (Florida Museum, n.d.-a). The damage from boat activity can range from ridding the leaves of the canopy to more intense dredging of the sediment which can cut up the root structure and rhizomes, no longer allowing them to survive (Kenworthy, (Uhrin, Kenworthy, & Fonseca, 2011). With damage to these seagrass beds, if recovery is possible, natural recovery can take several years to decades. This can also further inhibit recovery due to a continued unstable margin which makes them

particularly vulnerable to erosion and expansion (Kenworthy et. al, 2018).

Furthermore, seagrass beds are incredibly sensitive to water quality. Non-point pollution, such as increased eutrophication from north of the aquatic preserve, has a negative impact on the seagrass beds as it encourages algal blooms, which limits their ability to photosynthesize due to the attenuation of light and encouragement of epiphytic growth on seagrass blades. Eutrophication also creates favorable conditions for opportunistic macroalgae, outcompeting seagrass for light and nutrients (Lyimo, 2016). This is of particular concern in the aquatic preserve as portions of the seagrass beds within CBAP lie directly south of Big Pine Key, where run-off can make its way downstream into the aquatic preserve.

Marine Composite Substrate

FNAI (2010) classifies marine composite substrate as “a combination of Natural Communities such as ‘beds’ of algae and seagrasses or areas with small patches of consolidated and unconsolidated bottom with or without sessile floral and faunal populations”. Marine composite substrate and coral reefs account for 54.9% of the submerged acreage. The coral patch reefs within CBAP are located on the underside of the Long Beach section.

Marine composite substrate is a blend of other natural communities and generally offer a considerable diversity due to the array of communities that they may support. Within CBAP, there is macroalgae, seagrass, stony corals, and soft corals, as well as an abundance of invertebrates (DEP, 2022a). However, coral patch reef is the dominant subcategory of marine composite substrate. These patch reefs actually include a variety of several community types including coral reef, marine consolidated substrate, composite substrate, and octocorals. Current mapping hasn’t differentiated between them because of the variety of different habitats that occur within the same area.

The Florida Keys is home to North America’s only coral barrier reef. Coral reef development is very particular and only occurs in area with certain characteristics including warm water temperatures, clear water with low phosphorous content, and appropriate wave action to rid of waste and bring oxygen and plankton to the area (NOAA, n.d.-b). The reefs have developed in the Florida Keys due to the presence of an appropriate substrate for corals to attach themselves to (the bare limestone sea floor that was present prior to the colonization of corals) and a close proximity to the Gulf Stream which provides nutrients and stable temperatures for corals to survive. The Florida Coral Reef runs parallel to the Florida Keys island chain, following a pattern of being less prevalent near creeks, cuts, or passes between the island chain due to the presence of increased flow from Florida Bay, which contains a variety of different salinities, temperatures, and suspended sediments which are not favorable to coral reefs (DEP, 1992).

Coral reefs can be subdivided into four different types based on community structure patterns and physical habitats – bank reefs, transitional reef, patch reefs, and hard bottom (Japp, 1984). To the seaward side is the bank reef community. The bank reef can further be divided into three more regions- reef flats, spur and groove regions, and forereefs. The reef flat takes up the inshore portion of the bank reef and is indicated by coral rubble that are broken down due to the heavy influx of wave energy. Spur and groove are characterized by low ridges of corals, with primarily zoanthids being at shallower depths and then at deeper depths giving way to a wide range of species including gorgonians, stony corals, and sponges. Grooves are characterized by sandy channels that act as barriers between the spurs. The forereef is at the open-sea edge and is inhabited by organisms at shallower depths, which then slopes downward into areas where there is no longer reef (Japp, 2003).

Patch reefs are small and isolated patches of coral that lie landward of the main reef and the seaward side of Hawks Channel (Marszelak, 1982). The patch reefs within CBAP lie in depths anywhere from 6-12 feet in depth, scattered along the parallel region of Newfound Harbor Keys. The two largest patch reefs, on the western edge of the preserve, lie within a mile of Big Munson Island. The smaller patch reefs lie within the outskirts of Newfound Harbor Keys, where they are protected from the influx of sediment and variable temperatures and salinities that seep in through the Big Pine Channel (DEP, 1992).

Hardbottom is characterized as scattered clusters of corals, gorgonians, sponges, and algae that colonize the rubble present within the area. These areas can contain reef-building species but conditions may not allow them to develop into a patch reef due to sediment, water depth, currents, and a variety of

other factors. These areas can vary in the amount and distribution of organisms that inhabit and these hardbottom areas can also sometimes be displaced by marine grass beds (DEP, 1992).

The hard corals that inhabit these areas are colonial and separate calcium carbonate from seawater, then deposit a stony skeleton which generates substrate for a variety of species. Corals belong to the phylum Cnidaria, also including jellyfish, sea anemones, and 11,000 other species. They are further divided into the class Anthozoa. These animals are often colonial polyps that live attached to a substrate. To a greater extent, they are divided into Octocorallia, Hexacorallia, and Hydrozoa. Hydrozoa, which includes 'hydrocorals', are so named because they have a skeleton composed of calcium carbonate similar to that of hard corals. The subclass Octocorallia includes seapens, soft corals, and gorgonians. Each polyp within the coral has eight tentacles, with numerous side branches. Hexacorallia have six tentacles on each polyp and are primarily known as the reef-building corals (hard corals). Contained within Hexacorallia is the order Scleractinia, otherwise known as the hard corals (University of Louisiana, n.d.).

Scleractinia are responsible for much of the foundation of the reef structure in the Florida Keys. These hard corals separate calcium carbonate (CaCO_3) from seawater then deposit a stony skeleton from a collection of individual polyps, which generates substrate for a large diversity of species. As these hard corals secrete the calcium carbonate, a cup is produced, and the walls of the cup structure is called the theca. As the colony begins to grow, a distinctive shape forms. The particular species can be identified by the overall shape of the corallite skeleton, as well as the structure of the overall coral head (Endangered Species International, 2012.). Some form smooth, boulder shapes such as the grooved brain coral (*Diploria labyrinthiformes*), whereas others will form finger like projections such as the finger coral (*Porites porites*). Specifically within the aquatic preserve, some notable hard coral species that occupy the region include boulder star coral (*Orbicella annularis*), greater star coral (*Montastraea cavernosa*), and a variety of other coral species such as starlet corals and brain coral.

Coral tissues host a photosynthetic microalgae called zooxanthellae within each coral polyp. These two have a symbiotic relationship, with the coral providing the zooxanthellae a protected environment, carbon dioxide, and byproducts from cellular respiration. In exchange, the zooxanthellae provide the coral with its metabolic byproduct from photosynthesizing, such as glucose or amino acids. The corals then use these items to make proteins, fats, and carbohydrates which are necessary for survival. About 90% of the organic material photosynthetically made is transferred to the coral, whereas around 10% of their energy is derived from suspension feeding using their tentacles (NOAA, n.d.-f).

The soft corals have a few characteristic species that can colonize reef rubble including purple sea plumes (*Pseudopterogorgia acerosa*), sea fingers (*Briareum asbestinum*), and sea fans (*Gorgonia ventalina*). These soft corals do not deposit calcium carbonate skeletons, but rather are formed of calcium carbonate sclerites and have a fleshy exterior (Maucieri, 2021). While soft corals are still susceptible to coral bleaching, it has been suggested that soft corals may be more resistant to the temperature anomalies that are present in their environment (Hawley, 2002).

An array of benthic invertebrates also exist within the patch reef including boring sponges (*Clinoa* spp.), long-spined sea urchins (*Diadema antillarum*) and other critical specimens such as crabs, bivalves and barnacles. Many of these species are grazers, feeding primarily on algae, that may otherwise smother the corals. These invertebrates also depend on the reef for habitat, breeding grounds, and structure to potentially attach themselves to. Many commercially important bony fish and crustaceans reside in the reefs or use utilize the reef such as the Caribbean spiny lobster (*Panulirus argus*), groupers (*Epinephelus* spp. and *Mycteroperca* spp.), snappers (*Lutjanus* spp. and *Ocyurus chrysurus*), grunts (*Haemulon* spp.), jacks (*Caranx* spp.) and ballyhoo (*Hemiramphus brasiliensis*) (FKNMS, n.d.) These species account for a large portion of the fisheries industry in the Florida Keys, with fisheries alone generating around \$427 million annually (Hatch Magazine, 2013). The spiny lobster industry in Florida alone is valued at around \$40 million (Florida Politics, 2021). The middle to the top of the food chain, also often frequent the reef such as the nurse shark (*Ginglymostoma cirratum*), the barracuda (*Sphyraena barracuda*), and moray eels (*Gymnothorax* spp).

The future of coral reefs worldwide should be of primary concern due to the multitude of issues that are

impacting them. Ocean temperatures in some regions globally have increased by 1-2°C since the late 19th century. When corals experience temperatures that exceed their thermal tolerance, corals will then expel the zooxanthellae leaving clear tissue and exposing the stark white skeleton (Hoegh-Goldberg, 1999). This is a phenomenon called coral bleaching and results in massive loss of corals around the world. Between 2014 and 2017 alone, around 70% of the world's reefs experienced some sort of heat stress, with around 30% of those reefs reaching mortality level (Scott et. al, 2018). Corals that are accustomed to Florida waters experience their optimal range from 73-84 degrees Fahrenheit, which causes issues when water temperatures in the late summer months average nearly 87 degrees (Current Results, n.d.). An observation has been made by Mote Marine Lab (n.d.), that the frequency and severity of these mass bleaching events has “steadily increased since the 1980’s.”

Hard corals have also been subject to ocean acidification, a process by which pH is reduced in the ocean due to uptake of CO₂ in the atmosphere (NOAA, n.d.-a). This process can be detrimental to hard corals as it lessens the rate at which corals can extract calcium carbonate from the water column, slowing their growth (NOAA, n.d.-a). Prior to the Industrial Revolution, the average ocean pH was around 8.2, whereas now it sits at around 8.1, 25% greater than before the Industrial Revolution (U.S. EPA, 2022).

Although disease is always present at background levels (less than 5% prevalence), some notable disease outbreaks have been documented in the Florida Keys. This includes white pox and white band disease almost decimating elkhorn (*Acropora palmata*) and staghorn (*Acropora cervicornis*) in the 1980s, with losses totaling over 70% in some portions (Patterson et.al, 2002). More recently, stony coral tissue loss disease, was first spotted off Miami-Dade County in 2014 and quickly made its way south with the first case in the Florida Keys being in 2016. Regional impacts in coral cover due to this disease have led to a 30% reduction in coral density and live tissue loss totaling nearly 60% in some regions (Walton et.al, 2018). The cause of the disease still remains unknown, but the disease has continued to spread and cause detrimental impacts over the years affecting over 20 species of the 45 stony corals (DEP, 2022c).

Due to the massive decline in corals in the Florida Keys Reef Tract, many organizations have been collaborating in the Florida Keys to undergo reef restoration. For example, Newfound Harbor, the boundaries being partially within CBAP, is part of NOAA's Mission: Iconic Reef Project and the Newfound Harbor Sanctuary Preservation Area. Announced in 2021, Mission: Iconic Reefs is an effort to restore seven ecologically and culturally significant reefs within the Florida Keys National Marine Sanctuary. This site alone will receive more than 14,000 coral outplants that will help reestablish the coral communities that are found within the area. The goal will be to restore coral cover an average of 6% across three habitat zones. Overall, the goal is to have the average coral percentage go from 2% to 25% across the seven sites (NOAA, n.d.-b).

Marine Consolidated Substrate

FNAI (2010) classifies marine consolidated substrates, commonly known as hardbottom, as “expansive, relatively open areas of subtidal, intertidal and supratidal zones which lack dense populations of sessile plant and animal species made of solidified rock or shell conglomerates”. Often, these communities are occupied by sparse varieties of algae, stony corals, octocorals, and sponges. These form the basis of a variety of ecosystems, including marine and estuarine natural communities. The dominant algae species include green mermaid's wine cup (*Acetabularia calyculus*), shaving brush (*Penicillus capitatus*), oatmeal algae (*Halimeda* spp.), and fern algae (*Caulerpa* spp.). In order to protect these areas, the Florida's Coral Reef Protection Act was created in 2009 to increase protection of Florida's Coral Reef and raise awareness of the damages through vessel grounds and anchoring to hardbottom areas known to host corals. The condition of the marine consolidated substrate is highly variable by location.

Marine Unconsolidated Substrate

FNAI (2010) classifies marine unconsolidated substrate as “expansive, relatively open areas of subtidal, intertidal, and supratidal zones which lack dense populations of sessile plant and animal species and are made of unconsolidated materials such as algae, coral, marl, mud, sand, or shell.” These communities support a wide variety of infaunal organisms, as well as planktonic and pelagic organisms (sand dollars,

mollusks, isopods, etc.) These communities are one of the most widespread in the world (FNAI, 2010), but vary in concentration throughout Florida. The marine unconsolidated substrate only comprises a small portion of the aquatic preserve, mostly along Long Beach which is critically eroded.

Mangrove Swamp

FNAI (2010) defines a mangrove swamp as “dense forest occurring along a relatively flat, low wave energy, marine and estuarine shoreline”. The mangroves within the aquatic preserve are largely located around the perimeter of the bayside of Big Pine Key and account for 12.0% of the submerged acreage within CBAP. All three species of mangroves occurring in Florida are found within the aquatic preserve – red (*Rhizophora mangle*), black (*Avicennia germinans*) and white mangroves (*Laguncularia racemosa*). Mangroves are unique plants that survive in extreme conditions including high salinity, high water temperatures, and soft anaerobic sediments (DEP, 2022b). They do not survive well in colder temperatures, below 66° F, and if they are subjected to extreme temperatures this can consequently lead to stunted growth forms or death (Waisel, 1972). Mangrove species have evolved to exclude or excrete salt from their tissues, varying by species – either by filtering out the salt as it enters their roots, excreting salt through glands in their leaves, or concentrating the salt within older leaves and then ridding them (American Museum of Natural History, n.d.) Mangroves have developed a number of adaptations to survive in their environment by having extensive prop roots for stabilization in the shallow, soft sediments they inhabit. These aerial root systems aid in providing oxygen for respiration, entering through lenticles or cell-sized pores in the root (American Museum of Natural History, n.d.).

Mangroves surround much of the landmasses within the aquatic preserve offering natural infrastructure for protection against erosion and storm surge (The Nature Conservancy, 2023.). Additionally, these ecosystems cycle various nutrients, offer filtration, and provide a number of habitats for fauna (DEP, 2022b). The mangroves are noteworthy to many species of birds, offering areas to nest and to acquire food. The shallow water and mudflats make an ideal hunting ground for small birds such as the white ibis (*Eudocimus albus*), the great egret (*Ardea albus*), roseate spoonbill (*Platalea ajaja*), and great blue heron (*Ardea herodias*) (Florida Museum, n.d.-b). Floating and diving birds are also observed within the mangroves, such as the brown pelican (*Pelecanus occidentalis*), double-crested cormorant (*Phalacrocorax auritus*), and anhinga (*Anhinga anhinga*). Many of these floating and diving birds can be seen year-round, while others only frequent the area during migrations. Birds of prey also take advantage of the plethora of resources available, such as the southern bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), and osprey (*Pandion haliaetus*) (Florida Museum, n.d.-c).

Many species of commercial and recreational value benefit from the mangroves, especially as a nursery. Around 75% of the gamefish and 90% of the commercial fish species are reliant on the mangroves at some point in their life cycle (Florida Museum, n.d.-c). Many of the species reside in the prop roots of the mangroves which offer shelter from predators and allow the juveniles to reach a certain size before departing to the open ocean, while others stay in the mangroves during their whole life cycle, preferring the lower salinity, like snook (*Centropomus undecimalis*). The marine organisms that can be seen in the mangroves during various stages of their life cycle include jacks (*Caranx spp.*), gobies *Gobiosoma spp.*), and even small goliath groupers (*Epinephelus itajara*) (Florida Museum, n.d.-c). The Key deer, an endangered deer that is a subspecies of the white deer, is a frequent visitor to the mangrove swamp area within CBAP. The mangrove fringes offer excellent coverage for foraging and also for maneuvering between Newfound Harbor Keys and Big Pine Key. Freshwater ponds are also located within the Cactus Hammock in the Long Beach portion of the aquatic preserve, offering resources for the Key deer to survive

Mangroves also provide some protection to the shoreline and associated structures during hurricanes by dissipating storm surge and trapping sediments to prevent erosion. This natural protection is one of the many reasons the Florida Legislature enacted the 1996 Mangrove Trimming and Preservation Act in Sections 403.9321-403.9333 of the Florida Statutes. With rare, permitted exceptions, mangroves cannot be trimmed lower than six feet from the ground and no actions can result in defoliation, destruction or removal of a mangrove (DEP, n.d.-f). The mangrove swamps of the aquatic preserve are in variable

condition throughout the aquatic preserve. Restoration projects are being developed along Long Beach and Coupon Bight Buffer Preserve.

The following natural communities are upland communities adjacent to the aquatic preserve.

Coastal Berm

The FNAI (2010) defines coastal berm as “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”. Plant heights within this area vary from 1 to 10 feet and is based on berm height and time since the most recent storm disturbance. The coastal berm shares some tree species with rockland hammock, but a large proportion consist of shrubs and herbaceous plants due to high light and present soil conditions (Ross et al., 1992). There are a variety of canopy species including black ironwood (*Krugiodendron ferreum*), milkbark (*Drypetes diversifolia*), poisonwood (*Metopium toxiferum*), and blackbead (*Pithecellobium keyense*) are also common components in a coastal berm. The well-developed coastal berm community is located on the southerly shorelines of Newfound Harbor Keys and terminates in the mangroves. There are also lower, narrower berms along the northern shoreline on Coupon Bight but are frequently flooded, further being colonized by mangroves and saltmarsh vegetation.

Rockland Hammock

FNAI (2010) defines rockland hammock as “a rare rich tropical hardwood forest on upland sites in areas of exposed limestone with a thin rich organic soil layer. Mature trees are often found at the center with thick shrubs, trees, and vines surrounding them. Rockland hammocks do not normally receive tidal flooding but instead rely on fresh water from solution reservoirs made from dissolved limestone.” Occurring on a layer of organic soil, it is dependent on a high-water table to maintain the reservoirs in the solution of the limestone. In the Keys, they are located inland from tidal flats and are susceptible to fire and lack of water, however historically solution holes that retained freshwater would provide some protection. In order to combat these, the tree stands have evolved to be rounded along the edges to reduce wind related desiccation, the nutrient rich soil retains moisture, and the extensive canopy keeps daytime temperatures lower and traps heat during the night. Rockland hammock habitat is in rapid decline globally due to agriculture and development. It is found in Florida only within Miami-Dade, Collier and Monroe counties. (FNAI, 2010).

Rockland hammocks typically have more mature trees in the interior of the community, with the margins surrounded in smaller shrubs and trees (Phillips, 1940; Whitney et al. 2004). Canopy trees found in rockland hammock include gumbo limbo, poisonwood, Jamaica dogwood (*Piscidia piscipula*), and West Indian mahogany (*Swietenia mahagoni*). Understory species include, lignum vitae (*Guaiacum sanctum*), white stopper (*Eugenia axillaris*), Spanish stopper, torchwood (*Amyris elemifera*), and crabwood (*Gymnanthes lucida*) (DEP, 2022a).

The communities within rockland hammock vary in the Florida Keys compared to other communities in Florida, due to the increased ocean breeze and lower rainfall that causes the hammock to be drier than those found elsewhere (Whitney et al., 2004). There is also variation between the Upper and Lower Keys rockland hammocks, due to the geology, ground water salinity, and rainfall. Taller, more developed hammocks occur in the northern portion of the keys due to this and the more permeable Key Largo Limestone (Snyder et al., 1990).

Rockland hammock is present on the islands within CBAP and most of the islands are in good condition.

Native Species

There is a diverse range of natural communities that found within CBAP and supply habitat for many flora and fauna. From tiny benthic fauna living within the seagrass beds to large wading birds nesting within mangrove islands, there is a vast range of organisms that use the shallow water marine communities to upland rock hammocks. A host of organisms will spend entirety or a portion of their lives within this aquatic preserve (Smithsonian, 2018).

Seagrasses are one of the chief floral species found within the aquatic preserve, including turtle grass,

manatee grass, and shoal grass. Seagrass beds are vastly important for a multitude of different reasons and provide a nursery for many valuable recreational and commercial fish and crustaceans species. These include tarpon, jack crevalle (*Caranx hippos*), spiny lobster, pink shrimp, and stone crabs (*Menippe mercenaria*). Many endangered species rely on these ecologically important communities, including as the Atlantic green sea turtle and West Indian manatee (Smithsonian, 2018).

Additionally, CBAP is located along the Atlantic Flyway, a major migratory pathway for birds. More than 30 species of birds are found in the aquatic preserve including eight of which are threatened, endangered, or protected such as the roseate spoonbill (*Platalea ajaja*) and white crown pigeon (*Patagioenas leucocephala*). Within the aquatic preserve, the mangrove swamps, rockland hammocks, coastal berms provide areas for resting and nesting, while the shallow hard bottom waters and seagrass beds provide a manifold of resources for marine invertebrates and fish.

Five of the seven endangered and threatened sea turtle species have been seen within the aquatic preserve - leatherback sea turtles (*Dermochelys coriacea*), Kemp's ridley (*Lepidochelys kempi*), Atlantic green, Atlantic loggerhead, and Atlantic hawksbill sea turtles, the rarest of the five species (Gorham, et al., 2014). Sea turtles frequently utilize the area for nesting within the Long Beach portion of CBAP, as adult females return to the beaches on land to lay their eggs. While male sea turtles spend their entire lives in the water, female sea turtles return to the same beaches to nest which includes the beaches in CBAP. The majority of sea turtle species are threatened and face a variety of stressors which influence their population numbers including bycatch in recreational and commercial fisheries, loss and degradation of nesting and foraging habitats, entanglement in marine debris, and vessel strikes (NOAA Fisheries, n.d.-b). All of these stressors reiterate the importance of protecting the nesting beaches these sea turtles utilize and the significance of these animals.

The American crocodile (*Crocodylus acutus*) has not been seen within the aquatic preserve, but its habitat range includes CBAP. Formerly endangered, the American crocodile's status has been changed to threatened due to the sustained increase in the number of nesting females (NPS, n.d.-a).

An impressive array of fish live, spawn, or grow up within the aquatic preserve including commercially important ones such as red grouper (*Epinephelus morio*) and gray (*Lutjanus griseus*), yellowtail (*Ocyurus chrysurus*) and mutton snappers (*Lutjanus analis*). Recreationally important species like bonefish, tarpon, permit and common snook are also present within CBAP.

A few small mammals use the uplands within the aquatic preserve, including the Key Vaca raccoon (*Procyon lotor auspicatus*), the silver rice rat (*Oryzomys arentatus*), the Keys marsh rabbit (*Sylvilagus palustris hefneri*). The Key deer (*Odocoileus virginianus clavium*) is also a prominent member of the preserve and is currently endangered with only around 700-800 left (FWC, n.d.-d). This is due to a loss of habitat and high mortalities from roadkill, free roaming dogs, habitat destruction, and hunting. The West Indian manatee and Atlantic bottlenose dolphin (*Tursiops truncatus*) also utilize the waters around the aquatic preserve for feeding.

A complete survey of the habitats and species has not been completed; however, the need for this, particularly following Hurricane Irma, has been addressed within the management plan in the next 10 years. For a complete list of documented native species see Appendix B.3 – Species Lists.

The three dominant phyla/subclasses of hardbottom habitats - octocorals, stony corals, and sponges - serve as host, prey, and habitat to many species living in the hardbottom areas. Common species include sea whips (*Pterogorgia* spp.), sea fans (*Gorgonia ventalina*), sea rods (*Plexaura* spp.) and sea plumes (*Pseudopterogorgia* spp.). Stony corals are found within the aquatic preserve, especially in the patch reef located along a parallel axis to the Newfound Harbor Keys and in the hardbottom areas throughout the aquatic preserve. There is a wide range of species including finger coral (*Porites porites*), mustard hill coral (*P. astreoides*), lesser starlet coral (*Siderastrea radians*), rose coral (*Manicina areolata*), knobby star coral (*Solenastrea hyades*), and smooth star coral (*Solenastrea bournoni*). Dominant sponges include the chicken liver sponge (*Chondrilla nucula*), vase sponges (*Ircinia campana* and *Callyspongia* spp.), black-ball sponge (*I. strobilina*), stinking sponge (*I. felix*), the ethereal sponge (*Dysidea etheria*), the loggerhead sponge (*Sphaciospongia vesparium*), and the row pore rope sponge

(*Aplysina cauliformis*). Sponges are particularly important filter feeders, serving to increase water quality by filtering out particulates.

Listed Species

There is an assortment of plant and animal species found within and near the aquatic preserve are listed as threatened or endangered at the federal level by U.S. Fish and Wildlife Service and/or at the state level as threatened or endangered by Florida Fish and Wildlife Conservation Commission (FWC). Some species listed as endangered under the Endangered Species Act include the Key deer (*Odocoileus virginianus clavium*), the silver rice rat, the Big Pine partridge pea (*Cassia keyensis*), the geiger tree (*Cordia sebestena*), and the Atlantic hawksbill sea turtle. Threatened species include the Atlantic green turtle, Atlantic loggerhead sea turtle, American crocodile, the Big Pine Key ringneck snake (*Diadophis punctatus taeniata*), and the West Indian manatee.

The Atlantic hawksbill sea turtle is the rarest sea turtle in Florida. Named for its beak-like mouth, the turtle primarily eats sponges, marine algae, small mollusks, and jellies (NOAA Fisheries, n.d.-a). Their shells, also known as “tortoise shells” have long been prized for their intricate beauty and used by craftsmen for jewelry and trinkets. Today, CITES (Convention on International Trade of Endangered Species) has banned the trade of its shells, but illegal hunting may still persist. There are other consistent threats to these turtles including bycatch in fishing gear and loss of nesting beaches due to an increase in development (NOAA Fisheries, n.d.).

In the 1960s, the American crocodile was almost wiped out due to the value of their skins and habitat loss as Florida became more urbanized. Crocodiles were added to the Endangered Species list in 1975, and in order to combat declines, the Crocodile Lake National Wildlife Refuge was created by the U.S. Fish and Wildlife Service in northeastern Florida Bay. Additionally, a crocodile sanctuary was established in northeastern Florida Bay within Everglades National Park was established, and Florida Power and Light developed a management plan for crocodiles at the Turkey Point Power Plant (Mazzotti, Brandt, Moler, & Cherkiss, 2007). Crocodiles in south Florida also began to utilize artificial substrates for nesting, including the warm water outflows at the Turkey Creek nuclear plant in Homestead. Afforded these protections, crocodile populations began to increase. By 2007, the crocodile was downgraded from endangered to threatened (Mazzotti et al., 2007). While in general crocodiles are making a comeback, they still face many issues including continued habitat loss, decreased water quality, and deaths due to car strikes.

Smalltooth sawfish (*Pristis pectinata*) are also a species that has been spotted within the aquatic preserve and are critically endangered. This species has historically ranged from Texas to North Carolina, but due to its large decline the species now primarily resides in southwest Florida (Brame et.al, 2019). The only sawfish species found in Florida waters, they possess a long, flattened rostrum and can grow up to 16 feet. Sawfish, like a lot of elasmobranchs, are relatively slow growing and are long-lived and reside largely in estuarine habitats as juveniles but occupy a wider range of coastal habitats as adults (Brame et.al, 2019). Due to habitat loss that is correlated with coastal development and accidental capture in fisheries, their numbers have declined dramatically since the latter half of the 20th century (NOAA, n.d.-e). Dulvy et.al (2016) estimated that the species may be found in less than 20% of its original range, indicating its significant decline. Entanglement in nets, particularly inshore gill nets, was common for the smalltooth sawfish to get caught in, but due to the Florida Net Ban Amendment that was enacted in 1995, this led to the banning of all entanglement nets. In 2003, the U.S. population of the smalltooth sawfish was listed as endangered, making it the first marine fish to receive protection. Unfortunately, the sawfish is still caught as bycatch in a variety of other fishing methods (Florida Museum, n.d.-a).

The Key deer (*Odocoileus virginianus clavium*), a subspecies of the Virginia white-tailed deer, is found only in the Florida Keys. While there no written record of the origin of the Key deer, it is believed that the deer migrated from the mainland thousands of years ago from a land bridge (Key Deer Protection Alliance, n.d.). The Key deer was formerly found as far south as Key West and as far north as Big Pine Key, but reduction in their range was caused by the fact that they were hunted extensively and displaced due to habitat destruction. In the 1940s, it was believed that there was less than 50 still alive. In 1957, the

National Key Deer Refuge was created by the U.S. Fish and Wildlife Service to protect the national interest and preservation of the Key deer. Today, their population range is estimated to be anywhere from 700-800 deer, with the largest concentration being on Big Pine Key and No Name Key (FWC, n.d.-d). While their population numbers are growing in the range of 1% to 3% each year, the Key deer is still considered endangered and faces a large quantity of threats. These include being killed by passing motorists, entanglement in fences, and public feeding that attracts them to the road (Florida Keys, n.d.).

Invasive Non-native and/or Problem Species

Invasive non-native species are species that have been introduced to an area by humans and have viable and prolific breeding. Not all introduced species become invasive and the ones that do are generally opportunistic, aggressive, and early colonizing species in their native range. If left unchecked, invasive non-native plants and animals alter the character, productivity, and conservation values of the natural areas they invade (FWC, n.d.-a). In some cases, native wildlife may also pose management problems or become a nuisance animal. A nuisance animal is an individual native animal whose presence or activities create special management problems (FWC, n.d.-a). Florida is second only to Hawaii in the number of established invasive non-native 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 et al., 2003).

Red lionfish (*Pterois volitans*) are an invasive non-native fish which have quickly become abundant in the Florida Keys in the past few decades. First seen in the Atlantic off Florida in 1985, the lionfish were considered an invasive fish by 2000 (National Marine Sanctuary Foundation, 2018). While their exact origin into the Atlantic Ocean isn't known, it is believed that they were introduced through the aquarium trade as aquarium owners dumped them into the ocean (NOAA, n.d.-i). The number of lionfish quickly began to increase with the first reported sightings of lionfish in the Florida Keys in 2009 (Ruttenberg et al., 2012) with large increases in numbers throughout 2010-2011 which was attributed to pelagic larvae from south Florida being driven southward by currents (Cote et al., 2013). Their arrival is troublesome as they feed on over 40 species of fish and create competition with the resident reef fish (Morris & Whitfield, 2009). In the Indo-Pacific region, there are predators that consume the lionfish, whereas in the Florida Keys there are not any predators that have begun to consume lionfish. A recent effort has been made in the Florida Keys to eat lionfish, with many local restaurants using the invasive critter as their freshest catch. Due to the presence of a reef system with CBAP, it is more than likely that the lionfish have altered the natural community and are also present within the aquatic preserve. These detrimental critters are believed to have significantly altered the native ecosystem as well as local fishing economies (NOAA, n.d.-j).

Throughout recent years, the population of green iguanas (*Iguana iguana*) throughout the Florida Keys has increased remarkably. The native range is throughout parts of Central and South America, and some Caribbean islands. First reported in the 1960s along Miami-Dade's southeastern coast, individuals can now be found as far south as Key West. Some common food items for individuals range from shoots, leaves, Washington fan palms, garden greens, squashes and melons, and also dead animals and bird eggs (FWC, n.d.-b). Scientists remain unsure of why their population has exploded in number, but was first reported in southern Florida in 1966, where they could be found on Key Biscayne, Hialeah, Coral Gables and near the Miami International Airport (King & Krauker, 1966). Additionally, the green iguana is a desired lizard in the pet trade, with over one million annual imports in 1995 alone, accounting for 45% of the annual reptile trade from 1996-2012 (Hoover, 1998).

With relatively few predators in the Florida Keys, it poses critical issues due to the role they play in severe vegetation loss. This includes consumption of the nickerbean, a plant that hosts the endangered Miami Blue butterfly. This subsequently causes issues as many of these organisms within the preserve rely on the vegetation as food and habitat. It is also of special concern that in previous years scientists found the remains of tree snails in the stomachs of some iguanas, specifically in Bill Baggs Cape Florida State Park, which indicates that the iguanas may be displacing native snails in regions relatively near the preserve but also potentially within CBAP (FWC, n.d.-b).

CBAP serves as a crucial rookery area for a wide diversity of bird species and it is possible that some individual iguanas may predate on bird eggs which is worth special attention (FWC, n.d.-b). Green iguanas have been seen within CBAP and the areas surrounding the aquatic preserve which may help indicate the colossal impact they are having within the ecosystem. In Florida, this species can be captured year round and humanely killed on 25 public lands within the state (FWC, n.d.-b).

Archaeological and Historical Resources

Archaeological sites and historical resources are protected under Florida statues Chapter 267 and are not to be disturbed unless prior permission is granted from the Division of Historical Resources. The Florida Division of Historical Resources has documented 12 historical structures and archeological sites that fall within or adjacent to the aquatic preserve totaling 13.5 acres (see Appendix B.5).

Located within CBAP, a single artifact was found (MO01263), where no dates or significance has been recorded. A single prehistoric habitation has also been located within the preserve (MO01981), at Big Munson Island, which dates from the Glades period around 1000 B.C. to A.D. 1700. The Glades culture is a culture found within the southernmost portions of Florida ranging from the Everglades, the Florida Keys, and portions of northern Florida (Milanich, 1994). Two prehistoric campsites have also been recorded (MO03407 and MO06622), from the prehistoric era with no specific dates. One included a cistern, whereas another is located on Refugee Key (MO06622) and is noteworthy as it was a specialized site for procurement of raw materials. The last archaeological site specifically within CBAP is located at Big Pine Key Buttonwood Charcoal Site (MO03418) and is from the 19th century (1821-1899). While archaeological sites are important to note as they can elaborate upon the history of a place, the noted significance of these archaeological sites are limited.

Adjacent to CBAP, there is a variety of other archaeologically significant sites within close proximity to the aquatic preserve. These include a historic well (MO01262) located on Big Pine Key, a prehistoric midden (MO01271) located on Holiday Key, and a homestead located on Big Pine Key (MO02106). Of special significance adjacent to the aquatic preserve is the Spanish Harbor Channel Bridge (MO01484) built in 1910. Originally built to connect Bahia Honda and Spanish Harbor, the railroad bridge remains abandoned. Built by Henry Flagler, it was ruined by the Labor Day Hurricane in 1935 and after a replacement bridge was created, portions of the bridge were removed for boat traffic and to mitigate any pedestrian accidents on unsafe portions of the bridge.

While the archaeological sites within and surrounding CBAP are not profound, it is worth nothing that CBAP has never had an official systematic, professional survey to locate sites of archaeological relevance. Although, data from surrounding areas within Monroe County suggest that the potential for archaeological sites in the aquatic preserve will be low. However, DEP will remain aware and alert for any significant archaeological resources and actions will be taken to preserve those resources.

Other Associated Resources

Florida has a mild climate and diverse habitat which makes it a popular location for many native and migratory bird species. The Great Florida Birding and Wildlife Trail, created by FWC and supported in part by the Florida Department of Transportation and the Wildlife Foundation of Florida is a network of 510 premier wildlife viewing sites across the state with the goal of promoting conservation of native habitats and species (Fish and Wildlife Foundation of Florida, Inc., 2015).

US-1, also known as the Florida Keys Scenic Highway, is a nationally recognized All American Road and part of the National Scenic Byways Program created by Congress in 1991 to preserve and protect the nation's scenic byways (United States Department of Transportation Federal Highway Administration, n.d.). To be considered an All-American Road, the U.S. Department of Transportation states "a road must possess multiple intrinsic qualities that are nationally significant and have one-of-a-kind features that do not exist elsewhere. The road or highway must also be considered a "destination unto itself." That is, the road must provide an exceptional traveling experience so recognized by travelers that they would make a drive along the highway a primary reason for their trip". US-1 begins in Ft. Kent, Maine and continues 2,369 miles to its terminus in downtown Key West, running right through the middle of the Keys. A drive through the Keys, is an incredible and unique experience that includes extensive views of gorgeous turquoise waters while driving over 42 bridges and 44 islands until you reach the end of the

road and one of the southernmost points of the continental United States in Key West.

The Florida Keys Paddling Trail encompasses the shallow waters around the length of the Florida Keys and is part of the Florida Paddling Trails Association whose mission is to “develop paddling trails, protect the environment along the trails, and be a resource and voice for paddlers”. The Florida Keys Paddling Trail offers opportunities to view wildlife and local flora and relax and destress in nature. Additionally, CBAP is included in the Florida Circumnavigational Saltwater Paddling Trail. The trail, which was established in 2007 by the DEP, begins in Pensacola, wraps around the peninsula and the Florida Keys and ends at Fort Clinch State Park near Jacksonville. The trail is more than 1,500 miles long, is divided into 26 segments, includes 90 primitive campsites, 48 campgrounds, and 41 coastal motels and resorts, and is considered Florida’s longest and most ambitious kayaking trail (DEP, n.d.-c).

For recreational boaters and cruisers, anchorages have been put in place to help boaters enjoy the natural resources of the aquatic preserve, while protecting them from inadvertent damage.

3.4 / Values

The Florida Keys are a major tourism destination with the clear, calm and shallow waters creating a mecca for water-based activities such as fishing, diving, snorkeling, kayaking, and boating. More than 5 million people visited in 2018 and contributed over two billion dollars to the local economy (Rockport Analytics, 2019).

CBAP is often frequented due to the neighboring areas that are visited by tourists and it is of concern the number of people that periodically come through the aquatic preserve with potentially little to no knowledge of the shallow and seagrass bed filled waters. Careless boaters and people unfamiliar with the area can cause damage to the environment by running boats too shallow and creating prop scars or running aground. Prop scars have damaged more than 30,000 acres of seagrass in south Florida and between 10-20 percent of the seagrass in the Florida Keys have been permanently lost (Florida Museum, n.d.-b).

There are nearly 29,000 boats registered in Monroe County and more than 70,000 in neighboring Miami-Dade County (Florida Highway Safety and Motor Vehicles, 2021). The influx of visitors places added stress to the area. Increased use of CBAP by boaters, fishermen, snorkelers, and divers may deplete resources within the aquatic preserve.

Florida’s Coral Reef, the only barrier coral reef in the continental US, has portions of reef within the aquatic preserve, and the entire reef system brings in over \$300 million a year in tourism (Spaulding et al., 2017) through glass bottom boats, SCUBA diving, and snorkel trips, plus retail related to these activities. Healthy coral reefs ecosystems also protect shorelines from storms and hurricanes by lessening the related storm surge and protecting public and private land. It was recently estimated by the United States Geological Survey that Florida’s Coral Reef can dissipate as much as 97 percent of wave energy and provides \$1.6 billion in coastal protection during severe storms between Ft. Lauderdale and Miami alone (Storlazzi et al., 2019).

Additionally, recreational fishing is a substantial industry in the Keys, bringing money into the local economy through boat rentals, charter boat trips, fuel, bait, ice, food, fishing gear, and other sundries associated with a day spent fishing. In 2016 there were more than 100,000 jobs and 10 billion dollars related to recreational fisheries in the state of Florida (NOAA Fisheries, 2018) and more than 2.3 million people registered for saltwater fishing licenses (FWC, 2018). A strong commercial fishing industry is also present, with more than 16 billion dollars was generated from Florida commercial fisheries in 2016. The Florida Keys has major fisheries in spiny lobster, stone crab, pink shrimp, and other finned fish (NOAA Fisheries, 2018).

3.5 / Citizen Support Organizations and Other Working Groups

Community support is vital to the success of any aquatic preserve. The Aquatic Preserve Society is a statewide Citizen Support Organization (CSO) that was formed in 2014 to promote the protection of the state’s 42 aquatic preserves. Their mission is “to protect, conserve and restore these unique natural

Florida resources through public awareness, stewardship and support.” This organization works in conjunction with other CSO groups and regional staff to hold events and enhance awareness of aquatic preserves. The Aquatic Preserve Society has gained Florida Nonprofit Status and is an official CSO for ORCP. The society’s current three-year fiscal plan is to “support the Aquatic Preserve Program through education and advocacy and promoting communication between all the citizens’ organizations which support the program” (DEP, 2021). While CBAP does not have its own CSO, the Key Deer National Wildlife Refuge, partially located within CBAP and the Florida Keys National Marine Sanctuary both have CSO’s that collaborate and support the preservation of CBAP. Save a Turtle, a nonprofit organization in the Florida Keys, is also comprised of volunteers who monitor the beaches during sea turtle nesting season and also collect data regarding new hatchlings. This organization operates within all of the Florida Keys, including portions of the aquatic preserve where there is nesting habitat.

The Florida Keys Wildlife Society works to protect the area within four different wildlife refuges including the Key Deer National Wildlife Refuge, and by default a portion of that area that falls within CBAP. This group was founded in 1997 by 150 local citizens who were worried about the states of the various wildlife refuges in the Florida Keys. The mission of this organization revolves around “the support of the Florida Key’s four National Wildlife Refuges through education, non-adversarial advocacy, volunteerism, and fundraising” (Florida Keys Wildlife Society, n.d.).

The Florida Keys National Marine Sanctuary also has its own CSO dedicated on collaborating and working with individuals to preserve the precious resources within all of the FKNMS waters, which includes those that are located in CBAP. This CSO is called Goal: Clean Seas, located specifically in the Florida Keys. This is a community-led program developed after Hurricane Irma in 2017, to focus on the effects and direct removal of marine debris in FKNMS. Both FKNMS and the National Marine Sanctuary Foundation have worked with local tour operators and other businesses to remove debris that would otherwise degrade the ocean ecosystem. In just its first year, Goal: Clean Seas removed over 67,000 pounds of debris from waters within the sanctuary (NOAA, n.d.-h). This collaboration has also incorporated a variety of other partners including FWC, NOAA’s marine debris program, DEP, Artificial Reefs International, Bonefish & Tarpon Trust, and many others.

3.6 / Adjacent Public Lands and Designated Resources

Bahia Honda State Park lies directly north of the aquatic preserve, around 9 miles away. “Bahia Honda” directly translates to deep bay, as it has one of the deepest natural harbors in its island chain. The island itself has an interesting historical past known for its deep bay and sailor friendly harbor. By 1961, Bahia Honda was placed into the Florida Board of Parks and Historic Memorials hands where it then became a state park (Keys Weekly, 2022). The park, which includes over 500 acres, is a popular tourist destination as it offers excellent snorkeling, a picturesque beach, and an excellent boating experience.

The **Britton Environmental Center** is located in Summerland Key and opened its doors in 2001. It is home to the Out Island Adventure, Keys Adventure, Florida Fishing Adventure and Marine STEM Adventure for the Boy Scouts of America. In 2019, SeaBase established a partnership with Mote Marine Lab and created the first coral nursery of its kind on site. Not only do they host over 4,500 participants per year, but they also frequent the preserve utilizing access to their island, Big Munson (Boy Scouts of America, n.d.).

Everglades National Park lays to the north of the aquatic preserve and is a UNESCO World Heritage Site and largest subtropical wilderness in the United States (National Park Service, n.d.-b). The Everglades National Park was established in 1947 to conserve the natural landscape and prevent future degradation of the land, flora and fauna. The Everglades is home to 39 species of plants and animals that are listed as threatened or endangered or are candidates for listing under the Endangered Species Act. Two of these species - the Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*) and Florida leafwing butterfly (*Anaea troglodyta*) - are found only in the park and neighboring lands (National Park Service, n.d.-b).

The **Florida Keys National Marine Sanctuary** was established in 1990 in response to concerns over the decline in coral reef health, specifically in the continental U.S.’s only coral barrier reef. The sanctuary,

which contains more than 2,900 square nautical miles, is one of 15 marine protected areas that make up the National Marine Sanctuary System and is jointly managed by NOAA and the state of Florida (DEP, n.d.-d). It offers a variety of assets including world class diving, snorkeling, fishing and boating, and is trying to further sustainable use in order to protect the area for both its natural and economic importance.

The **Florida Keys Overseas Heritage Trail** also runs through the aquatic preserve. The trail contains more than 90 miles of paved multiuse bicycle and pedestrian trails, providing opportunity for hiking, running, bicycling, fishing, and paddling. The Heritage Trail incorporates 23 of the original bridges from Henry Flagler's Overseas Railroad, which are more than 100 years old. It also offers access to other ecological resources such as Great White Heron National Wildlife Refuge, Key Deer National Wildlife Refuge, and many other ecologically significant areas (DEP, n.d.-e). **Florida Keys Wildlife and Environmental Area** contains acreage on Little Torch Key. The rockland hammock that occupies this portion of the preserve is home to a variety of different species and contain many rare species such as white-crowned pigeons.

The **Great White Heron National Wildlife Refuge** contains partial land adjacent to the aquatic preserve and was established in 1938 as a haven for great white herons, migratory birds, and other various forms of wildlife. This refuge specifically contains thousands of acres of open shallow saltwater and mangrove islands, speaking to its large diversity of organisms that use the area. It extends from north of Marathon to north of Key West, equalling around 50 miles (U.S. Fish and Wildlife Service, n.d.-a).

John J. Pescatello Torchwood Hammock Preserve contains parcels that were purchased by the Nature Conservancy in between 1989 and 1991. This preserve is located on Little Torch Key, northwest of the aquatic preserve. This preserve is notable because it contains four different communities: rockland hammock, coastal berm, tidal marsh wetlands, and mangrove fringe. The vascular flora within the aquatic preserve consist of 126 species within 86 genera (Statler et.al, 2020).

Monroe County Managed Areas also contain parcels purchased with Florida Forever funds including portions of Long Beach Drive, Big Pine Key south of US1 and on Spanish Harbor Key.

The **National Key Deer Wildlife Refuge** is partially within CBAP but also has areas outside of the aquatic preserve. It was established in 1957 to preserve the last of the Key deer and other precious resources located within the area. There is a variety of habitats and animals that subsist within them including pine rockland forests, tropical hardwood hammocks, freshwater wetlands, salt marsh wetlands, and mangrove forests. Not only this, but it is home to more than 20 species of endangered and threatened plant and animal species (FWS, 2015).

The **Newfound Harbor Sanctuary Preservation Area** is a ½ mile inshore patch reef that is partially within CBAP. With all of it being deeper than 18 feet, it contains a wide plethora of species including stony corals. This reef is also notable as it is the only inshore patch reef that is protected by a Sanctuary Preservation Area (NOAA, n.d.-d).

Conservation Areas

- Great White Heron National Wildlife Refuge
- Newfound Harbor Key Sanctuary Preservation Area
- National Key Deer Refuge
- Florida Keys Wildlife and Environmental Area
- John J. Pescatello Torchwood Hammock Preserve
- Coupon Bight Aquatic Preserve

0 1 2 Miles



Map created May 2023



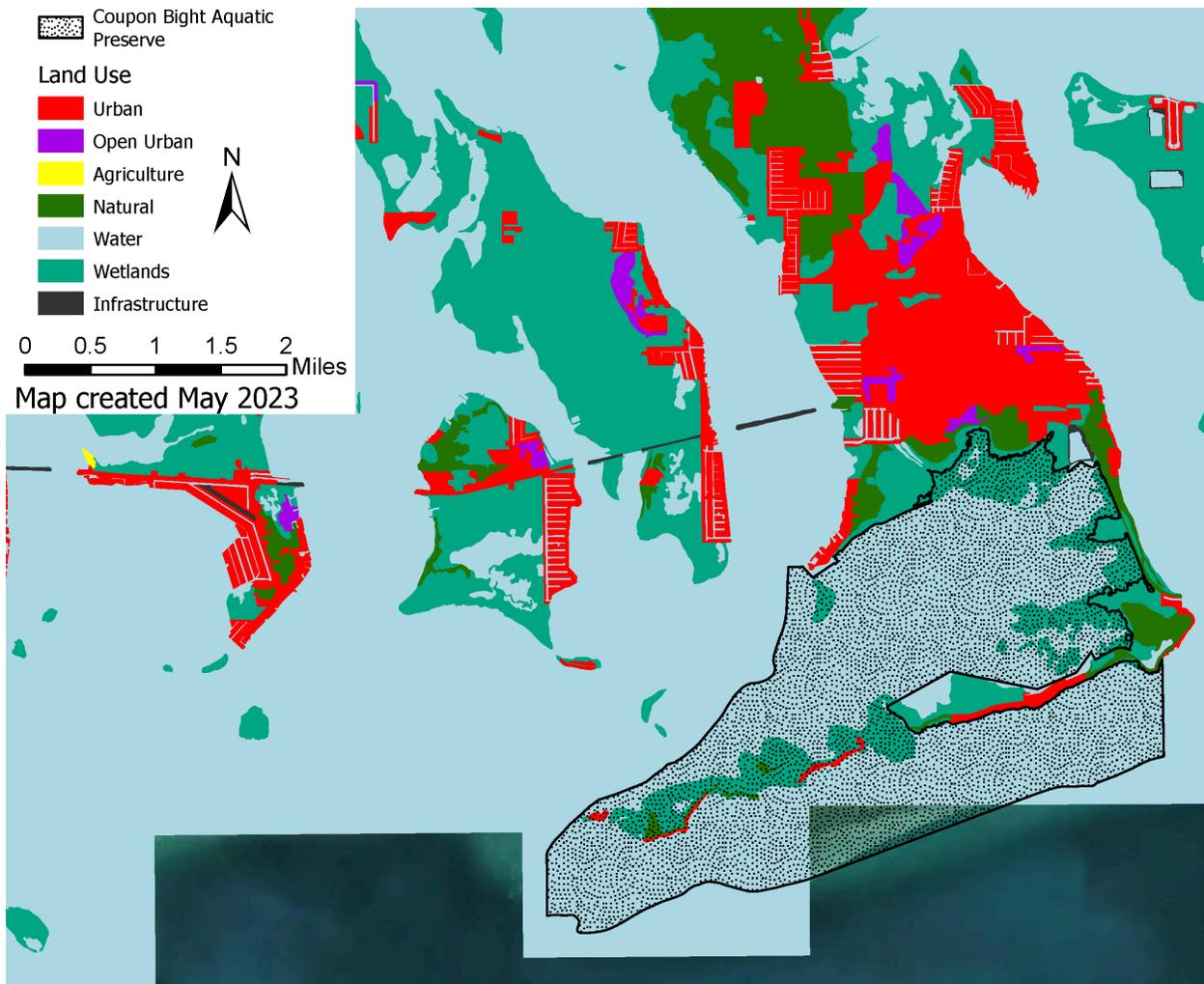
Monroe County BOCC, Earthstar Geographics

Map 7 | Conservation Areas Near Coupon Bight Aquatic Preserve

3.7 / Surrounding Land Use

Much of the development within CBAP and surrounding CBAP may be impacting the ecological condition of the aquatic preserve. Big Pine Key, north of the aquatic preserve, has become more developed, with land areas within the preserve being generally less developed and largely residential or unoccupied. Individuals surrounding the aquatic preserve and using the aquatic preserve may be impacting water quality and damaging natural resources through increased boat traffic and marine debris. Portions of the management plan will detail outreach and water quality plans with the public to decrease inadequate use of the aquatic preserve and goals that align with aquatic preserve program.

Although the Rate of Growth Ordinance (ROGO) limits further development throughout the Florida Keys, continued development is possible and desired by many landowners. Increased development of the north and east of the aquatic preserve could result in increased visitation to the aquatic preserve, leading to increased seagrass prop scarring, damage to other natural resources, degraded water quality, and more marine debris.



Map 8 / Land use surrounding Coupon Bight Aquatic Preserve



Seagrass hazard signs are along Newfound Harbor Channel. Two are maintained by DEP and two are maintained by Little Palm Resort.

Chapter 4 / The Coupon Bight Aquatic Preserve Management Programs and Issues

The work performed by DEP's 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 storm water 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 welcome to ensure that a particular issue receives input from

perspectives that the aquatic preserve may not normally include.

This section will explore issues that impact the management of Coupon Bight Aquatic Preserve (CBAP) directly or are of significant local or regional importance that the aquatic preserve's participation in them may prove beneficial. While an issue may be the same from preserve to preserve, the goals, objectives, and strategies employed to address the issue will likely vary depending on the ecological and socioeconomic conditions present within and around a particular aquatic preserve's boundary. In this management plan, CBAP 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. They 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 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 Coupon Bight Aquatic Preserve

The Florida Keys have long been a destination for a variety of scientific research because of the unique geological and biological history. The geological story mainly contains a variety of different changes brought on by sea level rises and falls, creating the old coral reef system the Keys sits atop and allowing plants and animals to migrate from mainland Florida during low stands and trapping them in the Keys during high stands. The Keys are also on a transitional boundary from the tropical Caribbean to the temperate areas found elsewhere in Florida. A plethora of flora and fauna is present within the Keys due to the blending of Caribbean-affinity with temperate assemblages. Numerous species are found nowhere else in the United States, including the Key Largo woodrat (*Neotoma floridana smalli*) and Key deer (*Odocoileus virginianus clavium*). Offshore of the Keys lays the southern portion of Florida's Coral Reef. Florida Bay on the northern side of the Middle and Upper Keys holds one of the largest contiguous seagrass beds in the state.

European settlers were attracted to the Florida Keys for its logging and plantation potential, but after depleting these opportunities, the Keys economy made a transition to tourism and fishing. Hunters, anglers, recreators, and citizens stepped up to protect the resources they loved and stop the rampant development that has occurred in much of south Florida. As a response to habitat degradation or declining fisheries catches, marine protected areas and associated research projects were formed, including one of the first National Wildlife Refuges, the Key West National Wildlife Refuge, established by President Teddy Roosevelt in 1908. Throughout the 20th century, many additional protected areas within the Keys were established, including Fort Jefferson National Monument (1935, later redesignated as Dry Tortugas National Park in 1992) Everglades National Park (1947), John Pennekamp Coral Reef State Park (the country's first undersea protected area; 1959), Coupon Bight Aquatic Preserve (CBAP; 1969), Lignumvitae Key Aquatic Preserve (1972), Key Largo National Marine Sanctuary (1975), Looe Key

National Marine Sanctuary (1981), and finally the Florida Keys National Marine Sanctuary (FKNMS; 1990). Many scientific research stations utilize and operate in the Florida Keys including Florida Department of Environmental Protection's (DEP) Office of Resilience and Coastal Protection (ORCP), National Oceanic and Atmospheric Administration's (NOAA) Florida Keys National Marine Sanctuary, the Florida Fish and Wildlife Conservation Commission's (FWC) Florida Fish and Wildlife Research Institute, Keys Marine Lab, Florida International University facilities, Mote Marine Laboratory, and the Florida Keys College.

The Florida Keys, and Florida Bay in particular, have long been an area for researchers studying seagrass beds. Long-term seagrass and coral monitoring programs were established in 1996 as part of the Water Quality Protection Program (formed as part of the Florida Keys National Marine Sanctuary Act), with additional programs added as part of the Florida Coastal Everglades Long-term Ecological Research Program. Much attention was brought to Florida Bay in 2014 when massive loss of freshwater flows into the Florida Bay estuary from hydrological changes in the Everglades watershed, combined with a heavy drought from 2014-2015, reduced freshwater flows to critical levels. The subsequent changes and extreme swings in temperatures, salinity, and oxygen created a massive seagrass die-off, which has been researched by a number of agencies. Although this event impacted more than 40,000 acres of seagrass, it did not reach far enough south to impact the seagrasses of CBAP.

Most of the historical ecosystem science activities occurring within CBAP have been conducted by external agencies. The boundaries of the aquatic preserve also lay within the FKNMS, and thus many scientific endeavors have been undertaken by the NOAA, as well as universities and other state agencies.

Mapping

In order to effectively manage CBAP it is imperative to conduct routine mapping of these resources. This allows for the identification of areas within CBAP where increased research, monitoring, and management emphasis is necessary. CBAP has been included in 24 internal and external mapping and aerial photography endeavors, including the FWC's Unified Reef Maps project using imagery from 2012.

Monitoring and Research

Several short and long-term monitoring programs operate within CBAP:

- The Fisheries Independent Monitoring Program of FWC has assessed fishery stocks, nekton, and collected water quality data since 1990. The sampling design is random stratified, and some sampling sites have fallen within CBAP boundaries.
- The Florida Reef Resilience Program's Coral Disturbance Response Monitoring Network includes sites within CBAP for coral bleaching prevalence and coral disease annually.
- The Aquatic Nuisance Species Task Force has collected data on invasive species statewide since 1990.
- FKNMS Water Quality Monitoring Project led by Florida International University includes one site with CBAP that monitors nutrient concentrations, dissolved oxygen, temperature, salinity, turbidity, and pH since 1995.
- FWC's Harmful Algal Bloom Marine Observation Network collects data on phytoplankton bloom potential and water quality since 2000, including some sampling locations within CBAP. Florida Keys Bleach Watch has collected information on coral bleaching using random stratified sampling from 2005, with at least one location falling within CBAP boundaries.
- FDEP's Division of Ecosystem Assessment and Restoration, in partnership with the ORCP, have several water quality monitoring sites within CBAP that have been assessed monthly or quarterly since 2017.

SEACAR

The Statewide Ecosystem Assessment of Coastal and Aquatic Resources (SEACAR) is a multi-agency initiative to identify ecological indicators for five major ecosystem types – water column, submerged aquatic vegetation, oyster/oyster reef, coastal wetlands, and coral/coral reef- and use them to analyze

the status and trends for the aquatic areas managed by ORCP. One of the final outcomes of SEACAR is the Data Discovery Interface, a repository for all information collected within the ORCP managed areas. This Interface provides a tool for managers to access data collected within their managed areas, including CBAP.

4.1.2 / Current Status of Ecosystem Science at Coupon Bight Aquatic Preserve

Research and monitoring are principal components of long-term research, management, and monitoring. The effects of conducting monitoring allow for the creation of baseline data, acknowledging short- and long-term variation of environmental conditions and attributing the cause of these effects. Major management issues that CBAP faces include changes in water quality, seagrass damage, declines in stony coral cover, impacts to birds, and habitat protection. Data collection to establish baseline data will be important for all identified issues. Tourism in the Florida Keys has been rapidly increasing in recent years, and associated development pressures on habitats are increasing concomitantly. Therefore, monitoring and research should be one of many tools in a resource manager's toolbox to address issues within the aquatic preserve, alongside resource management, outreach, and enforcement. Current Ecosystem Science Programs within CBAP and the future needs of the program are discussed in the following sections.

Coupon Bight Aquatic Preserve Water Quality Monitoring



Florida Keys Aquatic Preserve staff conducting field water quality sampling using a YSI ProDSS Water Quality Meter.

Until recently, CBAP did not have a budget for a designated ecosystem assessment specialist, but a water quality monitoring program was established in 2017. CBAP's water quality program is currently comprised of two different programs and various methods and techniques used to monitor short-and long-term variation and trends within the waters of CBAP. The Division of Environmental Assessment and Restoration program (DEAR) assesses subwatersheds (Water Body Identification numbers) to identify water quality impairments and establish total maximum daily loads for certain water quality parameters and reduce pollutant loadings if necessary. The DEAR program assesses chlorophyll-a, pheophytin a, turbidity, total Kjeldahl nitrogen, nitrate-nitrite, and total phosphorus by taking grab samples and overnight shipping the samples in an iced cooler to the DEAR lab in Tallahassee. From 2017-2019 samples were taken quarterly, but in September 2019 this switched to monthly collections. Staffing vacancies and limited capacity during the COVID-19 pandemic has resulted in some short gaps. Prior to the previous list of water quality metrics, alkalinity, arsenic, chlorophyll/pheophytin ratio, chromium, copper, dissolved oxygen, dissolved oxygen saturation, fluorides, lead, nickel, ammonia, pH, salinity, clarity, specific conductance, total organic carbon, and zinc were regularly or sporadically recorded throughout 2017 and 2018.

CBAP participated in Florida Keys Water Watch monitoring from 2016-2020, collecting data on salinity, dissolved oxygen, and water temperature at the same locations as DEAR samples. These parameters are assessed using a citizen science kit, analyzed on site. Unfortunately, these samples do not meet the quality assurance criteria to be included in any management databases. Therefore, that data has not been included in this management plan.

In April 2020, a ProDSS YSI with probes for pH, salinity, temperature, and dissolved oxygen was purchased to replace Florida Keys Water Watch methods. This ensured that these water quality parameters were compatible with the Watershed Information Network (WIN), the state of Florida's official repository for water quality data which influences DEP statewide analyses and is shared with the US

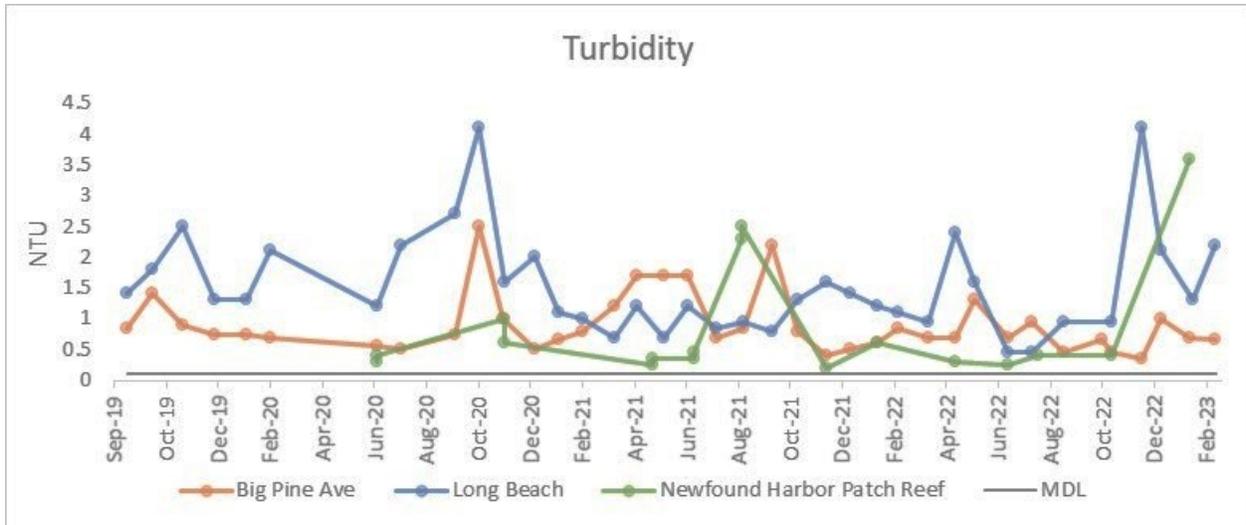
Environmental Protection Agency (EPA) to be put in the national Water Quality Exchange (WQX).

A Water Body ID (WBID) is an assessment unit that is intended to represent Florida's waterbodies at the watersheds or sub-watershed scale (DEP, n.d.-i). CBAP is within a single WBID, Atlantic Ocean (Monroe County; Bahia Honda-Cudjoe Key; 8080). The waters of CBAP fall under the designation of Class III: Fish Consumption, Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife under the Clean Water Act.

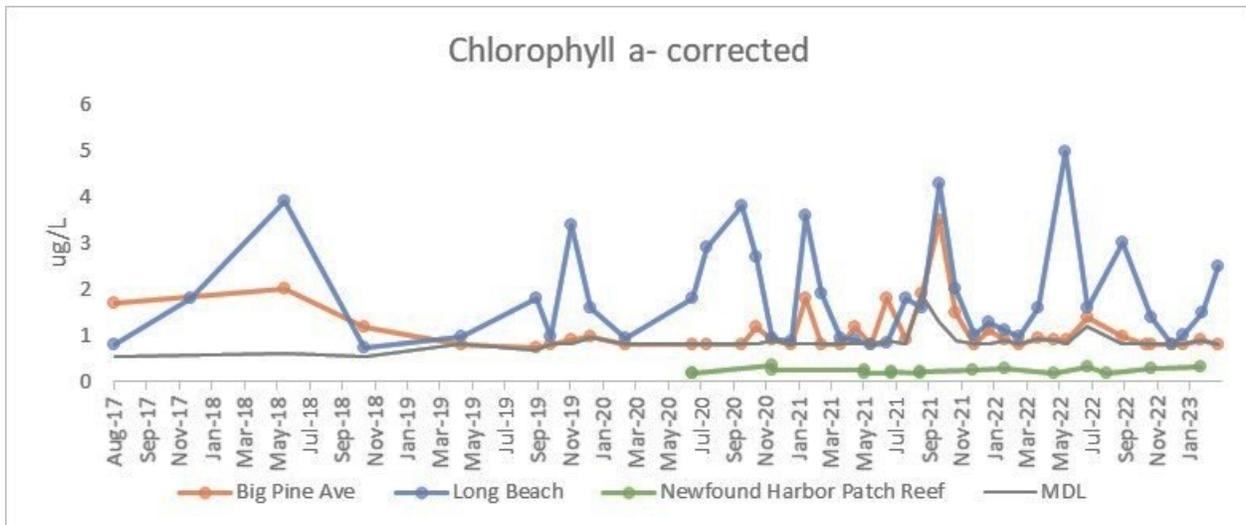
Originally two sites were located in CBAP, both collected from shore. G5WA0002 was at the kayak launch on Long Beach Road, but after six years of data collection this site was phased out in 2023 due to it being strongly impacted by tidal influences and not representative of overall water quality. G5WA0001 was originally located on Seacamp Association property. However, due to damage from Hurricane Irma preventing continued access, it was moved 500 yards (450 meters) northeast to the southern end of the trail through Coupon Bight Buffer Preserve on Big Pine Avenue and designated G5WA0007. These sites have been combined for analysis. A quarterly water quality monitoring site was added in 2019 (G5AP0010) at the mooring field in Newfound Harbor Sanctuary Preservation Area (SPA). A new site (G5AP0026) was established in 2023, paired with the aforementioned G5WA0007 but located at the edge of the "halo zone", 500 meters (550 yards) from shore to minimize the measurement of coastal impacts and therefore measuring within WBID 8080,



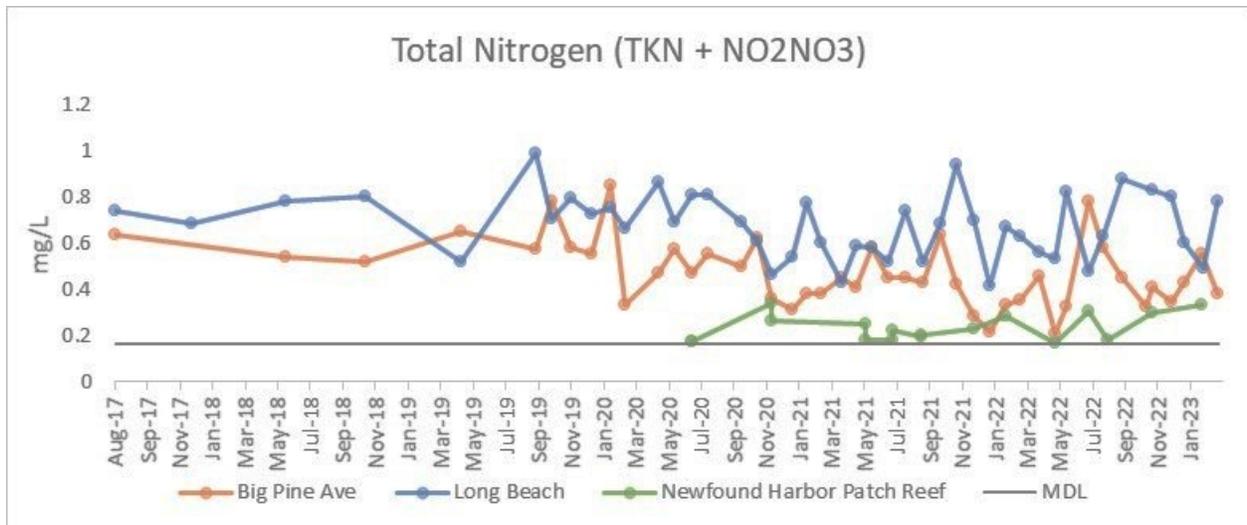
Map 9 / Water quality sampling stations in Coupon Bight Aquatic Preserve



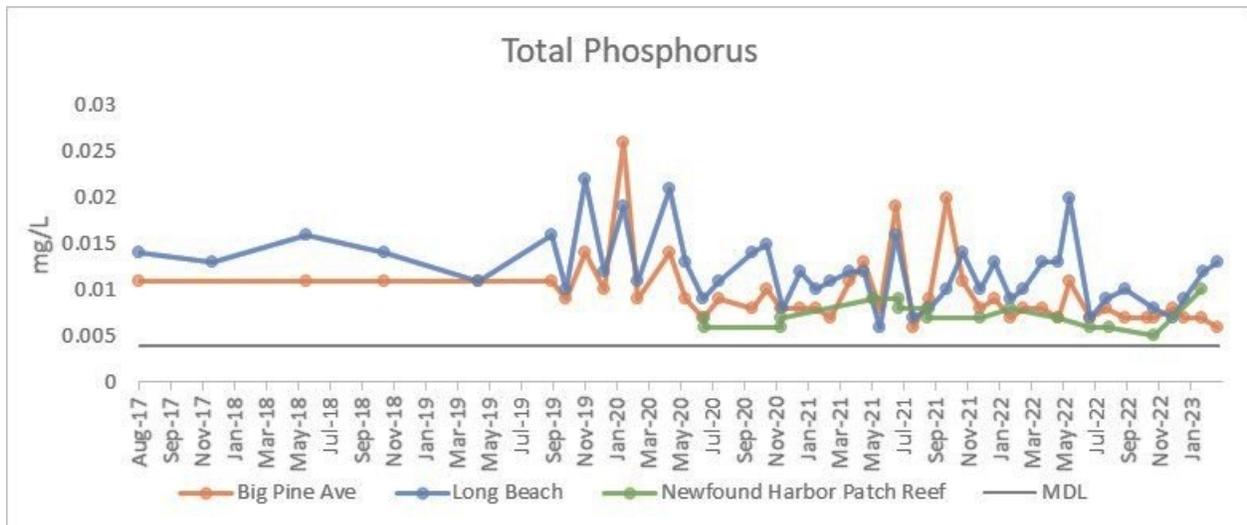
Turbidity – Turbidity is a measure of how opaque water is due to suspended particles and assessed by the amount of light scattered by the suspended particles. Criteria for turbidity is less than or equal to 29 Nephelometric Turbidity Units above natural background conditions (Chapter 62-302.530, F.A.C.).



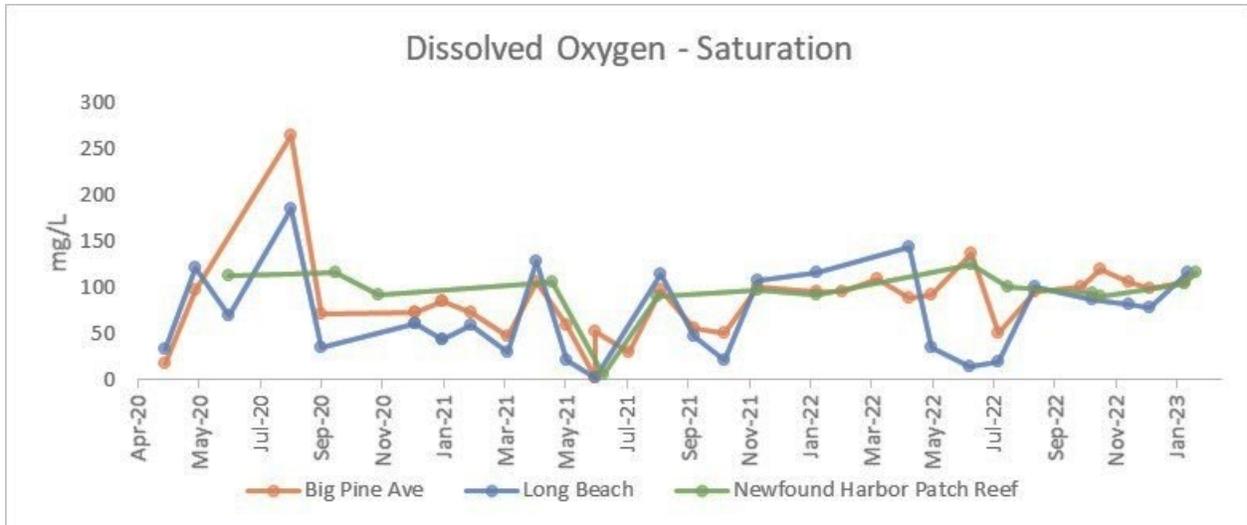
Chlorophyll – Chlorophyll is the pigment that makes plant green and is used during the process of photosynthesis. It is the most abundant pigment found in plants and can thus be used as a proxy for the algal abundance and therefore eutrophication. While criteria have not been established within 500 m of shore, the criteria for chlorophyll a in CBAP is less than or equal to 0.3 ug/L expressed as an annual geometric mean (AGM) (Chapter 62-302.532, F.A.C.). Minimum detection limit (MDL) is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results (U.S. Environmental Protection Agency, 2016).



Total Nitrogen – Total Nitrogen is the sum of ammonia and organic nitrogen in water (total Kjeldahl nitrogen) plus nitrite (NO₂) and nitrate (NO₃). Nitrogen is particularly important for water quality, as it is an essential nutrient for plants and animals. However, excess nitrogen also results in eutrophication, algal overgrowth, and anoxia. Common nitrogen sources include fertilizers, septic systems, animal waste from concentrated animal feeding operations, and some industrial discharges. While criteria have not been established within 500 m of shore, the criteria for total nitrogen in CBAP is less than or equal to 0.2mg/L as AGM (Chapter 62-302.532, F.A.C.).



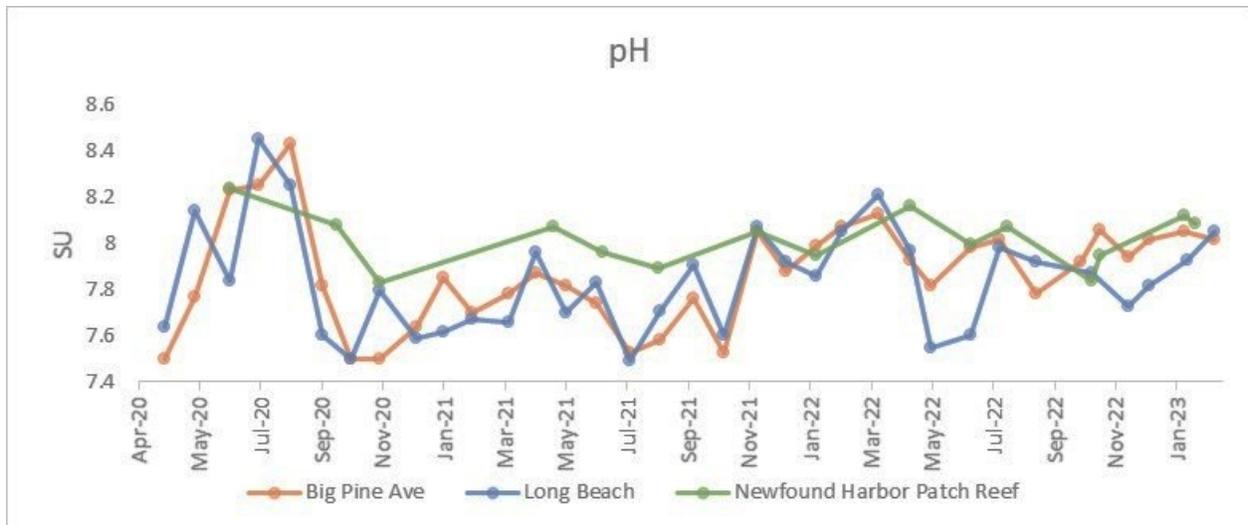
Total Phosphorus – Total phosphorus is the sum of all phosphorus compounds in a water sample. It is an essential nutrient of plants and animals but usually a limiting nutrient because it is not as abundance as carbon and nitrogen. Excess phosphorus can cause eutrophication in phosphorus-limited systems, leading to algal blooms and anoxia. The most common sources of phosphorus include fertilizers, wastewater treatment plants, concentrated animal feeding operation runoff, and certain soils and rocks. While criteria have not been established within 500 m of shore, the criteria for total phosphorus is less than or equal to 0.008 mg/L as AGM (Chapter 62-302.532, F.A.C.).



Dissolved oxygen – Dissolved oxygen is a measure of how much oxygen is saturated in water. Oxygen is very important for plant and animal respiration. In Florida, the criteria for dissolved oxygen is greater than or equal to 42% (Rule 62-302.533, F.A.C.).



Salinity – Salinity is a measure of dissolved salts in a waterbody, usually sodium and chloride. Average seawater salinity is 35 parts per thousand (ppt). Changes in salinity can harm marine life adapted to specific salinity ranges, especially in delicately balanced estuaries. No criteria exists for salinity.



pH – pH is a scale of acidity from 0 to 14. It tells how acidic or alkaline a substance is. More acidic solutions have lower pH. More alkaline solutions have higher pH. Substances that aren't acidic or alkaline (that is, neutral solutions) usually have a pH of 7. In Florida, the criteria for states pH shall not vary more than one unit above or below natural background, provided that the pH is not lowered to less than 6.5 units or raised above 8.5 units (Rule 62-302.530, F.A.C.).

4.1.3 / Ecosystem Science Issue / Issue One: Water Quality

Water quality monitoring is one of the most important things to look at when assessing health of an aquatic or marine system. Parameters analyzed during water quality monitoring can be tied to changes seen in plant and animal populations or biology and can be critical in understanding how human actions can cause environmental harm. As water quality strongly affects humans and the environment, it is essential to have a robust water quality monitoring program. As a designated Outstanding Florida Water (OFW, 17-3.041, Florida Administrative Code [F.A.C.]), the waters of the aquatic preserve are to be afforded the highest protection possible, and water quality is to be maintained within the established standards. The Clean Water Act provided a regulatory basis for state water quality standards programs (published in 40 CFR 131). Florida's surface water quality standards system can be viewed in chapters 62-302, F.A.C.

Water quality is incredibly important for almost every benthic habitat type, as well as organisms living in the water column. The major benthic habitats found in CBAP, seagrasses, hardbottom, and a coral patch reef, depend on clear, clean water. As the only truly marine plant, seagrasses photosynthesize and thus need clear water and unfettered access to sunlight. Declines in water quality, specifically through increases in turbidity and nutrients, can weaken seagrasses, making them more susceptible to other health issues or outright killing them from lack of sunlight and increased competition with overgrowing algae. Poor water quality can also negatively impact humans, leading to bacterial infections, respiratory illnesses, and decreasing enjoyment of swimming areas.

As discussed above, changes in the hydrology and land use in the Everglades watershed likely had major impacts to the water quality in the Florida Keys from changes in nutrients, salinity, and temperature. Unfortunately, there is not baseline data before these changes took place in the late 1800s. Baseline data on some parameters is available from the 1980s and 1990s. It is possible that the changes to community assemblages, health, and population sizes of Everglades and Florida Bay estuary species may have been caused or exacerbated by water quantity and quality issues predating and contemporary with that data collection (including the Florida Bay seagrass and sponge die-offs in 1987 and 2015) and be a contributing factor to ecological changes happening on the Atlantic side.

Until recently most residences in the Keys used shallow injection wells or septic systems to deal with

their wastewater. This was concerning given the porous nature of the Key Largo and Miami Limestones. Poor water quality caused by the lack of sewage treatment has led to frequent beach closures in the past from unsafe levels of fecal bacteria, in surrounding areas, such as Crandon Beach in Miami in early 2023 (Rodriguez Ortiz, 2023). In 1999, the state of Florida ordered Monroe County to upgrade and improve their wastewater treatment systems by 2010. After spending almost \$1 billion, approximately 93 percent of Florida Keys parcels are connecting to a central sewer system based on a 2017 report (Florida Department of Economic Opportunity, 2020). Of the 23,372 parcels with on site sewage treatment and disposal systems (OSTDS), over 22,000 have been connected. The Key Largo wastewater treatment facility in the Upper Keys is 99.9% connected, Hawk's Cay, Duck Key and Conch Key are 98% connected, the South Lower Keys/Big Coppitt Regional system is 92% connected, and the Cudjoe Regional wastewater treatment facility is 88% connected. This is a large accomplishment towards achieving water quality goals, where wastewater has been of particular concern in the past (DEP, 2022b). Specifically in the Lower Keys, including the CBAP region, the Cudjoe Regional Wastewater Service Area covers 56 miles of total area, stretching across 10 Keys. Service extends from the Overseas Highway at mile marker 17 to mile marker 33, and north to No Name Key, totaling 18,055 parcels (Florida Keys Aqueduct Authority, n.d.). Monroe County has also established the Florida Keys as a no discharge zone for boats in nearshore waters, as well as free wastewater pumpouts. This reduces the overall wastewater pollution from boater discharge and land-based sources. Another threat is oils coming off from repaving the roads which happens within the aquatic preserve, so taking note of when this happens so precautions can be taken. With a continuation and betterment of current water quality monitoring efforts, this will help ensure that future changes in habitats can be better linked to the causes.

Goal One: Improve CBAP's long-term water quality monitoring in order to understand current status and future changes in CBAP's natural resources.

Objective One: Understand water quality trends in CBAP from existing data and through ongoing data collection.

Integrated Strategy One: Acquire, maintain and review all records of water quality data for the aquatic preserve area.

Performance Measures:

1. Upload all water quality data collected to appropriate, DEP-maintained databases (i.e. WIN).
2. Coordinate with partner agencies/organizations and ensure data is uploaded into appropriate databases.

Integrated Strategy Two: Regularly review water quality data collected and make publicly available through Florida Keys Aquatic Preserves Annual Report.

Performance Measure:

1. Water quality monitoring data analyzed and included in the annual report.

Objective Two: Seek ways to improve existing water quality collection.

Integrated Strategy One: Continue, and where possible improve, water quality monitoring program within CBAP.

Performance Measures:

1. Complete monthly and quarterly water quality data collections and upload data to WIN.
2. Maintain a continuous water quality monitoring station and upload data to the DEP website.

Goal Two: Restore, enhance, or maintain water quality within CBAP.

Objective One: Identify water quality problem areas within CBAP, both point and non-point sources of pollution.

Integrated Strategy One: Coordinate with regulatory and management agencies in identifying and managing areas within and adjacent to the aquatic preserve that may be contributing to sedimentation or other undesirable impacts to the aquatic preserve.

Performance Measure:

1. Water quality monitoring is conducted at several locations, both within Coupon Bight and

near the patch reefs, to identify the geographic source of any local water quality issues (i.e., if US 1 run-off is affecting the north side of Coupon Bight).

Integrated Strategy Two: Report suspected or identified instances of violations to appropriate regulatory and enforcement agencies.

Performance Measure:

1. All violations are immediately reported to the appropriate agencies.

Objective Two: Reduce or eliminate identified water quality problem areas.

Integrated Strategy One: Work with partnering agencies to develop a plan to address them on a case-by-case basis and at a local-to-federal scale, if necessary.

Performance Measure:

1. Identify specific, measurable issues that can be addressed to improve water quality.

4.2 / The Resource Management Program

The Resource Management Program addresses how ORCP manages CBAP and its resources. The primary concept of CBAP Resource Management projects and activities are guided by ORCP's mission statement: "Conserving, protecting, restoring, and improving the resilience of Florida's coastal and aquatic 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 our sites, throughout our program and, when possible, throughout the state. The strongly integrated Ecosystem Science, Education and Outreach and Public Use Programs, provide guidance and support to the Resource Management Program. These programs work together to provide direction to the various agencies that manage adjacent properties, our partners and our stakeholders. CBAP also collaborates with these groups by reviewing relevant 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 within CBAP are diverse. This section explains the history and current status of our Resource Management efforts.

4.2.1 / Background of Resource Management at Coupon Bight Aquatic Preserve

Much of the management focus surrounding the most aquatic preserves in Florida focus on seagrass beds and habitat for wildlife such as wading birds. A major issue for seagrass is prop scarring, damage caused by boaters attempting to transit over shallow seagrass area. These scars can lead to substantial seagrass damage by prop scar trenches, grounding, blow-out holes, or berms (Kenworthy et al., 2002; McNeese et al., 2006). Natural recovery of seagrass beds is an extensive process as the natural recovery time is often outdone by new prop scars and exacerbated by erosion if the damage also excavates sediment (Engeman et al, 2008; Sargent, Leary, Crewz & Kruer, 1995). Effective remedies include topographical restoration (McNeese et al., 2006) and using bird stakes as well (Kenworthy, et al., 2000). The basis for this specific method is that the bird stakes will allure birds who will then defecate in the water and provide nutrients to that specific region of water. This technique has proven to be effective and is now a common practice that is utilized in seagrass restoration.

However, CBAP is distinctive among Florida's Aquatic Preserves in it also contains a living coral reef. The Newfound Harbor Patch Reef (SPA-zone, also known as Munson Rocks), is one of the seven Iconic Reefs of the Florida Keys, meaning it is the focus of intense management and restoration efforts in order to restore it back to ~30% living coral tissue cover. While this program is relatively new, CBAP staff have been engaged in efforts to protect the patch reefs of the aquatic preserve through disease monitoring, marine debris removal, and education/outreach.

Other historic aquatic preserve management activities included coordinating derelict vessel removal, marine debris removal, and establishing species lists for the aquatic preserve (Annette Nielsen, pers. comm. Jan 13, 2020). At the conclusion of a large-scale effort by local residents to remove small debris deposited by Hurricane Irma in 2017, CBAP staff hired contractors to remove the remaining large debris and derelict vessels. As of 2022, no large debris remains on public islands in Coupon Bight Aquatic Preserve from Hurricane Irma, as confirmed by aerial footage.

It has been discussed in the past that there has been a decline of marine grass beds in the eastern portion of CBAP due to water pollution from upland development (Estrin, 1968). However, some observations have suggested that the area, as far back as 1967, has 'generally sparse' marine grasses and algae. Howard et. al describes the lack of marine grasses and algae as attributed to the type of substrate present, as well as highly variable salinities and extreme temperatures (Howard et. al, 1970). Even if grass beds are minimal in the preserve, the culmination of prop scarring can still be detrimental. "Prop scarring" causes direct damage to the seagrass, including below-ground tissues (roots and rhizomes) (Dunton et. Al, 2002). Once a prop scar is created on a seagrass bed, wave action and strong tidal currents can lead to erosion further deepening the previously scarred area. It can even further expose the surrounding seagrass beds to increased sediment resuspension which will cause the seagrass bed to no longer attain the proper amount of light needed to photosynthesize (Eleutrius, 1987). Prop scarring is noticeable at the bay-mouth bank of CBAP and is estimated that after repeated scarring it can take anywhere from two to five years for them to recover (Ziemann, 1976). However, natural recovery is often impossible due to repeated stressors or erosion. Additionally, intentional prop dredging has been observed within the preserve (using a boat propeller to cut a channel), further altering the natural topography of the area (Florida Department of Environmental Protection, 1992).

4.2.2 / Current Status of Resource Management at Coupon Bight Aquatic Preserve

Permitting and Mitigation

Florida Keys Aquatic Preserve staff provide technical and field support to a variety of local, state, and federal agencies, including DEP's Regulatory Southeast District, DEAR, and Florida Park Service, NOAA's FKNMS program, and FWC's Division of Marine Fisheries Management. CBAP staff assists DEP's Southeast District with permit application review, public interest project options, and site assessments as needed. Florida Keys Aquatic Preserve staff keep open communication with the regulatory agencies and serve as eyes in the field for issues arising in the aquatic preserves and FKNMS waters.

Marine Debris Program



DEP staff use specialized equipment to aid in the removal of large marine debris, including this boat-engine lower unit removed from Newfound Harbor Patch Reef.

Trash has become ubiquitous throughout our oceans since the rise of single-use plastics. Trash can persist in the environment indefinitely - some materials, such as plastics, never truly decompose. The prevalence of anthropogenic marine debris is concerning because of the wide variety of impacts and the scale at which it is created. The presence of marine debris can severely impact organisms from plankton up to whales, and further affect many habitat types from coral reefs to mangrove shorelines. Debris accumulation is prevalent in three zones: reefs with vertical relief that entrap submerged debris, mangrove shorelines that entrap floating debris, and benthic habitats that can accumulate lost/derelict traps.

Not only this, but marine debris can be a hazard to navigation, decrease aesthetic value of

landscapes, and be deadly to marine life. Documented negative impacts on marine life include 1) ingestion and subsequent starvation or poisoning, 2) introduction of chemicals into waterways or via ingestion of microplastics, 3) entanglement, 4) ghost fishing, and 5) habitat destruction (Gall & Thompson, 2015). Fishing related marine debris, including hook and line and trap fishery debris, is a major component of the marine debris in the Florida Keys and trap-related debris composes the bulk of marine debris in the area (Uhrin, Matthews, & Lewis, 2014). While the actual quantity of marine debris is difficult to quantify in the Florida Keys, in 2002 researchers found that in 110 debris occurrences located on reefs within the lower Keys, 89.1% were associated with trap or hook and line fishing, which correlates with the heavy recreational and commercial fishing presence located in the lower half of the Keys (Chiappone et.al, 2002).

Ghost fishing by derelict lobster and crab traps is a prevalent problem in the Florida Keys. Around 89,000 lobster traps are lost each season, resulting in the death of over half a million lobsters a year (Butler & Matthews, 2015). Many more traps can be lost in years with hurricanes. Wooden lobster traps can persist in the environment for up to two years and kill lobster, fish, stone crabs, and diving seabirds, as well as sea turtles and marine mammals from entanglement in the trap line and buoys (Gall & Thompson, 2015). Because lobster spat settle in the protected areas of Florida Bay to grow into maturity, a disproportionate number of this ghost trap-related lobster mortality occurs in Florida Bay and therefore the Gulf of Mexico watershed. Derelict lobster traps can also destroy habitat by movement during storms. Traps can damage sponges, corals, octocorals, and other benthic organisms through abrasion, crushing, and breaking (Uhrin et al., 2014). Traps thrown in sand patches within shallow seagrass beds can also lead to erosion and undercutting of the nearby seagrass shelf (Personal communication, J. Duquesnel, October 21, 2019), and derelict traps on seagrass beds will kill underlying seagrass if present for more than six weeks in that location (Uhrin et al., 2014).

Preliminary surveys to assess marine debris indicate there is debris present throughout CBAP. As it is a popular recreational and commercial fishing location and many utilize the resources surrounding the preserve, derelict traps are found throughout the aquatic preserve, in navigational channels and shallow seagrass beds. With storms occurring frequently throughout the Florida Keys, many of the derelict fishing gear can end up in critical habitat such as coral reefs and seagrass beds. Mangroves of the islands within CBAP also contains trash around the perimeters of the island ranging in size from microplastics to other larger debris that has made its way into the aquatic preserve. Marine debris removal will be limited to anthropogenic marine debris.

Cultural Resources

There are few cultural resources known within CBAP. Staff will monitor the existing cultural resources and continue to seek additional sites in the course of other activities within the aquatic preserve. No land clearing or ground disturbance, above or below the ordinary high-water line, will be undertaken by staff until the Division of Historical Resources has provided a review and recommendations for the proposed activity.

Nuisance Species

When possible, aquatic preserve staff will remove any invasive species observed during other field activities within CBAP. Staff maintain a permit with NOAA's Office of Marine Sanctuaries to allow for the removal of lionfish (*Pterois volitans*) within Newfound Harbor SPA. During the annual Christmas Bird Count, staff paddle around the mangrove islands north of Long Beach and document any Australian pines (*Casuarina* spp.) that are growing on the state-owned islands. If any are observed, a removal is scheduled for a time when tides allow for boat access. No other invasive species have been documented with CBAP, although monitoring continues.

4.2.3 / Resource Management Issue / Issue Two: Wildlife and Habitat Protection

Effective management of the resources found within CBAP necessitate understanding their current status and long-term historical trends. Unfortunately, these data are lacking. The Florida Bay seagrass die-offs in 1987 and 2014-15 fortunately did not reach CBAP, but the hydrological and water quality issues that contributed to the die-off are chronic and ongoing. With the exception of the restoration sites at the

Newfound Harbor Patch Reef, none of the benthic habitats in the park are currently regularly monitored, but water quality is consistently assessed in order to observe trends within the ecosystem. At the time of writing this plan, regular monitoring programs are in development for the major benthic habitats, including the benthic monitoring of the hardbottom communities and monitoring of coral patch reefs to monitor the overall health of the ecosystem.

Previously, the Florida Keys has had much larger populations of wading and seabirds, but a massive uptick in development throughout the 1950s-70s led to an abandonment of previously established nesting areas (Lorenz et al., 2002). It is very likely that the loss of a multitude of resources that are necessary for these birds' survival have led to their decline including a loss of coastal mangrove habitats, loss of foraging grounds, and a decline in nesting habitat. Noise population has pushed many birds further north into the Florida Bay and the Everglades, but the hydrological changes in the Everglades watershed has subsequently led to negative changes in the bird population there as well. Annual Christmas Bird Counts are coordinated by the US Fish and Wildlife Service through Audubon Society and aquatic preserve staff have participated in recent years, focusing on the shallow area of mangrove islands north of Long Beach. While no rookeries have been identified within Coupon Bight Aquatic Preserve, monthly monitoring during peak nesting months will occur if one is identified and accessible. A suspected reddish egret rookery was documented during Christmas Bird Count; however, it is located in an area of mangroves that would require a negative impact on the habitat in order to access it.

Osprey populations were also impacted by changes starting in the 1970s. Monroe County was the only Florida county to have listed ospreys as a species of special concern due to severe population declines in Florida Bay, although in 2017 it was removed from that list because populations elsewhere in Florida are stable or increasing. South Florida ospreys are now considered a separate, non-migratory subpopulation but are not genetically distinct from other Florida ospreys (FWC, n.d.-e). Osprey populations crashed starting in the early 1970s to 2007 but have been increasing over the past decade (FWC, 2017). The cause of the decline may have been due to declines in their food source (fish). An osprey nesting pole was installed on the edge of Coupon Bight Aquatic Preserve and Buffer Preserve in 2018 but to date has not been utilized.

Goal One: Conduct and maintain natural resource inventories.

Objective One: Conduct and maintain a natural resource inventory of submerged resources for the aquatic preserve.

Integrated Strategy One: Conduct an inventory of marine grass beds, algal beds, coral banks, patch reefs and hardbottom areas by using LANDSAT imagery, aerial photography, and ground truthing efforts every three years.

Performance Measures:

1. An annual report is created that includes data collected as part of benthic monitoring programs.
2. An updated natural resource inventory map as boundary shifts are identified.

Objective Two: Inventories of wading and diving birds and their habitats within the aquatic preserve are conducted and maintained.

Integrated Strategy One: Collect data on birds using the aquatic preserve.

Performance Measures:

1. Participate in the annual Christmas Bird Count, focusing on CBAP.
2. If an active rookery is identified, assess the status at least once per month during the nesting season.

Integrated Strategy Two: Coordinate with public or conservation agencies that may be conducting similar inventories of species, populations, life histories, migration patterns and habitat needs where mutual benefits in knowledge and management objectives are to be gained.

Performance Measures:

1. Participate regularly in Sanctuary Advisory Council meetings.
2. Utilize citizen scientists, including through apps such as iNaturalist and Merlin.

3. Share an annual report with USFWS and FKNMS.

Goal Two: Restore habitat within the aquatic preserve.

Objective One: Restore or enhance suitable habitats or resources where feasible.

Integrated Strategy One: Using resource inventories generated from Goal 1, identify those resource areas that have been or are being negatively impacted by external influences. These influences may include, but are not limited to; prop scars, boat grounding areas, dumping, erosion, abandoned/derelect traps or vessels, exotic vegetation, and roads.

Performance Measures:

1. Areas of current and future potential restoration sites are identified in the annual report.

Integrated Strategy Two: Prioritize potential restoration areas according to severity of impact to the immediate resources and to the overall functional integrity of the preserve.

Performance Measures:

1. Procure necessary permits to perform appropriate restoration work.
2. Develop procedures and guidelines for addressing the priority areas for restoration, (e.g. exotic plant removal, beach clean-up, stabilizing and/or revegetating grassbed or mangrove areas, enhancing listed species habitats, removal of derelect vessels and abandoned traps, filling in mosquito ditches, reestablishing historic water flows, etc.

Integrated Strategy Three: Monitor and review progress on restoration projects.

Performance Measures:

1. Include updates on restoration activities in the annual report.
2. Share milestones in restoration activities with the Sanctuary Advisory Council.

Integrated Strategy Four: Inventory and report all abandoned vessels and traps to FWC and encourage removal in a timely manner.

Performance Measures:

1. Report all derelect vessels to FWC.
2. Remove all derelect traps when permissible annually.

Goal Three: Protect submerged resources.

Objective One: Minimize potential damage to submerged resources of state-owned lands in the aquatic preserve.

Integrated Strategy One: Follow agency guidance in determining Resource Protection Areas (RPA) for all permit applications within the aquatic preserve.

Performance Measures:

1. Determinations of Resource Protection Areas are shared with DEP or South Florida Water Management District (SFWMD) as part of permit application reviews.

Integrated Strategy Two: Coordinate with the appropriate regional DEP or SFWMD staff to process field staff comments to applications for use in a timely manner.

Performance Measures:

1. If a proposed activity is not compatible with this approved management plan, such information will be relayed to the appropriate state permitting agency within the established deadlines.

Integrated Strategy Three: Report activities that do not appear to have been authorized to the appropriate enforcement agent.

Performance Measures:

1. Coordinate with the appropriate regional DEP staff to receive copies of all letters of consent, easement agreements, lease agreements, and other forms of authorization.
2. Unpermitted activity is immediately reported to the appropriate enforcement agency.

Integrated Strategy Four: Assist in maintenance of the mooring buoy system near the larger patch reefs in the aquatic preserve.

Performance Measure:

1. Staff will coordinate with NOAA's FKNMS Buoy Team and provide financial or personnel assistance when possible. Best Management Practices will be utilized.

Goal Four: Protect emergent vegetation and habitats.

Objective One: Collaborate with the U.S. Fish and Wildlife Service on management of the publicly-owned islands with Coupon Bight Aquatic Preserve and the Coupon Bight Buffer Preserve.

Integrated Strategy One: Conduct debris removal on upland areas.

Performance Measure:

1. Debris removal reported in annual report.

Objective Two: When appropriate, work with partner agencies or organizations to perform ecosystem restoration activities on upland areas.

Integrated Strategy One: Conduct ecosystem restoration on upland areas.

Performance Measure:

1. Restoration efforts reported in annual report.

Goal Five: Protect listed species and their habitat.

Objective One: Determine which portions of the aquatic preserve serve as habitat for listed species.

Integrated Strategy One: Coordinate with the Florida Fish and Wildlife Conservation Commission, U.S. Fish and Wildlife Service, the Audubon Society, and any other relevant group or agency to determine which listed species use what portion of the aquatic preserve for various aspects of their life cycle.

Performance Measures:

1. Conduct inventories at regular intervals of listed species expected to occur within the aquatic preserve.
2. Support, and when feasible, participate in research to establish critical habitat areas for listed species of plants and animals in the aquatic preserve.

Integrated Strategy Two: During the course of routine field work and patrols, staff will observe and record sightings, locations, activity, and other information relevant to a listed species.

Performance Measure:

1. Any new listed species utilizing the aquatic preserve will be reported to FWC.

Objective Two: Protect all listed species of animals and plants.

Integrated Strategy One: Report any incidence of harassment, poaching, killing, taking or other unlawful activity, including unleashed dogs and artificial feeding stations to the appropriate enforcement agencies without delay.

Performance Measures:

1. Unlawful activity is immediately reported to FWC or USFWS law enforcement.

Integrated Strategy Two: Coordinate and cooperate with appropriate management and enforcement agencies to evaluate potential impacts to listed species as a result of a proposed project or activity.

Performance Measure:

1. All required permits are acquired from relevant management agencies for work done.
2. Appropriate management steps are taken to prevent or avoid negative impacts to all listed species of animals and plants.

Goal Six: Maintain or enhance the functional integrity of habitats.

Objective One: Determine the primary factors that influence the survival of marine grass beds and algae.

Integrated Strategy One: Pursue grant funding and support partner groups in research directed toward identifying physical, chemical and/or pathogenic sources of marine grass bed damage.

Performance Measure:

1. Abstracts of research conducted in CBAP will be included in the annual report.

Integrated Strategy Two: Pursue grant funding and support partner groups in research directed toward boating impacts (prop dredging, shading, sediment suspension, etc.) on marine grass beds.

Performance Measures:

1. Collaborate with state parks and other groups active in seagrass restoration in the Florida Keys to identify best practices.
2. Trial novel restoration techniques when appropriate and report on efficacy.

Objective Two: Determine the primary and secondary factors that affect the species of the hardbottom and coral patch reefs.

Integrated Strategy One: Pursue grant funding and support partner groups for research that identifies the physical, chemical and pathogenic factors that influence coral growth, recruitment and mortality.

Performance Measure:

1. Abstracts of research conducted in CBAP will be included in the annual report.

Integrated Strategy Two: Review and encourage, where appropriate, proposals for the culture of hardbottom sponges in the preserve.

Performance Measures:

1. Produce timely feedback to organizations proposing research in the aquatic preserve.
2. Sponge research in the aquatic preserve is promoted at conferences attended by staff.

Objective Three: Encourage applied research directed toward enhancing the management of the preserve's resources.

Integrated Strategy One: Review and encourage, where appropriate, applied research proposals that may be carried out within in the preserve.

Performance Measures:

1. Produce timely feedback to organizations proposing research in the aquatic preserve.
2. Sponge research in the aquatic preserve is promoted at conferences attended by staff.

Integrated Strategy Two: Explore and pursue available grant funding for applied research projects and to expand capacity for aquatic preserve management.

Performance Measure:

1. Apply for grant funding including dedicated funding for additional staff support.

Goal Seven: Identify and locate unknown archaeological and historical resources within CBAP.

Objective One: Assist with management and monitoring of existing archaeological and historical resources.

Integrated Strategy One: Staff will monitor for unidentified cultural resources during activities in the aquatic preserve.

Performance Measure:

1. Record the condition of newly discovered archaeological sites within the aquatic preserve.
2. At least one staff member will receive Archaeological Resource Monitoring (ARM) training.

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 Coupon Bight Aquatic Preserve

Education and outreach has long been a component of CBAP and is geared towards promoting the end goal of conserving and protecting the aquatic preserve for the benefit of humans and the environment. Staff have participated in several outreach events each year since management of the Florida Keys Aquatic Preserves resumed in 2016. Extensive education and outreach are conducted by FKNMS and outside organizations such as Seacamp Association and Florida Sea Base's Brinton Environmental Center.

4.3.2 / Current Status of Education and Outreach at Coupon Bight Aquatic Preserve

Aquatic preserve staff regularly participate in or lead outreach events throughout the Florida Keys. Staff strive to provide accurate and up-to-date information on the biology, ecology, and regulations found with the Coupon Bight area. Of highest concern to the Education and Outreach Program at CBAP is visitor use of the area, especially in the and the Newfound Harbor Patch Reef SPA and the shallow seagrass flats in Newfound Harbor Channel.

Future Needs

Volunteer and Citizen Science Program

The volunteer program of CBAP is still in its infancy. CBAP staff will take advantage of the strong volunteer culture in the Keys and work with partners such as the FKNMS, the National Key Deer Refuge, and Seacamp Association located on Big Pine Key. Volunteers will be critical in achieving many of the goals laid out in this management plan, including marine debris removal and species inventorying and monitoring. Since 2021, a partnership with Florida Seabase's Brinton Environmental Center has led to the annual removal of almost all marine debris within the Newfound Harbor Patch Reef SPA.

Classroom Talks and Tours

CBAP staff currently do not have the time or staff necessary to achieve all educational requests. However, with proper staffing, classroom visits and field trips could be conducted within the aquatic preserve to encourage understanding of and foster a sense of stewardship toward the aquatic preserve and the outdoors in general.

Social Media

Florida Keys Aquatic Preserves staff typically submit at least one social media post per month to DEP's central office for approval and posting on the Florida DEP social media pages. This increases awareness of CBAP throughout the entire state of Florida and beyond.

4.3.3 / Education and Outreach Issue / Issue Three: Public Awareness

Goal One: Enhance knowledge of natural resources in CBAP and how visitors can be good stewards.

Objective One: Improve education and outreach programs of the Florida Keys Aquatic Preserves regarding awareness of the Florida Aquatic Preserve Program and how the public can help protect it.

Integrated Strategy One: Lead outreach events and participate as an outreach booth at festivals and other local events attended by users of CBAP.

Performance measures:

1. Track the number of people reached during outreach events.
2. Track the number of outreach events attended by aquatic preserve staff and volunteers.

Integrated Strategy Two: Enhance the knowledge of environmental education, conservation psychology, and outreach techniques for aquatic preserve staff.

Performance Measure:

1. Staff attend environmental education and behavior change training(s).

Integrated Strategy Three: Develop more interactive outreach activities and content.

Performance Measure:

1. Increase engagement at outreach events, both in number of participants and follow through of behavior changes.

Objective Two: Provide a permanent space for the public to learn about the Florida Keys Aquatic Preserves.

Integrated Strategy One: Procure a space/ kiosk with exhibits and literature on the aquatic preserve.

Performance Measure:

1. Track the annual number of visitors.

Goal Two: Improve education and outreach programs of CBAP to protect the wildlife and habitats found within the aquatic preserve.

Objective One: Use outreach and communication on how to be good stewards of the seagrass beds and decrease prop scarring and other seagrass damage by raising awareness of how to safely navigate the aquatic preserve.

Integrated Strategy One: Increase number of outreach events where promoting seagrass stewardship is a major component of the outreach event.

Performance Measures:

1. Track number of people reached at outreach events.
2. Track number of outreach events participated in.

Integrated Strategy Two: Increase availability of interpretive signage, and other materials regarding seagrasses.

Performance Measures:

1. Repair, replace, and/or create additional signage and install at access points regarding how to navigate through the preserve, and what to do if boaters accidentally enter a shallow seagrass bed.
2. Install and maintain signage on the water informing boaters that they are entering an aquatic preserve.
3. Distribute informational materials to local businesses and the Chamber of Commerce.

Objective Two: Use outreach and communication regarding the marine debris issue and how aquatic preserve users can reduce their impact to the aquatic preserve.

Integrated Strategy One: Collaborate with established, local organizations to remove marine debris from the aquatic preserve.

Performance Measures:

1. Facilitate at least one clean-up event focusing on the submerged habitats of the aquatic preserve annually.
2. Facilitate at least one clean-up event focusing on the mangrove shoreline of the aquatic preserve annually.

Integrated Strategy Two: Promote reporting of derelict traps and marine debris via the Southeast Florida Action Network (SEAFAN) incident report form.

Performance Measures:

1. Relaying information through outreach opportunities to inform the public about SEAFAN via incident report form QR code stickers.
2. Remove reported marine debris within or adjacent to the aquatic preserve in a reasonable timeframe.

Goal Three: Increase awareness of management activities inside the aquatic preserve.

Objective One: Provide timely and accurate water quality data to the public and other interested parties

Integrated Strategy One: Use existing databases and/or develop new tools for providing data for public use.

Performance Measures

1. Upload data into WIN and other pertinent databases annually.
2. Release annual reports in a format easy to understand by the public on water quality status, trends, and areas of concern for CBAP (i.e. infographic).

Objective Two: Improve public knowledge of aquatic preserve status and trends.

Integrated Strategy One: Produce annual CBAP status reports with sections on management goal progress and the status and trends (when and where appropriate) of major habitat/ wildlife types.

Performance Measure:

1. Produce an annual report that includes sections on benthic habitat monitoring, bird species, and marine debris.

Integrated Strategy Two: Promote CBAP through social media.

Performance Measure:

1. At least one social media post per month is submitted to central office for consideration on Florida DEP's social media.

4.4 / The Public Use Management Program

The Public Use Management Program addresses the delivery and management of public use opportunities at the aquatic preserve. 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 our 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 the site 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 our Public Use efforts.

4.4.1 / Background of Public Use at Coupon Bight Aquatic Preserve

The Coupon Bight Aquatic Preserve is important regionally and locally. The geological resources of the benefit of having both Key Largo Limestone and Miami Limestone offers a unique vantage point to understand the history of the Florida Keys. The cultural resources within Coupon Bight Aquatic Preserve is extensive including the history of the Flagler Railroad, Big Munson Island, Little Munson Island, and Big Pine Key. The variety of mangrove islands that are found within offer visitors to the Keys distinctive opportunities to view wildlife, such as the elusive Key Deer, as well as the iconic coral patch reef. The surrounding area is vastly undeveloped, which is rare in the Florida Keys, and will remain protected as part of the Coupon Bight Buffer Preserve and National Key Deer Wildlife Refuge.

Public access to the aquatic preserve varies, with public boat ramps a short distance away outside of the aquatic preserve including Spanish Harbor Boat Ramp. A small kayak access resides within the aquatic preserve as well, on Long Beach Road before the residential area. Limited boat rental operations exist in CBAP, but recreational fishing is common by local residents and guided expeditions. The aquatic preserve is also utilized by commercial operations. Caribbean spiny lobster and stone crab traps are frequently seen in the aquatic preserve.

4.4.2 / Current Status of Public Use at Coupon Bight Aquatic Preserve

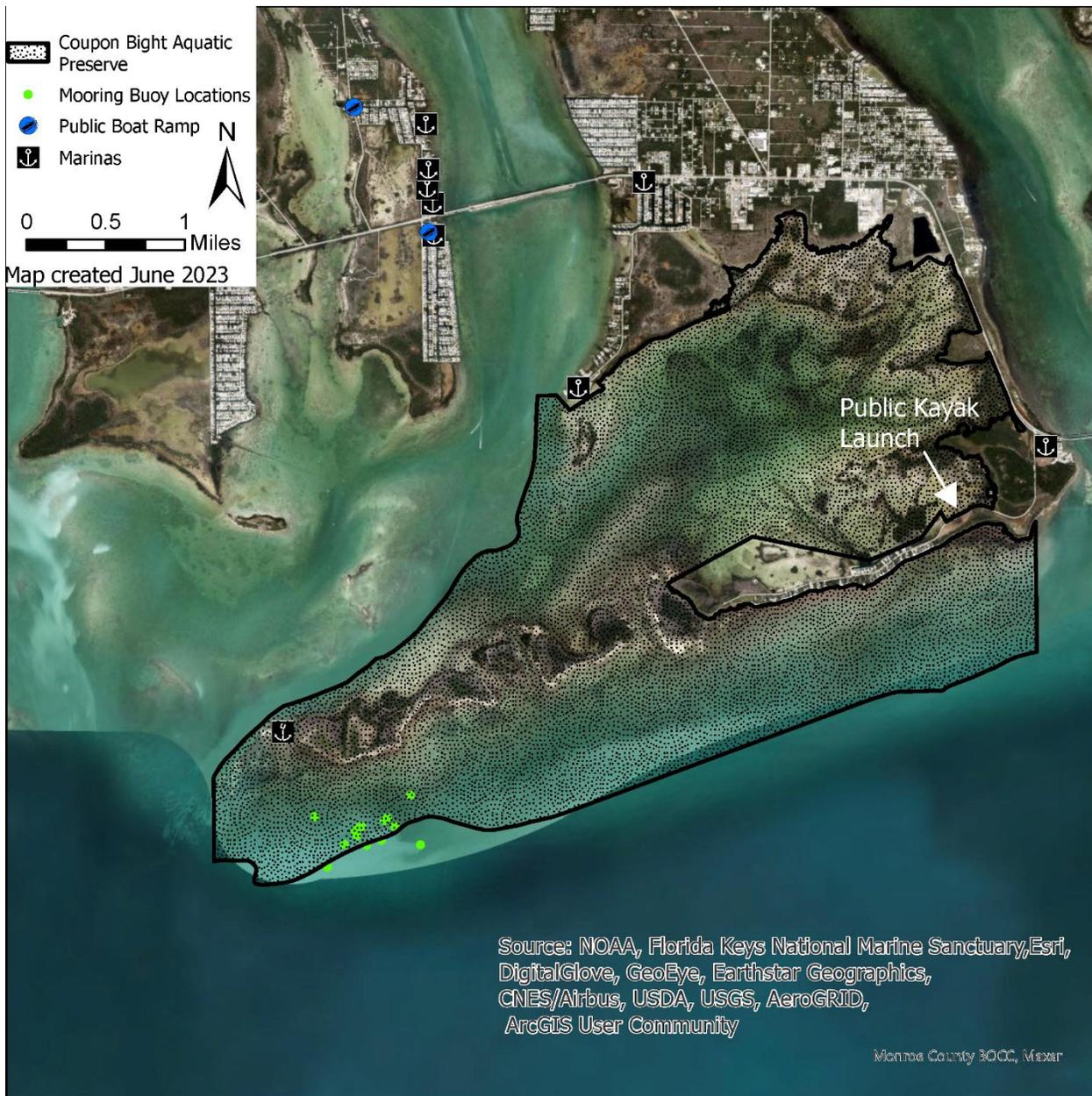
Interpretation and Access Point Signage

CBAP staff designed, installed, and are maintaining signs detailing the general biology and ecology of the aquatic preserve. These signs are installed at popular water access points to the aquatic preserve – including the public kayak launch on Long Beach Road and at Spanish Harbor Boat Ramp adjacent to the aquatic preserve. Additionally, on water signage has been installed along Newfound Harbor Channel which informs boaters of the legal protection for seagrass within CBAP.

Visitor Use Conflict Areas

Many of the visitors that are using CBAP are either passing through to meet their final destination, Key West, or heading back up north to Miami. The tourists that utilize the area will fish, kayak, picnic, and snorkeling. Unfortunately, heavy use of the off-shore portions in the summer can lead to conflicting uses, with snorkelers diminishing the ability of fishermen to catch fish. For this reason, FKNMS established the Sanctuary Preserve Area (SPA) aimed to reduce user conflict and protect the habitat from consumptive uses.

CBAP also lies downstream of a variety of larger developments, where runoff and water flow can make its way further down south.



Map 10 | Public Access at Coupon Bight Aquatic Preserve

Consumptive Use

As mentioned above, numerous spiny lobster and stone crab traps are deployed within the aquatic preserve. Ghost fishing of derelict lobster traps is a problem in the Florida Keys, including within CBAP. Around 89,000 lobster traps are lost each season, resulting in the death of more than half a million lobsters a year (Butler & Matthews, 2015). Many more traps can be lost in years with hurricanes. Wooden lobster traps can persist in the environment for up to two years, continuing to trap and kill lobster, fish, and stone crabs. Plastic traps persist in the environment indefinitely, and while degradable panels are intended to allow escape after a year, many do not degrade or become blocked by biofouling. Traplines and buoys can entangle and drown seabirds, sea turtles, and marine mammals (Gall & Thompson, 2015). Derelict lobster traps can also destroy habitat by movement during storms. Traps can damage sponges, corals, octocorals, and other benthic organisms through abrasion, crushing, and breaking (Uhrin et al., 2014).

Traps in the seagrass beds can lead to erosion and undercutting of the nearby seagrass shelf and derelict traps on seagrass beds can lead to death if present for more than six weeks due to the smothering of light (Uhrin et al., 2014). Trap removal is necessary as part of the marine debris removal program, but it is also important to work with trap fisherman and FWC to promote best practices.

4.4.3 / Public Use Issue / Issue Four: Public Access

Goal One: Improve visitor access potential into CBAP.

Objective One: Facilitate access to CBAP through enhanced visibility of existing designated access points.

Integrated Strategy One: Advertise CBAP at public access points through the development and production of signage and brochures.

Performance measures:

1. Educational materials are available key locations in the Lower Keys, including the National Wildlife Refuge Visitor Center, Pine Channel Nature Park, and the National Key Deer Refuge.
2. Install and maintain signage at access points (i.e. Long Beach Kayak Launch and Spanish Harbor Boat Ramp).

Objective Two: Attempt to understand levels of use and potential carrying capacity limits to protect preserve resources.

Integrated Strategy One: Support studies designed to count usage of CBAP.

Performance measure:

1. Usage of the aquatic preserve is reported in the annual report.

Objective Three: Partner with ecotourism operators to provide visitors with an educational experience that increases their appreciation of the resources.

Integrated Strategy One: Establish relationships with ecotourism operators currently providing tours within the aquatic preserve.

Performance measure:

1. Compile a list of ecotours, operators, and contact information.

Integrated Strategy Two: Provide tour operators with information on best practices for operating in the aquatic preserve and educational materials to share with visitors.

Performance measure:

1. Educational materials are developed and shared with ecotour operators.



DEP staff removing derelict traps from Coupon Bight Aquatic Preserve.

Chapter 5 / Administrative Plan

Staffing

The success of the Coupon Bight Aquatic Preserve's management plan and our ability to carry out the research, education, and resource management programs within the plan, is dependent upon funding and staffing. There are currently three full-time staff members based in the Florida Keys responsible for managing Coupon Bight Aquatic Preserve as well as Lignumvitae Key Aquatic Preserve and the Florida Keys National Marine Sanctuary (FKNMS).

FKNMS & Aquatic Preserves Manager (FTE [Full Time Equivalent]) – This Program Consultant position manages the FKNMS and serves as a liaison between the state and federal entities that manage the Sanctuary. The position also directs project management, administration, operations, submits purchase orders and invoices, maintains vehicle logs, and maintains files. Aquatic Preserve budget reconciliation and staff supervision is performed by this position.

Keys Program Assistant Manager (OPS [Other Personal Services / limited benefits]) – This Environmental Specialist III position is responsible for all data collection, data management, natural resource management activities, and outreach. The position also assists the FKNMS Liaison & Aquatic Preserves Manager as needed.

Marine Debris and Outreach Specialist (OPS [Other Personal Services / limited benefits]) – This Environmental Specialist II position assists with carrying out a five-year U.S. Environmental Protection Agency-funded project to reduce and prevent marine debris entering Lignumvitae Key Aquatic Preserve,

however work is also performed in Coupon Bight Aquatic Preserve and throughout FKNMS. Duties include coordinating and leading clean-ups, developing and conducting outreach to user groups, and engaging the local communities in debris reduction and prevention. The position also assists the FKNMS Manager with other priority needs.

Water Quality Program Manager (Contractor through Florida Sea Grant) – This position serves as the DEP lead in the development of regional-water quality related efforts that will further protect FKNMS and Florida’s Coral Reef. These include but are not limited to coordinating water quality monitoring projects, assisting managing DEP efforts to advanced priority projects identified by the Water Quality Protection Program, and overseeing efforts to identify and reduce known pollution hotspots in FKNMS. The Water Quality Program Manager also represents DEP in regional water quality meetings, including the FKNMS Water Quality Protection Program, FKNMS Regional Connectivity Working Group and FKNMS Advisory Council meetings. The position also assists the Aquatic Preserve staff and the FKNMS Manager with priority needs.

Staffing Needs

Many of the strategies identified in this plan will be implemented using existing staff and funding. However, several objectives, and the strategies necessary to accomplish them, cannot be completed during the life of this plan without additional resources. The plan’s recommended actions, time frames, and cost estimates will guide the DEP Office of Resilience and Coastal Protection’s (ORCP) planning and budgeting activities over the period of this plan. These recommendations are based on the information that exist 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.

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.



Florida Keys Aquatic Preserves offices are located in the State of Florida Regional Service Center (Marathon, FL).

Chapter 6 / Facilities Plan

Buildings

The office space for Florida Keys Aquatic Preserve staff is at the Marathon Government Center, about 30 minutes north of Coupon Bight Aquatic Preserve. Office of Resilience and Coastal Protection staff have three office spaces, one for the FKNMS & Regional Aquatic Preserve Manager, one for the Water Quality Program Manager and any part time Water Quality Technicians, and the third and the other divided into cubicles for the Ecosystem Assessment Specialist, the Marine Debris and Outreach Specialist, with space for two more staff members and a conference table with video-calling equipment Both indoor and outdoor storage space are limited here. Facilities maintenance is taken care of by the Florida Department of Management Services. The DEP Southeast District regional office and the Florida Fish and Wildlife Research Institute regional laboratory, and the Florida Fish and Wildlife Law Enforcement office are also located within the building. Laboratory space is provided by the Florida Fish and Wildlife Research Institute.

Vehicle

CBAP staff have one vehicle – a 2022 Ford F-150. This vehicle was new in December 2022. This vehicle is used for travel to outreach, fieldwork, presentations, and for the transportation of equipment, boats and kayaks. It was acquired Using funds from the Keep Lignumvitae Lovely US Environmental Protection Agency EPA-GM-2019-TFW.

Vessels

A 2022 Carolina Skiff 20LS was purchased new from the same grant - EPA-GM-2019-TFW. While this

vessel was primarily purchased for marine debris removal operations, and is equipped with a 1000 lb. davit winch, it also serves as a SCUBA diving platform for other ecosystem management activities.

Additionally, there are two kayaks - a Liquid Logic Manta Ray 12 and Wilderness Systems Tarpon 120 – which were given to CBAP by the Biscayne Bay Aquatic Preserves in 2016. These kayaks are used annually in CBAP for the Christmas Bird Count.

Upon the occasion of a catastrophic event, all facilities, vessels, and vehicles will be secured and/or removed according to our Hurricane/Emergency Action Plan, which is updated annually. The Marathon Government Center will be secured by building staff.

Future Needs

Buildings

There is currently no visitor center for either of the Florida Keys Aquatic Preserves. Any new office space would benefit from an entry room that housed a small exhibit and offered information on the aquatic preserves and state park. No dedicated staff would be necessary, but information on access points, local rules, navigational tips, and natural history would be available. Aquatic preserve staff could enter the exhibit hall and answer questions if they are in the office and available.

Vehicle

While CBAP staff have been able to borrow smaller, more fuel-efficient vehicles from the Southeast District's office recently, a dedicated car would help reduce schedule conflicts with vehicle needs and allow for a more effective mode of transportation when staff travel throughout the region.

List of Appendices

Appendix A / Legal Documents	72
A.1 / Aquatic Preserve Resolution	72
A.2 / Florida Statutes	73
A.3 / Florida Administrative Code.....	74
A.4 / Resolution No. 72-5: Coupon Bight Aquatic Preserve Designation	75
Appendix B / Resource Data.....	79
B.1 / Glossary of Terms	79
B.2 / References	83
B.3 / Species Lists	95
B.3.1 / Native Species.....	95
B.3.2 / Listed Species	114
B.3.3 / Invasive Non-native and/or Problem Species	116
B.4 / Arthropod Control Plan	118
B.5 / Archaeological and Historical Sites Associated with Coupon Bight Aquatic Preserve	118
Appendix C / Public Involvement.....	119
C.1 / Public Forum.....	119
C.1.1 / Florida Administrative Register Posting	119
C.1.2 / Meeting Summary	120
C.1.3 / Additional Comments.....	121
C.2 / Advisory Committee.....	123
C.2.1 / List of invited members and their affiliations.....	123
C.2.2 / Florida Administrative Register Posting	124
C.2.3 / Meeting Summary	126
C.3 / Formal Public Meeting.....	130
C.3.1 / Florida Administrative Register Posting	130
C.3.2 / Newspaper Advertisement.....	131
C.3.3 / Summary of the Formal Public Meeting	132
Appendix D / Goals, Objectives, and Strategies.....	137
D.1 / Current Goals, Objectives, and Strategies Budget Table	137
D.2 / Budget Summary Table	154
D.3 / Major Accomplishments Since the Approval of the Previous Plan	154
D.4 / Gulf Restoration Priority Projects.....	156
Appendix E / Other Requirements	157
E.1 / Acquisition and Restoration Council Management Plan Compliance Checklist.....	157
E.2 / Management Procedures for Archaeological and Historical Sites on State-Owned or Controlled Lands.....	165

E.3 / Letter of Compliance with County Comprehensive Plan	168
E.4 / Division of State Lands Management Plan Approval Letter.....	170

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 of 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
Education

FLOYD T. CHRISTIAN, Commissioner of

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>

A.4 / Resolution No. 72-5: Coupon Bight Aquatic Preserve Designation

220918 RE 502 PAGE 143

STATE OF FLORIDA
BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

FILED FOR RECORD
1972 APR 11 AM 9:30
EARL E. JAMES, CLERK
STATE OF FLORIDA

No. 72-5

R E S O L U T I O N

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 the state-owned lands within the following described boundaries be hereby recognized for their exceptional public value and dedicated in perpetuity as an aquatic preserve and as an element of a statewide system of aquatic preserves:

APPROVED AND FORWARDED:
Trustees of the Internal Improvement Fund
By _____

COUPON BLIGHT - AQUATIC PRESERVE

Commence at the Northeast corner of Section 1, Township 67 South, Range 29 East, Big Pine Key, Monroe County, Florida; thence run Southerly along the East line of said Section 1, 2,650 feet, more or less to a point of the intersection with the mean high water line; said point being the Point of Beginning; From the Point of Beginning continue along the Southerly projection of the East line of said Section 1, into the waters of Hawk Channel to a point of intersection with the 2 fathom contour line; thence run Southwesterly along said 2 fathom contour line in Hawk Channel to a point lying due south of a lighted navigation aid "Number 2" lying adjacent to the westerly most end of Newfound Harbor Keys, said lighted navigation aid "Number 2" marking the southerly end of Newfound Harbor Channel; thence run due North to said lighted navigation aid, and to the first fathom contour line on Southeastern side of Newfound Harbor Channel; thence continue in a Northeasterly direction along said contour line to a point of intersection with a line lying due east of the Westerly most corner of that parcel conveyed by Trustees Deed No. 21430; thence run East on foresaid line to said Westerly most corner; thence run along the Southwesterly boundary line of aforementioned parcel, South 42° 52' East, 666 feet; thence in the waters at Coupon Blight North 55° 53' 20" East, 1058.27 feet along the Southeastern boundary of said parcel to a point on the Southeastern line of that parcel conveyed by Trustees' Deed No. 21440 (118-44); thence run South 42° 52' East, 35 feet along the Southwesterly boundary of said parcel to its Southerly most corner; thence run North 47° 08' East, 150 feet along said boundary line to the Easterly most corner of the parcel; thence run North 42° 52' West, 300 feet, more or less, along the Northeasterly boundary line of the parcel to the mean high water line of Coupon Blight and Hawk Channel in Sections 14, 35 and 36, Township 67 South, Range 29 East, and Sections 1 and 2, Township 67 South, Range 29 East to the Point of Beginning excepting therefrom that parcel of submerged lands in Coupon Blight conveyed by Trustees' Deed No. 22389 (528-44).

LIZARD RECORDS DIVISION, 1966
 FILED IN 1966
 BY [unclear]
 TALLAHASSEE, FLORIDA

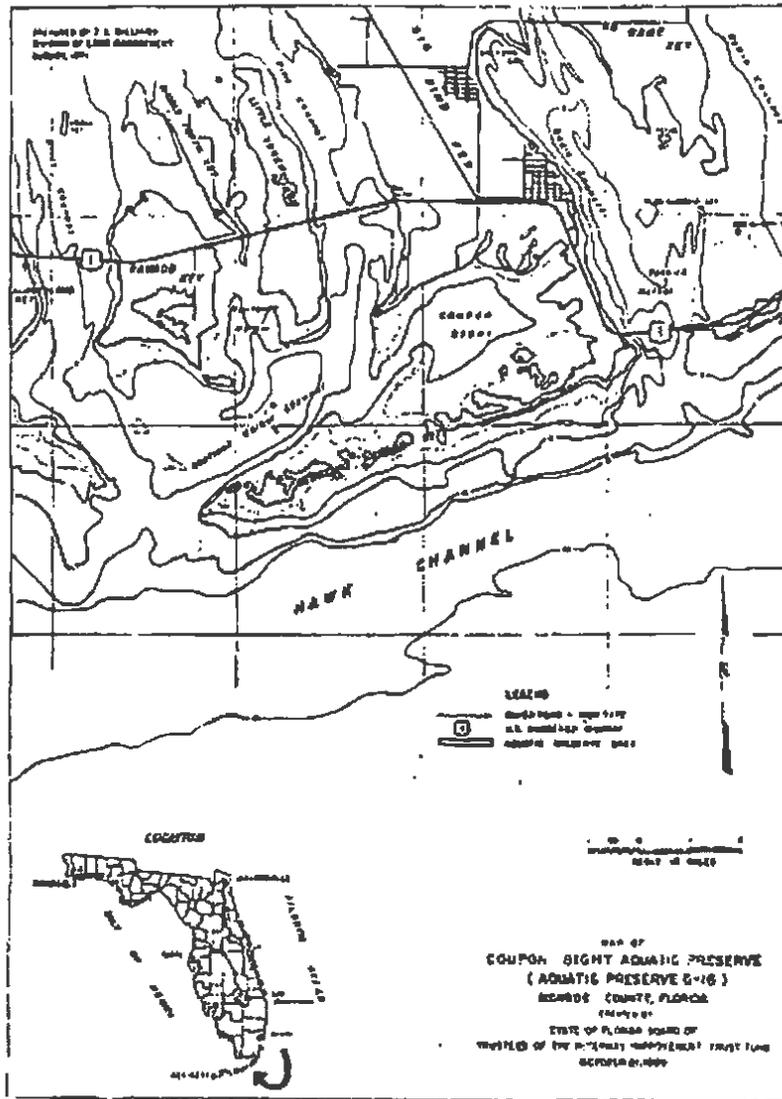
AND BE IT FURTHER RESOLVED:

THAT it is hereby declared to be the purpose and intent of the State of Florida Board of Trustees of the Internal Improvement Trust Fund to set aside and manage the above described aquatic preserve in accordance with the management policies and criteria adopted and set forth by separate resolution adopted on the 21st day of October, A. D. 1966, for application uniformly to all elements of the statewide system of aquatic preserves.

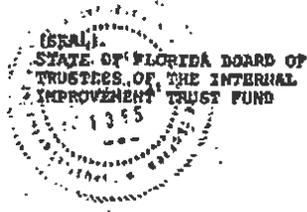
IN TESTIMONY WHEREOF, the Trustees for and on behalf of the State of Florida Board of Trustees of the Internal Improvement Trust Fund have hereunto subscribed their names and have caused the official seal of said State of Florida Board of Trustees of the Internal Improvement Trust Fund to be hereunto affixed, in the City of Tallahassee, Florida, on this the 13th day of March A. D. 19 77.

Resolution No. 72-5

Richard W. Keenan
 GOVERNOR
Richard D. Dickerson
 Secretary of State



RE 502 MC 146



Robert L. Davis
Attorney General

Frank D. Edwards
Comptroller

Robert D. Muller
Producer

Alfred S. Christian
Commissioner of Education

Joseph C. Conner
Commissioner of Agriculture

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

220918

Recorded in Clerk's Record Book
No. 100, 101, 102, 103, 104
L.S. 10, 12, 14, 16
Date of Filing Board
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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).

aerial - referring to the air (Collin, 2004).

algae - tiny single-celled or multicellular organisms living in water or in moist conditions, which contains chlorophyll but have no stems, roots or leaves (Collin, 2004).

algal bloom - a mass of algae which develops rapidly in a lake as a result of eutrophication (Collin, 2004).

aggregate - a mass of soil and rock particles stuck together (Collin, 2004).

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

annual geometric mean - criteria: a threshold which, when exceeded, indicates a degraded system. Criteria are intended to protect aquatic life and/or human health. Criteria are located in rules 62-302.500 and 62-302.503, F.A.C. (DEP, 2020).

angiosperm - a plant in which the sex organs are carried within flowers and seeds are enclosed in a fruit (Collin, 2004).

anthropogenic - caused by or resulting from human activities (Collin, 2004).

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

archipelago - a group of islands (Collin, 2004).

benthic - on or living on the bottom of the sea or of a lake (Collin, 2004).

channel - a deep part of a harbor or sea passage where ships can pass or, a stretch of water between two seas (Collin, 2004).

conservation - the process of protecting something from undesirable change (Collin, 2004).

coral - a sedentary invertebrate animal that is composed of individual polyps, often colonial, that secretes a calcium carbonate skeleton that provides much of the structure in coral reefs (stony corals) or have a largely proteinaceous skeleton (soft corals) (Rupper, et al., 2004).

crustacean - an invertebrate animal with a chitinous and/or calcareous exoskeleton, several pairs of jointed legs, and stalked eyes (Collin, 2004).

debris - rubbish or waste matter (Collin, 2004).

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 (Lincoln et al., 2003).

endangered species - an animal or plant species in danger of extinction throughout all or a significant portion of its range (United States Fish and Wildlife Service, 2015).

endemic - native to, and restricted to, a particular geographical region (Lincoln et al., 2003).

estuary – the highly productive part of a river where it meets the sea and becomes brackish, often serving as nursery grounds and providing food, breeding grounds, and migration stopovers for many animals (National Oceanic and Atmospheric Administration, 2019)

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

filter feeder - an animal that lives in water and feeds on small particles that it filters out of the water it takes in, e.g. a clam, sponge, or baleen whale (Collin, 2004).

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

geomorphology - the study of landforms and relief features, including their origins and development (Merriam-Webster, 2020).

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).

ground water - water that stays in the top layers of soil or in porous rocks and can collect pollution (Collin, 2004).

Gulf Stream - a current of warm water in the Atlantic Ocean, which flows north along the east coast of the USA, then crosses the Atlantic to northern Europe, passing close to the west coast of Scotland and giving the British Isles and European coast a mild winter climate compared with countries at the same latitude such as eastern Canada (Collin, 2004).

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

hurricane - a tropical storm with winds in excess of 74 miles per hour (National Oceanic and Atmospheric Administration, 2018).

infauna - the 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).

invertebrate - an animal that has no backbone (Collin, 2004).

limestone - a common sedimentary rock, formed of calcium minerals and often containing fossilized shells of sea animals (Collin, 2004)

listed species - a species, subspecies, or distinct population segment that has been added to a federal or state list of endangered and threatened wildlife and plants (United States Fish and Wildlife Service, 2015).

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

marsh - an area of permanently wet land and the plants that grow on it; can be salt or fresh water (Collin, 2004).

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).

ocean acidification – reduction in the pH of the ocean over an extended period, typically decades or longer, caused primarily by the uptake of CO₂ from the atmosphere, but it can be caused by other chemical additions or subtractions from the ocean (Gattuso & Hansson, 2011).

oolite – a sedimentary rock consisting of cemented ooliths (Chiappone, 1996).

oolith – a spheroidal body, commonly 0.5-1mm across, consisting of concentric layers of aragonite formed in warm, shallow, turbulent seawater (Chiappone, 1996).

patch reef – a small, mound-like reef usually occurring in lagoons. In the Florida Keys, patch reefs are small, rounded clusters of coral heads and other reef biota generally occurring in Hawk Channel

(Chiappone, 1996).

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).

pollution, non-point source - a source of pollution not associated with a specific discharge point (Collin, 2004).

pollution, point source – any single identifiable source of pollution from which pollutants are discharged, such as a pipe, ditch, ship, or factory smokestack (United States Environmental Protection Agency, n.d.).

population - all individuals of one or more species within a prescribed area, or 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).

porous - referring to rock which has many small pores in it and can absorb water (Collin, 2004).

reef - a submarine mound or ridge constructed of rock debris or formed by calcium carbonate-depositing marine organisms (Chiappone, 1996).

resilience - the ability of an organism to resist or recover from adverse conditions or, the ability of an ecosystem to return to its usual state after being disturbed (Collin, 2004).

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).

sampling - to take a small quantity of something to test (Collin, 2004).

sea level - the average level of the surface of the sea (Collin, 2004).

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).

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 (United States Fish and Wildlife Service, 2015).

stewardship - the protection of the environment for the future benefit of generations of human beings by developing appropriate institutions and strategies (Collin, 2004).

storm surge - a rise in sea level as a hurricane or other severe storm moves over water, causing flooding when the storm comes ashore storm swell storm swell (Collin, 2004).

stratification - the formation of several layers in substances such as sedimentary rocks, or water in a lake or air in the atmosphere (Collin, 2004).

submarine - situated or existing beneath the sea (Collin, 2004).

substrate - the matter or surface on which an organism lives (Collin, 2004).

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

supratidal zone - 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 (United States Fish and Wildlife Service, 2015).

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

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

vascular plant - a plant that has specialized tubes within it for transporting sap (Collin, 2004).

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).

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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	Species Name	Designation
Plants		
Ferns		
Golden leather fern	<i>Acrostichum aureum</i>	
Giant leather fern	<i>Acrostichum danaeifolium</i>	
Pine fern	<i>Anemia adiantifolia</i>	
Monocots		
False sisal	<i>Agave decipiens</i>	
Southern sandbur	<i>Cenchrus echinatus</i>	
Common sandspur	<i>Cenchrus incertus</i>	
Coastal sandbur	<i>Cenchrus spinifex</i>	
Silver thatch palm	<i>Coccothrinax alta</i>	
Florida silver palm	<i>Coccothrinax argentata</i>	
Coconut palm	<i>Cocos nucifera</i>	
Whitemouth dayflower	<i>Commelina erecta</i>	
Flatleaf flatsedge	<i>Cyperus planifolius</i>	
Shoregrass	<i>Distichlis littoralis</i>	
Perfumed spiderlily	<i>Hymenocallis latifolia</i>	
Smallcane	<i>Lasiacis divaricata</i>	
Key thatch palm	<i>Leucothrinax morrisii</i>	
Blue crowngrass	<i>Paspalum caespitosum</i>	
Thin paspalum	<i>Paspalum setaceum</i>	
Seashore dropseed	<i>Sporobolus virginicus</i>	
Twisted airplant	<i>Tillandsia flexuosa</i>	
Cardinal airplant	<i>Tillandsia fasciculata</i>	
Spanish moss	<i>Tillandsia usenoides</i>	
Giant airplant	<i>Tillandsia utriculata</i>	
Dominican panicum	<i>Urochloa adpersa</i>	
Dicots		
Coastal Indian mallow	<i>Abutilon permolle</i>	
Triangle cactus	<i>Acanthocereus tetragonus</i>	
Barbed-wire cactus	<i>Acanthocereus tetragonus</i>	
Shyleaf	<i>Aeschynomene americana</i>	

Common Name	Species Name	Designation
Yellow joyweed	<i>Alternanthera flavescens</i>	
Seaside joyweed	<i>Alternanthera maritima</i>	
Marlberry	<i>Ardisia escallonioides</i>	
Blodgett's silverbush	<i>Argythamnia blodgettii</i>	FT/SE
Saltmarsh aster	<i>Aster tenuifolius</i>	
Seabeach orache	<i>Atriplex cristata</i>	
Black mangrove	<i>Avicennia germinans</i>	
Saltbush	<i>Baccharis sp.</i>	
Saltwort	<i>Batis maritima</i>	
Silverhead	<i>Blutaparon vermiculare</i>	
Red spiderling	<i>Boerhavia diffusa</i>	
Sea Ox-Eye daisy	<i>Borrchia frutescens</i>	
Saffron plum	<i>Bumelia celestrina</i>	
Gumbo limbo	<i>Bursera sumaruba</i>	
Gray nicker-bean	<i>Caesalpinia bonduca</i>	
Pepper cinnamon	<i>Canella winterana</i>	SE
Limber caper	<i>Capparis flexuosa</i>	
Goatweed	<i>Capraria biflora</i>	
Seven-year apple	<i>Casasia clusifolia</i>	
Smallflower lilythorn	<i>Catesbaea parviflora</i>	
Big Pine partridge pea	<i>Chamaecrista lineata var. keyensis</i>	SE
West Indian milkberry	<i>Chiococca alba</i>	
Cape Sable thoroughwort	<i>Chromolaena frustrata</i>	FE
Satinleaf	<i>Chrysophyllum oliviforme</i>	
Marine ivy	<i>Cissus trifoliata</i>	
Spiny fiddlewood	<i>Citharexylum spinosum</i>	
Pigeon plum	<i>Coccoloba diversifolia</i>	
Sea grape	<i>Coccoloba uvifera</i>	
Green buttonwood	<i>Conocarpus erecta</i>	
Blue mistflower	<i>Conoclinium coelestinum</i>	
Scarlet cordia	<i>Cordia sebestena</i>	
Cupania	<i>Cupania glabra</i>	
Bay-leaved caper	<i>Cynophalla flexuosa</i>	
Wild tantan	<i>Desmnathus virgatus</i>	
Creeping beggarweed	<i>Desmodium incanum</i>	
Sixangle foldwing	<i>Dicliptera sexangularis</i>	
Blodgett's wild mercury	<i>Ditaxis argothamnoides</i>	
Milkbark	<i>Drypetes diversifolia</i>	SE
Black torch	<i>Erithalis fruticosa</i>	

Common Name	Species Name	Designation
Beach creeper	<i>Ernodea littoralis</i>	
White stopper	<i>Eugenia axillaris</i>	
Spanish stopper	<i>Eugenia foetida</i>	
Red stopper	<i>Eugenia rhombea</i>	SE
Garber's sandmat	<i>Euphorbia garberi</i>	FT
Asthma plant	<i>Euphorbia hirta</i>	
Graceful spurge	<i>Euphorbia hypericifolia</i>	
Florida hammock sandmat	<i>Euphorbia ophthalmica</i>	
Catchfly prairie gentian	<i>Eustoma exaltatum</i>	
Bindweed dwarf morning-glory	<i>Evolvulus convolvuloides</i>	
Inkwood	<i>Exothea paniculata</i>	
Florida strangler fig	<i>Ficus aurea</i>	
Shortleaf fig	<i>Ficus citrifolia</i>	
White twinevine	<i>Funastrum clausum</i>	
Florida hammock milkpea	<i>Galactia striata</i>	
Upland cotton	<i>Gossypium hirsutum</i>	ST
Lignum vitae	<i>Guaiacum sanctum</i>	SE
Blolly	<i>Guapira discolor</i>	
Everglades velvetseed	<i>Guettarda elliptica</i>	
Crabwood	<i>Gymnanthes lucida</i>	
Scorpion's-Tail	<i>Heliotropium angiospermum</i>	
Alakali heliotrope	<i>Heliotropium curassavicum</i>	
Curly herissantia	<i>Herissantia crispa</i>	
Poeppig's rosemallow	<i>Hibiscus poeppigii</i>	
Sea hibiscus	<i>Hibiscus tiliaceus</i>	
Manchineel	<i>Hippomane mancinella</i>	
Perfumed spiderlily	<i>Hymenocallis latifolia</i>	
Moonflower	<i>Ipomoea alba</i>	
Blue morning glory	<i>Ipomoea indica</i>	
Beach morning glory	<i>Ipomoea pes-caprae</i>	
Juba's Bush	<i>Iresine diffusa</i>	SE
Wash wood	<i>Jacquinia keyensis</i>	ST
Black ironwood	<i>Krugiodendron ferreum</i>	
White mangrove	<i>Laguncularia racemosa</i>	
Button sage	<i>Lantana involucrata</i>	
Virginia pepperweed	<i>Lepidium virginicum</i>	
Key thatch palm	<i>Leucothrinax morrisii</i>	ST
Carolina sea lavender	<i>Limonium carolinianum</i>	
Christmas berry	<i>Lycium carolinianum</i>	

Common Name	Species Name	Designation
False mallow	<i>Malvastrum corchorifolium</i>	
Wild dilly	<i>Manilkara jaimiqui</i>	
Small-leaf squarestem	<i>Melanthera parvifolia</i>	
Poisonwood	<i>Metopium toxiferum</i>	
Redgal	<i>Morinda royoc</i>	
Twining soldierbush	<i>Myriopus volubilis</i>	
Colicwood	<i>Myrsine cubana</i>	
Jamaicanweed	<i>Nama jamaicensis</i>	
Common prickly pear	<i>Opuntia stricta</i>	ST
Seashore paspalum	<i>Paspalum vaginatum</i>	
Corkystem passionflower	<i>Passiflora suberosa</i>	
Hammock viper's-tail	<i>Pentalinon luteum</i>	
Turkey tangle frogfruit	<i>Phyla nodiflora</i>	
Five-petal leaf-flower	<i>Phyllanthus pentaphyllus</i>	
Artillery plant	<i>Pilea microphylla</i>	
Key tree cactus	<i>Pilosocereus robinii</i>	
Devil's claws	<i>Pisonia aculeata</i>	
Blackbead	<i>Pithecellobium keyense</i>	
Catclaw blackbead	<i>Pithecellobium unguis-cati</i>	
Marsh fleabane	<i>Pluchea odorata</i>	
Purslane	<i>Portulaca oleracea</i>	
Shaggy portulaca	<i>Portulaca pilosa</i>	
Shiny-leaved wild coffee	<i>Psychotria nervosa</i>	
Jamaican caper	<i>Quadrella cynophallophora</i>	
White indigoberry	<i>Randia aculeata</i>	
Darlingplum	<i>Reynosia septentrionalis</i>	
Pigeonberry	<i>Rivina humilis</i>	
Perennial glasswort	<i>Salicornia ambigua</i>	
Dwarf glasswort	<i>Salicornia bigelovii</i>	
Coastal inkberry	<i>Scaevola plumieri</i>	
Sea purslane	<i>Sesuvium portulacastrum</i>	
Spreading sida	<i>Sida abutilifolia</i>	
Cuban jute	<i>Sida rhombifolia</i>	
Common fanpetals	<i>Sida ulmifolia</i>	
Coma	<i>Sideroxylon celastrinum</i>	
False mastic	<i>Sideroxylon foetidissimum</i>	
American black nightshade	<i>Solanum americanum</i>	
Bahama nightshade	<i>Solanum bahamense</i>	
Woodland false buttonweed	<i>Spermacoce remota</i>	

Common Name	Species Name	Designation
Seashore dropseed	<i>Sporobolus virginicus</i>	
Blue porterweed	<i>Stachytarpheta jamaicensis</i>	
Pride of Big Pine	<i>Strumpfia maritima</i>	
Carribbean stylo	<i>Stylosanthes hamata</i>	
Annual seepweed	<i>Suaeda linearis</i>	
Baycedar	<i>Suriana maritima</i>	
West Indian mahogany	<i>Swietenia mahagoni</i>	
Florida Keys noseburn	<i>Tragia saxicola</i>	
Pearlberry	<i>Vallesia antillana</i>	
Wormvine orchid	<i>Vanilla barbellata</i>	
Curacao bush	<i>Varronia bullata</i>	
Hog plum	<i>Ximenia americana</i>	
Lime prickly-ash	<i>Zanthoxylum fagara</i>	
Gymnosperms		
Slash pine	<i>Pinus elliotii</i>	SE
Marine plants		
Green mermaid's wine cup	<i>Acetabularia calyculus</i>	
Red calcareous algae	<i>Amphiroa</i> spp.	
	<i>Avrainvillea longicaulis</i>	
Paddle blade algae	<i>Avrainvillea nigricans</i>	
Batophora	<i>Batophora oerstedii</i>	
	<i>Caulerpa mexicana</i>	
Green feather algae	<i>Caulerpa sertularioides</i>	
Fern algae	<i>Caulerpa paspaloides</i>	
	<i>Caulerpa prolifera</i>	
	<i>Caulerpa racemosa</i>	
	<i>Cladophora prolifera</i>	
	<i>Dictyosphaeria cavernosa</i>	
Three finger leaf algae	<i>Halimeda incrassata</i>	
Green jointed-stalk algae	<i>Halimeda monile</i>	
Watercress algae	<i>Halimeda opuntia</i>	
Shoal grass	<i>Halodule wrightii</i>	
Red algae	<i>Laurencia</i> spp.	
Shaving brush algae	<i>Penicillus capitatus</i>	
Bristle ball brush	<i>Penicillus dumetosus</i>	
	<i>Penicillus pyriformis</i>	
Sargassum weed	<i>Sargassum</i> spp.	
Manatee grass	<i>Syringodium filiforme</i>	

Common Name	Species Name	Designation
Turtle grass	<i>Thalassia testudinum</i>	
Mermaid's fan algae	<i>Udotea flabellum</i>	
Sea lettuce	<i>Ulva spp.</i>	
Birds		
Sharp-shinned hawk	<i>Accipiter striatus</i>	
Spotted sandpiper	<i>Actitis macularius</i>	
Red-winged blackbird	<i>Agelaius phoeniceus</i>	
Mallard	<i>Anas platyrhynchos</i>	
Chuck-will's widow	<i>Antrastomus carolinensis</i>	
Eastern whip-poor-will	<i>Antrastomus vociferus</i>	
Ruby-throated hummingbird	<i>Archilochus colubris</i>	
Great egret	<i>Ardea albus</i>	
Great blue heron	<i>Ardea herodias</i>	
Great white heron	<i>Ardea herodias occidentalis</i>	
Ruddy turnstone	<i>Arenaria interpres</i>	
Lersser scaup	<i>Aythya affinis</i>	
Cedar waxwing	<i>Bombycilla cedrorum</i>	
Western cattle egret	<i>Bubulcus ibis</i>	
Red-shouldered hawk	<i>Buteo lineatus</i>	
Broad-winged hawk	<i>Buteo platypterus</i>	
Swainson's hawk	<i>Buteo swainsoni</i>	
Green heron	<i>Butorides virescens</i>	
Sanderling	<i>Calidris alba</i>	
Dunlin	<i>Calidris alpina</i>	
Western sandpiper	<i>Calidris mauri</i>	
Least sandpiper	<i>Calidris minutilla</i>	
Semipalmated sandpiper	<i>Calidris pusilla</i>	
Northern cardinal	<i>Cardinalis cardinalis</i>	
Gray-cheeked thrush	<i>Catharus minimus</i>	
Chimney swift	<i>Chaetura pelagica</i>	
Semipalmated plover	<i>Charadrius semipalmatus</i>	
Killdeer	<i>Charadrius vociferus</i>	
Common nighthawk	<i>Chordeiles minor</i>	
Northern harrier	<i>Circus hudsonius</i>	
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	
Mangrove cuckoo	<i>Coccyzus minor</i>	
Bahama bananaquit	<i>Coereba flaveola</i>	

Common Name	Species Name	Designation
Common ground dove	<i>Columbina passerina</i>	
Eastern wood pewee	<i>Contopus virens</i>	
Fish crow	<i>Corvus ossifragus</i>	
Smooth-billed ani	<i>Crotophaga ani</i>	
Bobolink	<i>Dolichonyx oryzivorus</i>	
Gray catbird	<i>Dumetella carolinensis</i>	
Little blue heron	<i>Egretta caerulea</i>	ST
Reddish egret	<i>Egretta rufescens</i>	ST
Snowy egret	<i>Egretta thula</i>	
Tricolor heron	<i>Egretta tricolor</i>	ST
White ibis	<i>Eudocimus albus</i>	
Peregrine falcon	<i>Falco peregrinus anatum</i>	
Southeastern American kestrel	<i>Falco sparverius paulus</i>	ST
Magnificent frigatebird	<i>Fregata magnificens</i>	
Common loon	<i>Gavia immer</i>	
Common yellowthroat	<i>Geothlypis trichas</i>	
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
Worm-eating warbler	<i>Helmitheros vermivorum</i>	
Black-necked stilt	<i>Himantopus mexicanus</i>	
Barn swallow	<i>Hirundo rustica</i>	
Northern oriole	<i>Icterus galbula</i>	
Loggerhead shrike	<i>Lanius ludovicianus</i>	
Herring gull	<i>Larus argentatus</i>	
Ring-billed gull	<i>Larus delawarensis</i>	
Laughing gull	<i>Leucophaeus atricilla</i>	
Short-billed dowitcher	<i>Limnodromus griseus</i>	
Belted kingfisher	<i>Megaceryle alcyon</i>	
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	
Red-breasted merganser	<i>Mergus serrator</i>	
Northern mockingbird	<i>Mimus polyglottos</i>	
Black-and-white warbler	<i>Mniotilta varia</i>	
Brown-headed cowbird	<i>Molothrus ater</i>	
Great crested flycatcher	<i>Myiarchus crinitus</i>	
Black-crowned night heron	<i>Nycticorax nycticorax</i>	
Yellow-crowned night heron	<i>Nycticorax violaceus</i>	
Osprey	<i>Pandion haliaetus</i>	
Louisiana waterthrush	<i>Parkesia motacilla</i>	
Northern waterthrush	<i>Parkesia noveboracensis</i>	
Northern parula	<i>Parula americana</i>	

Common Name	Species Name	Designation
Savannah sparrow	<i>Passerculus sandwichensis</i>	
Painted bunting	<i>Passerina ciris</i>	
Indigo bunting	<i>Passerina cyanea</i>	
White crowned pigeon	<i>Patagioenas leucocephala</i>	ST
Brown pelican	<i>Pelecanus occidentalis</i>	
Double-crested cormorant	<i>Phalacrocorax auritus</i>	
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	
Summer tanager	<i>Piranga rubra</i>	
Roseate spoonbill	<i>Platalea ajaja</i>	ST
Black-bellied plover	<i>Pluvialis squatarola</i>	
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>	
Sora rail	<i>Porzana carolina</i>	
Purple martin	<i>Progne subis</i>	
Prothonotary warbler	<i>Protonotaria citrea</i>	
Boat-tailed grackle	<i>Quiscalus major</i>	
Common grackle	<i>Quiscalus quiscula</i>	
Ruby-crowned kinglet	<i>Regulus calendula</i>	
Eastern phoebe	<i>Sayornis phoebe</i>	
Ovenbird	<i>Seiurus aurocapilla</i>	
Black-throated blue warbler	<i>Setophaga caerulea</i>	
Yellow-rumped warbler	<i>Setophaga coronata</i>	
Prairie warbler	<i>Setophaga discolor</i>	
Yellow-throated warbler	<i>Setophaga dominica</i>	
Magnolia warbler	<i>Setophaga magnolia</i>	
Palm warbler	<i>Setophaga palmarum</i>	
Yellow warbler	<i>Setophaga petechia</i>	
American redstart	<i>Setophaga ruticilla ruticilla</i>	
Blackpoll warbler	<i>Setophaga striata</i>	
Cape May warbler	<i>Setophaga tigrina</i>	
Blue-winged teal	<i>Spatula discors</i>	
Chipping sparrow	<i>Spizella passerina</i>	
Common tern	<i>Sterna hirundo</i>	
Least tern	<i>Sternula antillarum</i>	ST
Royal tern	<i>Thalasseus maximus</i>	
Brown thrasher	<i>Toxostoma rufum</i>	
Lesser yellowlegs	<i>Tringa flavipes</i>	
Greater yellowlegs	<i>Tringa melanoleuca</i>	
Willet	<i>Tringa semipalmata</i>	
Solitary sandpiper	<i>Tringa solitaria</i>	

Common Name	Species Name	Designation
American robin	<i>Turdus migratorius</i>	
Gray kingbird	<i>Tyrannus dominicensis</i>	
Eastern kingbird	<i>Tyrannus tyrannus</i>	
Black-whiskered vireo	<i>Vireo altiloquus</i>	
Yellow-throated vireo	<i>Vireo flavifrons</i>	
White-eyed vireo	<i>Vireo griseus</i>	
Red-eyed vireo	<i>Vireo olivaceus</i>	
Solitary vireo	<i>Vireo solitarius</i>	
Mourning dove	<i>Zenaida macroura</i>	
Mammals		
Opossum	<i>Didelphis virginiana</i>	
Silver rice rat	<i>Oryzomys palustris natator</i>	FE
Key deer	<i>Odocoileus virginianus clavium</i>	FE
Raccoon	<i>Procyon lotor</i>	
Key cotton rat	<i>Sigmodon hispidus</i>	
Lower Keys marsh rabbit	<i>Sylvilagus palustris hefneri</i>	FE
West Indian manatee	<i>Trichechus manatus</i>	FT
Atlantic bottlenose dolphin	<i>Tursiops truncatus</i>	
Amphibians		
Southern toad	<i>Bufo terrestris</i>	
Green tree frog	<i>Hyla cinerea</i>	
Squirrel treefrog	<i>Hyla squirella</i>	
Reptiles		
American alligator	<i>Alligator mississippiensi</i>	
Green anole	<i>Anolis carolinensis</i>	
Atlantic loggerhead sea turtle	<i>Caretta caretta</i>	FT
Atlantic green sea turtle	<i>Chelonia mydas</i>	FT
Southern black racer	<i>Coluber constrictor priapus</i>	
American crocodile	<i>Crocodylus acutus</i>	FT
Key ringneck snake	<i>Diadophis punctatus acricus</i>	ST
Eastern indigo snake	<i>Drymarchon corais couperi</i>	FT
Atlantic hawksbill sea turtle	<i>Eretmochelys imbricata</i>	FE
Striped mud turtle	<i>Kinosternon bauri bauri</i>	
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	FE
Mangrove diamondback terrapin	<i>Malaclemys terrapin rhizophorarum</i>	
Mangrove salt marsh snake	<i>Nerodia fasciata compressicauda</i>	

Common Name	Species Name	Designation
Florida rough green snake	<i>Opheodrys aestivus carinatus</i>	
Eastern corn snake	<i>Pantherophis guttatus</i>	
Yellow rat snake	<i>Pantherophis obsoletus quadrivittata</i>	
Florida Keys mole skink	<i>Plestiodon egregius egregius</i>	ST
Southeastern five-lined skink	<i>Plestiodon inexpectatus</i>	
Florida reef gecko	<i>Sphaerodactylus notatus notatus</i>	
Florida box turtle	<i>Terrapene carolina bauri</i>	
Florida (Peninsula) ribbon snake	<i>Thamnophis sauritus sackenii</i>	
Fishes		
Sergeant major	<i>Abudefduf saxatilis</i>	
Honeycomb cowfish	<i>Acanthostracion polygonius</i>	
Scrawled cowfish	<i>Acanthostracion quadricornis</i>	
Lined sole	<i>Achirus lineatus</i>	
Spotted eagle ray	<i>Aetobatus narinari</i>	
Bonefish	<i>Albula vulpes</i>	
Orange filefish	<i>Aluterus schoepfii</i>	
Fringed pipefish	<i>Anarchopterus criniger</i>	
Bigeye anchovy	<i>Anchoa lamprotaenia</i>	
Bay anchovy	<i>Anchoa mitchilli</i>	
Anchovies	<i>Anchoa</i> spp.	
Porkfish	<i>Anisotremus virginicus</i>	
Sheepshead	<i>Archosargus probatocephalus</i>	
Sea bream	<i>Archosargus rhomboidalis</i>	
Sea catfish	<i>Ariopsis felis</i>	
Bronze cardinalfish	<i>Astrapogon alutus</i>	
Conchfish	<i>Astrapogon stellatus</i>	
Hardhead silverside	<i>Atherinomorus stipes</i>	
Trumpetfish	<i>Aulostomus maculatus</i>	
Silver perch	<i>Bairdiella chrysoura</i>	
Gray triggerfish	<i>Balistes capriscus</i>	
Queen triggerfish	<i>Balistes vetula</i>	
Gobies	<i>Bathygobius</i> spp.	
Eyed flounder	<i>Bothus ocellatus</i>	
Menhaden	<i>Brevoortia patronus</i>	
Grass porgy	<i>Calamus arctifrons</i>	
Saucereye porgy	<i>Calamus calamus</i>	
Blue runner	<i>Caranx crysos</i>	
Jack crevalle	<i>Caranx hippos</i>	

Common Name	Species Name	Designation
Bar jack	<i>Caranx ruber</i>	
Blacktip shark	<i>Carcharhinus limbatus</i>	
Reef shark	<i>Carcharhinus perezii</i>	
Snook	<i>Centropomus undecimalis</i>	
Black seabass	<i>Centropristis striata</i>	
Bluethroat pikeblenny	<i>Chaenopsis ocellata</i>	
Pikeblennies	<i>Chaenopsis</i> spp.	
Atlantic spadefish	<i>Chaetodipterus faber</i>	
Four-eyed butterflyfish	<i>Chaetodon capistratus</i>	
Spotfin butterflyfish	<i>Chaetodon ocellatus</i>	
Banded butterflyfish	<i>Chaetodon striatus</i>	
Florida blenny	<i>Chasmodes saburrae</i>	
Striped burrfish	<i>Chilomycterus schoepfii</i>	
Burrfish	<i>Chilomycterus</i> spp.	
Atlantic bumper	<i>Chloroscombrus chrysurus</i>	
Hardhead halfbeak	<i>Chriodorus atherinoides</i>	
Spotted whiff	<i>Citharichthys macrops</i>	
Blue croaker	<i>Corvula batabana</i>	
Spotted seatrout	<i>Cynoscion nebulosus</i>	
Sheepshead minnow	<i>Cyprinodon variegatus</i>	
Porcupinefish	<i>Diodon hystris</i>	
Sand perch	<i>Diplectrum formosum</i>	
Spotted dragonet	<i>Diplogrammus pauciradiatus</i>	
Whitefin sharksucker	<i>Echeneis neucratooides</i>	
Ladyfish	<i>Elops saurus</i>	
Goliath grouper	<i>Epinephelus itajara</i>	
Red grouper	<i>Epinephelus morio</i>	
Nassau grouper	<i>Epinephelus striatus</i>	FT
Spotted drum	<i>Equetus punctatus</i>	
Fringed flounder	<i>Etropus crossotus</i>	
Silver jenny	<i>Eucinostomus gula</i>	
Mojarra	<i>Eucinostomus</i> spp.	
Stripped mojarra	<i>Eugerres plumieri</i>	
Goldspotted killifish	<i>Floridichthys carpio</i>	
Mosquitofish	<i>Gambusia affinis</i>	
Mangrove mosquitofish	<i>Gambusia rhizophorae</i>	
Yellowfin mojarra	<i>Gerres cinereus</i>	
Nurse shark	<i>Ginglymostoma cirratum</i>	
Skilletfish	<i>Gobiesox strumosus</i>	

Common Name	Species Name	Designation
Gobies	<i>Gobionellus</i> spp.	
White grunt	<i>Haemulon plumierii</i>	
Bluestriped grunt	<i>Haemulon sciurus</i>	
Grunts	<i>Haemulon</i> spp.	
Slippery dick	<i>Halichoeres bivittatus</i>	
Scaled sardine	<i>Harengula jaguana</i>	
Lined seahorse	<i>Hippocampus erectus</i>	
Dwarf seahorse	<i>Hippocampus zosterae</i>	
Blue angelfish	<i>Holacanthus bermudensis</i>	
Queen angelfish	<i>Holacanthus ciliaris</i>	
Southern stingray	<i>Hypanus americanus</i>	
Reef silverside	<i>Hypoatherina harringtonensis</i>	
Barred hamlet	<i>Hypoplectrus puella</i>	
Atlantic silverstripe halfbeak	<i>Hyporhamphus un fasciatus</i>	
Rivulus	<i>Kryptolebias marmoratus</i>	
Bermuda chub	<i>Kyphosus sectatrix</i>	
Hogfish	<i>Lachnolaimus maximus</i>	
Spotted trunkfish	<i>Lactophrys bicaudalis</i>	
Trunkfish	<i>Lactophrys trigonus</i>	
Smooth trunkfish	<i>Lactophrys triqueter</i>	
Pinfish	<i>Lagodon rhomboides</i>	
Gobies	<i>Lophogobius</i> spp.	
Rainwater killifish	<i>Lucania parva</i>	
Mutton snapper	<i>Lutjanus analis</i>	
Schoolmaster	<i>Lutjanus apodus</i>	
Gray snapper	<i>Lutjanus griseus</i>	
Dog snapper	<i>Lutjanus jocu</i>	
Lane snapper	<i>Lutjanus synagris</i>	
Tarpon	<i>Megalops atlanticus</i>	
Rough silverside	<i>Membras martinica</i>	
Tidewater silverside	<i>Menidia beryllina</i>	
Southern kingfish	<i>Menticirrhus americanus</i>	
Gulf kingfish	<i>Menticirrhus littoralis</i>	
Gobies	<i>Microgobius</i> spp.	
Atlantic croaker	<i>Micropogonias undulatus</i>	
Fringed filefish	<i>Monacanthus ciliatus</i>	
Mullet	<i>Mugil</i> spp.	
Gag grouper	<i>Mycteroperca microlepis</i>	
Lesser electric ray	<i>Narcine brasiliensis</i>	

Common Name	Species Name	Designation
Lemon shark	<i>Negaprion brevirostris</i>	
Yellowtail snapper	<i>Ocyurus chrysurus</i>	
Shortnose batfish	<i>Ogcocephalus nasutus</i>	
Key brotula	<i>Ogilbia cayorum</i>	
Leatherjack	<i>Oligoplites saurus</i>	
Atlantic thread herring	<i>Opisthonema oglinum</i>	
Mottled jawfish	<i>Opistognathus maxillosus</i>	
Gulf toadfish	<i>Opsanus beta</i>	
Pigfish	<i>Orthopristis chrysoptera</i>	
Seaweed blenny	<i>Parablennius marmoreus</i>	
Scaly blennies	<i>Paraclinus</i> spp.	
Banded blenny	<i>Paraclinus fasciatus</i>	
Marbled blenny	<i>Paraclinus marmoratus</i>	
Gulf flounder	<i>Paralichthys albigutta</i>	
Southern flounder	<i>Paralichthys lethostigma</i>	
High hat	<i>Pareques acuminatus</i>	
Sailfin molly	<i>Poecilia latipinna</i>	
Black drum	<i>Pogonias cromis</i>	
Gray angelfish	<i>Pomacanthus arcuatus</i>	
French angelfish	<i>Pomacanthus paru</i>	
Bluefish	<i>Pomatomus saltatrix</i>	
Searobin	<i>Prionotus</i> spp.	
Smalltooth sawfish	<i>Pristis pectinata</i>	FE
Guitarfish	<i>Pseudobatos lentiginosus</i>	
Cobia	<i>Rachycentron canadum</i>	
Gobies	<i>Saurogobio</i> spp.	
Parrotfishes	<i>Scarus</i> spp.	
Red drum	<i>Sciaenops ocellatus</i>	
King mackerel	<i>Scomberomorus cavalla</i>	
Spanish mackerel	<i>Scomberomorus maculatus</i>	
Barfish	<i>Scorpaena brasiliensis</i>	
Plumed scorpionfish	<i>Scorpaena grandicornis</i>	
Scorpionfishes	<i>Scorpaena</i> spp.	
Lookdown	<i>Selene vomer</i>	
Parrotfishes	<i>Sparisoma</i> spp.	
Stoplight parrotfish	<i>Sparisoma viride</i>	
Puffers	<i>Sphoeroides</i> spp.	
Southern puffer	<i>Sphoeroides nephelus</i>	
Great barracuda	<i>Sphyraena barracuda</i>	

Common Name	Species Name	Designation
Bonnethead	<i>Sphyrna tiburo</i>	
Blackbelly blenny	<i>Stathmonotus hemphillii</i>	
Dusky damselfish	<i>Stegastes fuscus</i>	
Beaugregory	<i>Stegastes leucostictus</i>	
Bicolor damselfish	<i>Stegastes partitus</i>	
Cocoa damselfish	<i>Stegastes variabilis</i>	
Planehead filefish	<i>Stephanolepis hispidus</i>	
Redfin needle fish	<i>Strongylura notata notata</i>	
Timucu	<i>Strongylura timucu</i>	
Dusky flounder	<i>Syacium papillosum</i>	
Blackcheek tonguefish	<i>Symphurus plagiusa</i>	
Pipefish	<i>Syngnathus</i> spp.	
Dusky pipefish	<i>Syngnathus floridae</i>	
Inshore lizardfish	<i>Synodus foetens</i>	
Bluehead	<i>Thalassoma bifasciatum</i>	
Permit	<i>Trachinotus blochii</i>	
Florida pompano	<i>Trachinotus carolinus</i>	
Scrawled sole	<i>Trinectes inscriptus</i>	
Hogchoker	<i>Trinectes maculatus</i>	
Houndfish	<i>Tylosurus crocodilus crocodilus</i>	
Yellow stingray	<i>Urobatis jamaicensis</i>	
Insects		
Gulf fritillary	<i>Agraulis vanillae</i>	
White peacock butterfly	<i>Anartia jatrophae</i>	
Cuban crescent-spot butterfly	<i>Anthanassa frisia</i>	
Statira sulphur butterfly	<i>Aphrissa statira</i>	
Florida white butterfly	<i>Appias drusilla</i>	
Monk butterfly	<i>Asbolis capucinus</i>	
Black witch moth	<i>Ascalapha odorata</i>	
Great southern white butterfly	<i>Ascia monuste phileta</i>	
Eastern pygmy blue butterfly	<i>Brephidium pseudofea</i>	
Queen butterfly	<i>Danaus gilippus</i>	
Monarch butterfly	<i>Danaus plexippus</i>	
Julia butterfly	<i>Dryas iulia</i>	
Olethrautid moth	<i>Ecdytolopha</i> spp.	
Florida purplewing butterfly	<i>Enuica tatila tatilista</i>	
Zestos skipper	<i>Epargyreus zestos</i>	
Zarucco dusky wing butterfly	<i>Erynnis zarucco</i>	

Common Name	Species Name	Designation
Euptychia butterfly	<i>Euptychia areolata</i>	
Fairy yellow butterfly	<i>Eurema daira</i>	
Zebra longwing	<i>Heliconius charithonia</i>	
Antillian blue butterfly	<i>Hemiargus ceraunus</i>	
Schaus' swallowtail butterfly	<i>Heraclides aristodemus ponceanus</i>	FE
West Indian buckeye butterfly	<i>Junonia evarete</i>	
Cassius blue butterfly	<i>Leptotes cassius</i>	FT(S/A)
Ruddy daggerwing butterfly	<i>Marpesia petreus</i>	
Dainty sulphur butterfly	<i>Nathalis iole</i>	
Obscure skipper butterfly	<i>Panoquina panoquinoides</i>	
Eastern giant swallowtail butterfly	<i>Papilio cresphontes</i>	
Mangrove skipper butterfly	<i>Phocides pigmalion</i>	
Large orange sulphur butterfly	<i>Phoebis agarithe</i>	
Cloudless sulphur butterfly	<i>Phoebis sennae</i>	
Phaon crescent butterfly	<i>Phyciodes phaon</i>	
Hammock skipper butterfly	<i>Polygonus leo</i>	
Little yellow butterfly	<i>Pyrisitia lisa</i>	
Malachite butterfly	<i>Siproeta stelenes</i>	
Columella scrub-hairstreak butterfly	<i>Strymon columella</i>	
Martial scrub-hairstreak butterfly	<i>Strymon martialis</i>	
Gray hairstreak butterfly	<i>Strymon melinus</i>	
Lilac-banded longtail butterfly	<i>Urbanus dorantes</i>	
Long-tailed skipper butterfly	<i>Urbanus proteus</i>	
Annelids		
Onuphid polychaete	<i>Americonuphis magna</i>	
Southern lugworm	<i>Arenicola cristata</i>	
Ophelid polychaete	<i>Armandia agilis</i>	
Long bristle eunice	<i>Eunice websteri</i>	
Marine bristle worms	<i>Eurythoe</i> spp.	
Marine bristle worms	<i>Hermodice</i> spp.	
Lumbrinerid polychaete	<i>Lumbrineris maculata</i>	
Eunicid polychaete	<i>Lysidice</i> spp.	
Clam worms	<i>Nereis</i> spp.	
Ophelid worm	<i>Ophelina acuminata</i>	
Peanut/Sipunculid worms	<i>Phascolion</i> spp.	
Burrowing scale worms	<i>Sthenelais</i> spp.	
Stroem's trichobranchid worm	<i>Terebellides stroemii</i>	

Common Name	Species Name	Designation
Corals		
Staghorn coral	<i>Acropora cervicornis</i>	FT
Elkhorn coral	<i>Acropora palmata</i>	FT
Pillar coral	<i>Dendrogyra cylindrus</i>	FT
Elliptical star coral	<i>Dichocoenia stokesii</i>	
Knobby brain coral	<i>Diploria clivosa</i>	
Grooved brain coral	<i>Diploria labyrinthiformes</i>	
Smooth brain coral	<i>Diploria strigosa</i>	
Smooth flower coral	<i>Eusmilia fastigiata</i>	
Golfball coral	<i>Favia fragum</i>	
Sea fan	<i>Gorgonia ventalina</i>	
Rose coral	<i>Manicina areolata</i>	
Great star coral	<i>Montastrea cavernosa</i>	
Spiny flower coral	<i>Mussa angulosa</i>	
Rough cactus coral	<i>Mycteophyllia ferox</i>	FT
Diffuse ivory bush coral	<i>Oculina diffusa</i>	
Boulder star coral	<i>Orbicella annularis</i>	FT
Mountainous star coral	<i>Orbicella faveolata</i>	FT
Sea rods	<i>Plexaura</i> spp.	
Mustard hill coral	<i>Porites astreoides</i>	
Finger coral	<i>Porties diveracata</i>	
Branched finger coral	<i>Porites furcata</i>	
Finger coral	<i>Porites porites</i>	
Knobby brain coral	<i>Pseudodiploria clivosa</i>	
Symmetrical brain coral	<i>Pseudodiploria strigosa</i>	
Sea plumes	<i>Pseudopterogorgia</i> spp.	
Sea whips	<i>Pterogorgia</i> spp.	
Lesser starlet coral	<i>Siderastrea radians</i>	
Massive starlet coral	<i>Siderastrea siderea</i>	
Smooth star coral	<i>Solenastrea bournoni</i>	
Knobby star coral	<i>Solenastrea hyades</i>	
Blushing star coral	<i>Stephanocoenia intersepta</i>	
Cnidarians		
Corkscrew anemone	<i>Bartholomea annulata</i>	
Mangrove upsidedown jelly	<i>Cassiopea xamachana</i>	
Giant anemone	<i>Condylactis gigantea</i>	
Pale anemone	<i>Exaiptasia diaphana</i>	
White encrusting zoanthid	<i>Palythoa caribaeorum</i>	

Common Name	Species Name	Designation
Knobby zoanthid	<i>Palythoa mammillosa</i>	
Portuguese man-of-war	<i>Physalia physalis</i>	
Sun anemone	<i>Stichodactyla helianthus</i>	
Mat zoanthid	<i>Zoanthus pulchellus</i>	
Sponges		
Row pore rope sponge	<i>Aplysina cauliformis</i>	
Vase sponge	<i>Callyspongia</i> spp.	
Chicken liver sponge	<i>Chondrilla nucula</i>	
	<i>Chondrosia collectrix</i>	
Boring sponges	<i>Cliona</i> spp.	
Variable sponge	<i>Cliona varians</i>	
Ethereal sponge	<i>Dysidea etheria</i>	
Sheepswool sponge	<i>Hippospongia lachne</i>	
Vase sponge	<i>Ircinia campana</i>	
Stinker sponge	<i>Ircinia felix</i>	
Black-ball sponge	<i>Ircinia strobilina</i>	
Stinking sponge	<i>Sarcotragus fasciculatus</i>	
Loggerhead sponge	<i>Spheciospongia vesparium</i>	
Yellow sponge	<i>Spongia barbara</i>	
Keys grass sponge	<i>Spongia graminea</i>	
Fire sponge	<i>Tedania ignis</i>	
Marine Arthropods		
Copepod	<i>Acartia</i> spp.	
Snapping shrimp	<i>Alpheus normanni</i>	
Pistol shrimp	<i>Alpheus</i> spp.	
Mangrove tree crab	<i>Aratus pisonii</i>	
Box crabs	<i>Calappa</i> spp.	
Blue crab	<i>Callinectes sapidus</i>	
Barnacle	<i>Chthamalus stellatus</i>	
Stiped hermit crab	<i>Clibanarius vittatus</i>	
Caribbean hermit crab	<i>Coenobita clypeatus</i>	
Shore crabs	<i>Cyclograpsus</i> spp.	
Amphipod	<i>Cymadusa compta</i>	
Bar-eyed hermit crab	<i>Dardanus fucosus</i>	
Gammarid amphipod	<i>Gammarus mucronatus</i>	
Gammarid amphipod	<i>Grandidierella</i> spp.	
False zostera shrimp	<i>Hippolyte pleuracantha</i>	

Common Name	Species Name	Designation
Sargassum shrimp	<i>Latreutes fucorum</i>	
Atlantic sand fiddler crab	<i>Leptuca pugilator</i>	
Spider crab	<i>Libinia</i> spp.	
Sea roach	<i>Ligia</i> spp.	
Horseshoe crab	<i>Limulus polyphemus</i>	
Barnacle	<i>Lithotrya dorsalis</i>	
Decorator crab	<i>Macrocoeloma</i> spp.	
Gammarid amphipod	<i>Melita nitida</i>	
Florida stone crab	<i>Menippe mercenaria</i>	
Decorator crab	<i>Microphrys</i> spp.	
Spider crab	<i>Mithrax</i> spp.	
Shore crab	<i>Pachygrapsus</i> spp.	
Hermit crab	<i>Pagurus</i> spp.	
Caridean shrimp	<i>Palaemon</i> spp.	
Caribbean spiny lobster	<i>Panulirus argus</i>	
Pink shrimp	<i>Penaeus duorarum</i>	
Cleaning shrimp	<i>Periclimenes</i> spp.	
Giant hermit crab	<i>Petrochirus diogenes</i>	
Pitho crab	<i>Pitho</i> spp.	
False mantis shrimp	<i>Pseudosquilla ciliata</i>	
Spearing mantis shrimps	<i>Pseudosquilla</i> spp.	
Marsh crab	<i>Sesarma</i> spp.	
Wood borer isopod	<i>Sphaeroma terebrans</i>	
Snapping shrimp	<i>Synalpheus fritzmuelleri</i>	
Bryozoan shrimp	<i>Thor floridanus</i>	
Terrestrial Arthropods		
Silver argiope spider	<i>Argiope argentata</i>	
Land crab	<i>Cardisoma guanhumii</i>	
Trashline orbweavers	<i>Cyclosa</i> spp.	
Spinybacked orbweaver	<i>Gasteracantha cancriformis</i>	
Golden silk orbweaver	<i>Nephila clavipes</i>	
Echinoderms		
Five-toothed sea cucumber	<i>Actinopyga agassizii</i>	
Sea biscuit	<i>Clypeaster rosaceus</i>	
Long-spined urchin	<i>Diadema antillarum</i>	
Conical spined sea star	<i>Echinaster sentus</i>	
Rock-boring urchin	<i>Echinometra lucunter</i>	

Common Name	Species Name	Designation
Florida sea cucumber	<i>Holothuria floridana</i>	
Variiegated urchin	<i>Lytechinus variegatus</i>	
Red heart urchin	<i>Meoma ventricosa</i>	
Cushion sea star	<i>Oreaster reticulatus</i>	
West Indian sea egg	<i>Tripneustes ventricosus</i>	
Mollusks		
Fuzzy chiton	<i>Acanthopleura granulata</i>	
Queen conch	<i>Aliger gigas</i>	
Vase shells	<i>Altivasum</i> spp.	
Atlantic strawberry cockle	<i>Americardia media</i>	
Dove snails	<i>Anachis</i> spp.	
Ark clams	<i>Anadara</i> spp.	
Venus clams	<i>Antigona</i> spp.	
Spotted sea hare	<i>Aplysia dactylomela</i>	
Turbinid snail	<i>Astraea</i> spp.	
Star shells	<i>Astraea</i> spp.	
Dove snail	<i>Astyris lunata</i>	
Stiff pen shell	<i>Atrina rigida</i>	
Grass cerith	<i>Bittolum varium</i>	
Blind shells	<i>Caecum</i> spp.	
Broad-ribbed cardita	<i>Cardites floridanus</i>	
Ladder horn snail	<i>Cerithideopsis scalariformis</i>	
Ceriths	<i>Cerithium</i> spp.	
Cross-barred venus	<i>Chione cancellata</i>	
Tigger lucine	<i>Codakia orbicularis</i>	
Slipper shells	<i>Crepidula</i> spp.	
Triton sea snails	<i>Cymatium</i> spp.	
Elysia sea slugs	<i>Elysia</i> spp.	
True tulip snail	<i>Fasciolaria tulipa</i>	
Common egg cockle	<i>Fulvia laevigata</i>	
Painted cantharus	<i>Gemophos tinctus</i>	
West Indian false cerith	<i>Lampanella minima</i>	
Florida tree snail	<i>Liguus fasciatus</i>	
Periwinkles	<i>Littorina</i> spp.	
Pennsylvania lucine	<i>Lucina pensylvanica</i>	
Coffee bean snail	<i>Melampus coffea</i>	
Button snail	<i>Modulus modulus</i>	
Bleeding tooth nerite	<i>Nerita peloronta</i>	

Common Name	Species Name	Designation
Checkered nerite	<i>Nerita tessellata</i>	
Caribbean reef octopus	<i>Octopus briareus</i>	
Rissoinid gastropods	<i>Rissoina</i> spp.	
Tegulid snails	<i>Tegula</i> spp.	
Sunrise tellin	<i>Tellina radiata</i>	
Florida horse conch	<i>Triplofusus giganteus</i>	

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	Species Name	Designation
Plants		
Blodgett's silverbush	<i>Argythamnia blodgettii</i>	FT/SE
Cinnamon bark	<i>Canella winterana</i>	SE
Pepper cinnamon	<i>Canella winterana</i>	SE
Big Pine partridge pea	<i>Chamaecrista lineata</i> var. <i>keyensis</i>	SE
Cape Sable thoroughwort	<i>Chromolaena frustrata</i>	FE
Milkbark	<i>Drypetes diversifolia</i>	SE
Red stopper	<i>Eugenia rhombea</i>	SE
Garber's sandmat	<i>Euphorbia garberi</i>	FT
Wild cotton	<i>Gossypium hirsutum</i>	ST
Lignum vitae	<i>Guaiacum sanctum</i>	SE
White ironwood	<i>Hypelate trifoliata</i>	SE
Florida Keys indigo	<i>Indigofera trita</i> subsp. <i>scabra</i>	SE
Bloodleaf	<i>Iresine diffusa</i>	SE
Juba's Bush	<i>Iresine diffusa</i>	SE
Joewood	<i>Jacquinia keyensis</i>	ST
Wash wood	<i>Jacquinia keyensis</i>	ST
Key thatch palm	<i>Leucothrinax morrisii</i>	ST
Passionflower	<i>Passiflora multiflora</i> var. <i>multiflora</i>	SE
Slash pine	<i>Pinus elliotii</i>	SE
Florida thatch palm	<i>Thrinax radiata</i>	SE
Giant wild pine	<i>Tillandsia utriculata</i>	SE
Birds		
Little blue heron	<i>Egretta caerulea</i>	ST
Reddish egret	<i>Egretta rufescens</i>	ST
Tricolor heron	<i>Egretta tricolor</i>	ST
Southeastern American kestrel	<i>Falco sparverius paulus</i>	ST

Common Name	Species Name	Designation
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
White-crowned pigeon	<i>Patagioenas leucocephala</i>	ST
Roseate spoonbill	<i>Platalea ajaja</i>	ST
Least tern	<i>Sternula antillarum</i>	ST
Mammals		
Silver rice rat	<i>Oryzomys palustris natator</i>	FE
Key deer	<i>Odocoileus virginianus</i>	FE
Lower Keys marsh rabbit	<i>Sylvilagus palustris hefneri</i>	FE
Indian manatee	<i>Trichechus manatus</i>	FT
Fishes		
Nassau grouper	<i>Epinephelus striatus</i>	FT
Smalltooth sawfish	<i>Pristis pectinata</i>	FE
Insects		
Schaus' swallowtail butterfly	<i>Heraclides aristodemus ponceanus</i>	FE
Cassius blue butterfly	<i>Leptotes cassius</i>	FT(S/A)
Corals		
Staghorn coral	<i>Acropora cervicornis</i>	FT
Elkhorn coral	<i>Acropora palmata</i>	FT
Pillar coral	<i>Dendrogyra cylindrus</i>	FT
Rough cactus coral	<i>Mycteophyllia ferox</i>	FT
Boulder star coral	<i>Orbicella annularis</i>	FT
Mountainous star coral	<i>Orbicella faveolata</i>	FT
Reptiles		
Atlantic loggerhead sea turtle	<i>Caretta caretta</i>	FT
Atlantic green sea turtle	<i>Chelonia mydas</i>	FT
American crocodile	<i>Crocodylus acutus</i>	FT
Key ringneck snake	<i>Diadophis punctatus acricus</i>	ST
Eastern indigo snake	<i>Drymarchon corais couperi</i>	FT
Atlantic hawksbill sea turtle	<i>Eretmochelys imbricata</i>	FE
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	FE
Florida Keys mole skink	<i>Plestiodon egregius egregius</i>	ST

B.3.3 / Invasive Non-native and/or Problem Species

Florida Exotic Pest Plant Council (FLEPPC) categorizes invasive exotic plants as Category I (plants that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives) or Category II (plants that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species).

Common name	Species name	Designation
Plants		
Monocots		
Sisal hemp	<i>Agave sisalana</i>	Invasive Category II
Barbados aloe	<i>Aloe vera</i>	Non-native to FL
Pitted beardgrass	<i>Bothriochloa pertusa</i>	Non-native to FL
Egyptian grass	<i>Dactyloctenium aegyptium</i>	Invasive Category II
Gophertail lovegrass	<i>Eragrostis ciliaris</i>	Non-native to FL
Tropical fimbry, hurricane grass	<i>Fimbristylis cymosa</i>	Non-native to FL
Monk orchid	<i>Oeceoclades maculata</i>	Non-native to FL
Panama crowngrass	<i>Paspalum fimbriatum</i>	Non-native to FL
Date palm	<i>Phoenix dactylifera</i>	Non-native to FL
Natal grass	<i>Melinis repens</i>	Non-native to FL
Dicots		
India mustard	<i>Brassica juncea</i>	Non-native to FL
Mastwood	<i>Calophyllum antillanum</i>	Category I
Natal plum	<i>Carissa macrocarpa</i>	Non-native to FL
Madagascar periwinkle	<i>Catharanthus roseus</i>	Non-native to FL
Day jessamine	<i>Cestrum diurnum</i>	Invasive Category II
Peruvian apple cactus	<i>Cereus repandus</i>	Non-native to FL
Key lime	<i>Citrus aurantiifolia</i>	Non-native to FL
Coconut palm	<i>Cocos nucifera</i>	Invasive Category II
Madagascar rubber vine	<i>Cryptostegia madagascariensis</i>	Category II
Wild tantan	<i>Desmanthus virgatus</i>	Non-native to FL
Creeping beggarweed	<i>Desmodium incanum</i>	Non-native to FL
Surinam cherry	<i>Eugenia uniflora</i>	Invasive Category I
Devil's backbone	<i>Euphorbia tithymaloides ssp. smallii</i>	Non-native to FL
Laurel fig	<i>Ficus microcarpa</i>	Invasive Category I
Hurricane grass	<i>Fimbristylis cymosa</i>	Non-native to FL
Blanket flower	<i>Gaillardia pulchella</i>	Non-native to FL
Madre de cacao	<i>Gliricidia sepium</i>	Non-native to FL
Night-blooming cereus	<i>Selenicereus undatus</i>	Non-native to FL
Snake cactus	<i>Selenicereus pteranthus</i>	Non-native to FL
Star jasmine	<i>Jasminum multiflorum</i>	Non-native to FL

Common name	Species name	Designation
Chandelier plant	<i>Kalanchoe delagoensis</i>	Non-native to FL
Lantana	<i>Lantana strigocamara</i>	Invasive Category I
Wild lettuce	<i>Launaea intybacea</i>	Non-native to FL
Barbados cherry	<i>Malpighia emarginata</i>	Non-native to FL
Sapodilla	<i>Manilkara zapota</i>	Invasive Category I
Orange jasmine	<i>Murraya paniculata</i>	Invasive Category II
Oleander	<i>Nerium oleander</i>	Non-native to FL
Yellow poinciana	<i>Peltophorum pterocarpum</i>	Non-native to FL
Gale-of-wind	<i>Phyllanthus amarus</i>	Non-native to FL
Brazilian pepper	<i>Schinus terebinthifolius</i>	Invasive Category I
Yellow necklace-pod	<i>Sophora tomentosa var. occidentalis</i>	Non-native to FL
Mahoe	<i>Talipariti tiliaceum</i>	Invasive Category II
Tamarind	<i>Tamarindus indica</i>	Non-native to FL
Portia	<i>Thespesia populnea</i>	Invasive Category I
Mexican daisy	<i>Tridax procumbens</i>	Non-native to FL
Signal grass	<i>Urochloa distachya</i>	Non-native to FL
Birds		
House sparrow	<i>Passer domesticus</i>	
Fishes		
Red lionfish	<i>Pterois volitans</i>	
Mammals		
Black rat	<i>Rattus rattus</i>	
Amphibians		
Greenhouse frog	<i>Eleutherodactylus planirostris planirostris</i>	
Cuban tree frog	<i>Hyla septentrionalis</i>	
Giant toad	<i>Rhinella marina</i>	
Reptiles		
Cuban brown anole	<i>Anolis sagrei</i>	
Green iguana	<i>Iguana iguana</i>	

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. As per DEP policy 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 Historical Sites Associated with Coupon Bight Aquatic Preserve

The list below was derived from shapefiles obtained from the Florida Department of State, Division of Historical Resources on April 4, 2023, and includes sites within 0.25 miles of Coupon Bight Aquatic Preserve.

Site ID	Site Name	Description	Location
MO01131	OVERSEAS HIGHWAY AND RAILWAY BRIDGES	Historic district in the Florida Keys	Located within 0.25 miles of CBAP.
MO01262	BIG PINE KEY 9	Historic well	Located within 0.25 miles of CBAP.
MO01263	BIG PINE KEY 10	Single artifact or isolated find	Located within CBAP.
MO01271	HOLIDAY KEY	Prehistoric midden(s)	Located within 0.25 miles of CBAP.
MO01484	SPANISH HARBOR CHANNEL BRIDGE	Historic bridge, built c1910	Located within 0.25 miles of CBAP.
MO01981	BIG MUNSON KEY	Habitation (prehistoric)	Located within CBAP.
MO02101	BIG PINE KEY 3	Land-terrestrial	Located within 0.25 miles of CBAP.
MO02102	BIG PINE KEY 4	Prehistoric shell scatter	Located within CBAP.
MO02106	BIG PINE KEY 8	Homestead, and historic refuse/dump	Located within 0.25 miles of CBAP.
MO03407	Coupon Bight	Campsite (prehistoric)	Located within CBAP.
MO03418	Big Pine Key Buttonwood Charcoal Site	Low density artifact scatter	Located within CBAP.
MO06622	Refugee Key	Campsite (prehistoric)	Located within CBAP.

Appendix C / Public Involvement

C.1 / Public Forum

C.1.1 / Florida Administrative Register Posting

Florida Administrative Register

Volume 48, Number 63, March 31, 2022

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

The Florida Department of Environmental Protection, Office of Resilience and Coastal Protection announces a public meeting to which all persons are invited.

DATE AND TIME: Thursday, April 14, 2022, 6:00 p.m.

PLACE: Lower Keys Chamber of Commerce, 31020 Overseas Highway, Big Pine Key, FL 33043

GENERAL SUBJECT MATTER TO BE CONSIDERED: The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection is seeking public input prior to developing an update of the Coupon Bight Aquatic Preserve Management Plan. Information about Coupon Bight Aquatic Preserve is available at <https://floridadep.gov/rcp/aquatic-preserve/locations/coupon-bight-aquatic-preserve>.

A copy of the agenda may be obtained by contacting: Aquatic Preserve Manager, Nicholas Parr at Nicholas.Parr@FloridaDEP.gov.

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 48 hours before the workshop/meeting by contacting: Nicholas Parr at Nicholas.Parr@FloridaDEP.gov. 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).

REGIONAL PLANNING COUNCILS

Central Florida Regional Planning Council

The Central Florida Regional Planning Council announces a public meeting to which all persons are invited.

DATE AND TIME: April 13, 2022, 9:30 a.m.

PLACE: Hardee County Agri-Civic Center 515 Civic Center Drive Wauchula, FL, 33873

GENERAL SUBJECT MATTER TO BE CONSIDERED: Regular meeting of the Central Florida Regional Planning Council (CFRPC) and/or its subcommittees.

A copy of the agenda may be obtained by contacting: April Dasilva, Program Coordinator, adasilva@cfrpc.org, 1(863)534-7130, ext. 129.

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 3 days before the workshop/meeting by contacting: April Dasilva, Administrative Program Coordinator, adasilva@cfrpc.org, 1(863)534-7130, ext. 129. 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).

If any person decides to appeal any decision made by the Board with respect to any matter considered at this meeting or hearing,

he/she will need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence from which the appeal is to be issued.

For more information, you may contact: April Dasilva, Administrative Program Coordinator, adasilva@cfrpc.org, 1(863)534-7130, ext. 129.

DEPARTMENT OF ENVIRONMENTAL PROTECTION Division of Recreation and Parks

The Statewide Comprehensive Outdoor Recreation Planning Workgroup announces a public meeting to which all persons are invited.

DATE AND TIME: April 15, 2022, 1:00 p.m.

PLACE: Carr Building Room 170, 3800 Commonwealth Boulevard, Tallahassee, FL 32399, or join virtually through Zoom, Meeting ID: 822 0617 8277 Passcode: 059925

GENERAL SUBJECT MATTER TO BE CONSIDERED: The Statewide Comprehensive Outdoor Recreation Planning Workgroup will meet to conduct general business. The workgroup will discuss implementation strategies for the 2023 Statewide Comprehensive Outdoor Recreation Plan (SCORP). The workgroup will also discuss statewide health goals that are relevant to the SCORP. The workgroup will discuss outreach initiatives for the 2023 SCORP.

A copy of the agenda may be obtained by contacting: Mikayla Panariello, Office of Greenways and Trails, Division of Recreation and Parks, Florida Department of Environmental Protection, 3800 Commonwealth Boulevard MS795, Tallahassee, FL 32399, Mikayla.Panariello@floridadep.gov, (850)245-3069.

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: Mikayla Panariello, Office of Greenways and Trails, Division of Recreation and Parks, Florida Department of Environmental Protection, 3800 Commonwealth Boulevard MS795, Tallahassee, FL 32399, Mikayla.Panariello@floridadep.gov, (850)245-3069. 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).

DEPARTMENT OF HEALTH

Board of Clinical Laboratory Personnel

The Board of Clinical Laboratory Personnel announces a telephone conference call to which all persons are invited.

DATE AND TIME: May 6, 2022, 9:00 a.m.

PLACE: Hilton Garden Inn; 11400 Marbella Palm court; Orlando, FL.32836

GENERAL SUBJECT MATTER TO BE CONSIDERED: General board business to include licensure.

1261

C.1.2 / Meeting Summary

Coupon Bight Aquatic Preserve Management Plan Public Forum

Thursday, April 14, 2022, 6:00 - 7:30 p.m.

Lower Keys Chamber of Commerce

31020 Overseas Highway

Big Pine Key, Florida, 33043

This scoping meeting was held to receive public input on the management of the Coupon Bight Aquatic Preserve prior to the development of a new management plan. The meeting began with a presentation about Coupon Bight Aquatic Preserve. Then the attendees were invited to visit four stations to submit comments concerning ecosystem science, resource management, education and outreach, and public use. A list of attendees is available upon request.

Public Comments:

Ecosystem Science

- Repair Long Beach Road culverts
- Replant mangroves post storm events
- Increase enforcement in Bight
- Study impacts of docks and piers on Long Beach
- Study impacts of boat use in Bight
- Benthic surveys need to be conducted
- Study beach erosion; measure and track

Resource Management

- Engage in seagrass scarring prevention and restoration opportunities
- Incorporate sea level rise impacts mitigation/working with it (e.g. help water flow under US 1 from Bogie to Bight)
- Incorporate climate change
- Long Beach – restore of natural/historical water flow (3 culverts plugged)
- New since 1991 and needs to be addressed in plan – all residential beaches except 2 designated CCCL or critically eroded
- New since 1991 and needs to be addressed in plan– Irma pushed SAND INTO Bight, benthics and shorebirds changed locations and abundance
- Address pollution concerns along roads leading into Bight (esp. N side)
- Align state and county regulations and enforcement for the area
- Address capacity to achieve plan goals

Education and Outreach

- Educate local and state permitting and engineering on what is approved by DEP, county, and US Army Corps
- Structures should not be permitted to block public right to traverse the beach (Long Beach has low piers/kayak dock)
- Need outreach for new kayak launches with sign for alternate launches
- Need parking enforcement at kayak launches
- Need education about allowable uses (PWCs) at boat ramps with maps or pamphlets at B&Bs and rentals
- Work with schools to bring students out on multi-passenger boats
- Expand page 144 of the current plan on how to involve local businesses
- According to the current management plan, the aquatic preserve is to have five employees
- Review the current plan thoroughly and add/enhance it, do not remove elements
- Annual report needed

Public Use

- Increase kayak launch points, clear recognition (signs)
- Southwest end of Long Beach Drive is chronic, illegal kayak put ins (private property); Need DEP sign to keep kayaks out
- Need more public info about legal kayak launches
- Need more FWC enforcement for lobsters (undersized) in same area
- Encourage installation of kayak pier launch oceanside on county property
- Need maintenance/monitoring for turtle exclusion devices near docks
- Kayak launch on Long Beach (new sign) can't be the main one; need more launches throughout AP, coming off different points of the Overseas Highway

C.1.3 / Additional Comments

Additional comments were received and are presented below.

COUPON BIGHT IS ONE OF ONLY TWO AQUATIC PRESERVES IN MONROE COUNTY. IT IS AN EXTREMELY WELL CONCEIVED {ACCOMPLISHED WITH EFFORTS BY A CONTINUING ADJACENT BUSINESS (PRIVATE NON-PROFIT) SEA CAMP, INC.). YET IT ALSO HAS OTHER BUSINESS'S ENCOMPASSED IN & ADJACENT THE WATER BOUNDARIES OF THE PRESERVE WHICH NEED TO BE CALLED OUT WITHIN THE REASONS FOR THE PRESERVE'S UPDATED PLAN.

FLORIDA HAS A GROWTH RATE THAT HAS CONTINUED THIS CENTURY SUCH THAT WE WILL HAVE 95 MILLION FOLK IN FLORIDA AT 2100. FOLK WORRY ABOUT ACCOMODATING THESE FOLK, BUT HAVING THE PRESERVES ARE GOING TO MAKE COUPON BIGHT AQUATIC PRESERVE (AND ALL AQUATIC PRESERVES) SUPER IMPORTANT. COUPON BIGHT AQUATIC PRESERVE IS EXTREMELY IMPORTANT TO THE BIG PINE AREA OF THE LOWER KEYS IF OPERATED IN ACCORD WITH ITS DESIGNATION REASONS.

MONROE COUNTY AS "CASH COW" TO TALLAHASSEE TREASURY, PROVIDES SUBSTANTIALLY MORE REVENUES THAN TALLAHASSEE RETURNS GENERAL REVENUE FOR STATE SERVICES THAT THE NEXT TO LOWEST LEVEL TYPE GOVERNMENT IN THE COUNTRY PROVIDES.

1992 MANAGEMENT PLAN -FDNR AP PROCESS WITH 5 YEAR UPDATE REQUIRED (NOW 10 YR)

EXISTING 216 PAGES - EXTREMELY DETAILED WITH MULTIPLE TASKS ASSIGNED BY TRUSTEES

FIRST - REPORT AS TO COMPLIANCE WITH EACH 1992 PLAN REQUIREMENTS. YOU HAD A REQUIREMENT TO PRODUCE AN "ANNUAL" REPORT. WHERE ARE THE 30 REPORTS???

SECOND-WHAT CAN BE A "MANAGEMENT PLAN" THAT THE DEPARTMENT GETS PRODUCTION OR RESULTS WITH?? GRANTED GOVERNMENT DOES NOT GET WORK ASSIGNMENTS DONE TIMELY OR IN ACCORD WITH REQUIREMENTS. THE TWO MONROE COUNTY AQUATIC PRESERVES ARE GREAT EXAMPLES.

THIRD-A MORE READABLE DOCUMENT (CERTAINLY LESS THAN 100 PAGES). PART OF THE "BULKING" OF THE REPORT IS:

- 1) FORMAT, INCLUDING WITH EXTREME DETAIL AND
- 2) ATTEMPTING TO LIST "RESOURCE" DATA & INSTITUTIONAL DATA THAT CHANGES (HOPEFULLY DAILY OR SOMETIMES PERIODODICALLY). {CAN BE MANAGED W/ ELECT. REF.)

FOURTH-NOTICE TO THIS MEEETING WAS EXTREMELY POOR! MAKE SAME TIME AS FR.

THE EXISTING 1992 COUPON BIGHT MANAGEMENT PLAN COMMENTS ARE LISTED ON THE FOLLOWING ATTACHMENT.

GERALD M. WARD, P.E. - P.O. BOX 6121, KEY WEST, FLORIDA 33041-- 561/863-1215 14 APRIL 2022

COVER-FUNDING ACKNOWLEDGEMENT MAY OCCUR, BUT UNDER NO CIRCUMSTANCES WILL ANY "DISCLAIMERS" BE ALLOWED I

EXECUTIVE SUMMARY-THE 1992 SUCH SUMMARY IS OVERLY WORDY AND CAN BE SUMMARIZED TO ADDITIONALLY INCLUDE A LISTING OF SUPPORT PURPOSES TO BUSINESS & RECREATION USES AND MANAGEMENT ACTIONS. THE INTENT IS TO MAKE SURE ANY MORE CASUAL READER KNOWS THE NUMEROUS ACTION REQUIREMENTS.

I INTRODUCTION-CAN CONSIDER WHETHER THE EXECUTIVE SUMMARY COULD INCLUDE BOTH.

11. MANAGEMENT AUTHORITY NO DIFFERENT THAN THE LISTING OF "RESOURCE" DATA THIS INSTITUTIONAL DATA CHANGES DURING THE 10 YEAR PERIOD BEFORE NEXT UPDATE. IT IS POSSIBLE UNDER CHAPTER 120 F.S. TO CITE INTERNET ADDRESSES TO LIST MATERIALS THAT ARE NOT BEING ADOPTED (E.G. - LAWS INCLUDING PART II, 258 F.S., RULES IF A.C.) TRUSTEES, DACS, DHR, DOH, DEP, SFWMD, ETC.)

111. RESOURCE DESCRIPTION-WRITTEN DESCRIPTIONS AND EXHIBIT (FIGURES) AS WITH THE FIRST ELEVEN PAGES IS MOST APPROPRIATE. WHEN GETTING INTO "SPECIES" THEN AFTER A BRIEF DESCRIPTION IS) REFER TO LISTINGS OF THE "RESOURCE" DATA WHICH DATA CHANGES DURING THE 10 YEAR PERIOD BEFORE NEXT UPDATE. IT IS POSSIBLE UNDER CHAPTER 120 F.S. TO CITE INTERNET ADDRESSES TO LIST MATERIALS THAT ARE NOT BEING ADOPTED.

LOCAL LAND USE AND DEVELOPMENT CITATIONS CAN BE FIRST DESCRIBED IN CATEGORIES AND THEN LISTED SIMILAR TO "RESOURCE AND INSTITUTIONAL" DATA. UNDER THE CURRENT STRUCTURE OF REGULATION "HIGHER LEVEL GOVERNMENT (COUNTY AND REGIONALS) ARE MORE EFFECTIVE CONTROL ENTITIES.

IV. MANAGEMENT AREAS-FDNR WAS WAY MORE EFFECTIVE (AND DETAILED) WITH ITS REGULATORY/PROPRIETARY VENUES OR SPECIFIC "AREAS." WHETHER FDEP CONTINUES WITH SUCH DETAIL IS NOT NECESSARILY IMPORTANT. WHAT IS NEEDED IN THE UPDATE PLAN ARE DESCRIPTIONS THAT THE COUPON BIGHT AQUATIC PRESERVE HAS EXISTING AND FUTURE RESIDENTIAL, COMMERCIAL, RECREATIONAL LAND USES WHICH MAINTENANCE ARE CRITICAL TO THE CONTINUED NECESSITY AND FUNCTION OF THE PRESERVE AN EXHIBIT (FIGURE) NEEDS TO CONTINUE TO DEPICT SUCH INCLUDING CHANNELS BOTH NATURAL AND ARTIFICIAL.

V. SITE SPECIFIC MANAGEMENT AREAS-THIS IS A VERY USEFUL CHAPTER THAT WARRANTS CONTINUATION. MOST IMPORTANT ARE THE ISSUES 16. & 7.) OF ADDITIONAL LANDS UNDER OTHER TRUSTEES PROGRAMS AND EXPANSION OF EXISTING PRESERVE BOUNDARIES. IN REALITY THIS ALSO EQUATES TO THE NEED TO POTENTIALLY CONSIDER CONVERSION OF COUPON BIGHT MANAGEMENT TO FDEP DIVISION OF RECREATION AND PARKS WITH TRUSTEES TRANSFER DOCUMENTATION. THE EXPANSION FOR 2100 NEEDS IS WELL NEEDED.

PAGE 2 COUPON BIGHT AQUATIC PRESERVE MANAGEMENT PLAN UPDATE -2022/2023

VI. MANAGEMENT ACTION PLAN-THE FDNR 20 PAGES OF SUPER DETAILED GOALS AND TASKS IS INSTRUCTIVE. FIRST, FDEP STAFF NEEDS TO LIST OUT THE OVER 116 TASKS AND ADVISE ARC AND THE TRUSTEES IN THREE CATEGORIES WHETHER THEY WERE 1) ACCOMPLISHED, 2) NOT ACCOMPLISHED OR 3) WHAT PART ACCOMPLISHED.

GIVEN THE NUMEROUS QUITE INTERESTING AND VALID TASKS (AND ASSUMING) YOU REALLY WANT TO SHOW AT THE END OF 10 YEARS A LARGE PERCENTAGE OF ACCOMPLISHMENT, A SELECT NUMBER OF TASKS FOR ACCOMPLISHMENT IN THE NEXT 10 YEARS.

THE MOST IMPORTANT IS TASK B.2.1.3. ON PAGE 144. THIS IS THE REQUIREMENT TO "COORDINATE AND COOPERATE" WITH A LIST OF AGENCIES AND ORGANIZATIONS. THIS LIST NEEDS TO BE UPDATED TO INCLUDE OTHER BUSINESSES. ONE OF THE PRESERVES MOST PROFITABLE BUSINESSES FOR THE STATE COFFERS IS LITTLE PALM ISLAND, NEEDS TO BE LISTED. LONG BEACH BUSINESSES (B&B'S) ALSO NEED TO BE LISTED.

VII- MANAGEMENT COORDINATION NETWORK-A JUST LESSER VERBAGE OF LISTING OF GOVERNMENTS REQUIRED TO BE COORDINATED WITH IS APPROPRIATE. WHAT IS LACKING IS EMPHASIS ON LOCAL GOVERNMENTS AND MORE IMPORTANTLY "OTHER ENTITIES." MAKE SURE THIS LIST IS FULLY UPDATED!

VIII- STAFFING AND FISCAL NEEDS-WHERE ARE THE FIVE FULL-TIME EMPLOYEES??? WHERE DID THIS FALL THROUGH THE CRACKS?? WHAT IS YOUR RECORD OF FAILURE TO FILL THESE POSITIONS AS MANDATED BY THE TRUSTEES? A SIMILAR STAFFING AND EXPENSE RECITATION NEEDS TO OCCUR IN THE DRAFT "UPDATED" MANAGEMENT PLAN.

IX- RESOURCE AND ACTIVITY MONITORING PROGRAM-WHERE ARE THE 30 REPORTS REQUIRED BY THE EXISTING 1992 MANAGEMENT PLAN? BESIDES OTHER "RESOURCE" MONITORING THE UPDATED PLAN NEEDS TO REQUIRE A WATER QUALITY PROGRAM GENERATED BY THE FLORIDA KEYS WATER QUALITY PROTECTION PLAN COMMITTEE WITH COORDINATION AND APPROVAL OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT.

REFERENCES-LIST SIMILAR TO "RESOURCE" & "INSTITUTIONAL" DATA

APPENDIX A- LIST SIMILAR TO "RESOURCE" & "INSTITUTIONAL" DATA

C.2 / Advisory Committee

C.2.1 / List of invited members and their affiliations

Name	Organization	Title
Dr. Nicholas Parr	FDEP – Office of Resilience and Coastal Protection	FKNMS and Regional Aquatic Preserves Manager
Sarah Fangman	NOAA – Florida Keys National Marine Sanctuary	Superintendent
Benjamin Ralys	DEP – Division of Environmental Assessment and Restoration	
Chris Eggleston	USFWS – Florida Keys National Wildlife Refuge Complex	Refuge Manager
Dr. CJ Sweetman	FWC - Marine Fisheries	
Reece Spencer	Seacamp Association, Inc.	Executive Director
Dr. Jerry Lorenz	Audubon Florida	State Director
Mary Cook & Chris Madden	SFWMD	
Harry Appel	Save-a-Turtle	President
Michelle Lincoln	Monroe County	County Commissioner
Tom Matthews	FWC – Fish Wildlife Research Institute	Program Administrator
Dr. Barry Roberts		Local Property Owner
Dr. Jeff Carrier	Albion College	Shark biologist

A copy of the Order or additional information may be obtained by contacting:

Dayle Mooney, Executive Director, Board of Clinical Laboratory Personnel, 4052 Bald Cypress Way, Bin # C-07, Tallahassee, Florida 32399-3258, telephone: (850)488-0595, or email, Dayle.Mooney@flhealth.gov.

DEPARTMENT OF HEALTH
Board of Clinical Laboratory Personnel

The Board of Clinical Laboratory Personnel hereby gives notice:

of the issuance of an Order Denying the Petition for Variance or Waiver, filed on February 27, 2023, by Leah Marshall. The Notice of Petition for Waiver or Variance was published in Vol. 49, No. 59, of the March 24, 2023, Florida Administrative Register. Petitioner did not state a specific rule citation for the request on waiver or variance. The Board considered the instant Petition at a duly-noticed public meeting held on April 28, 2023. The Board's Order, filed on May 17, 2023, denied the petition stating that Petitioner failed to identify a level of licensure and rule for which she seeks a waiver. Petitioner failed to establish that the Board's application of existing rules to her circumstances would violate principles of fairness or impose a substantial hardship on her.

A copy of the Order or additional information may be obtained by contacting:

Dayle Mooney, Executive Director, Board of Clinical Laboratory Personnel, 4052 Bald Cypress Way, Bin # C-07, Tallahassee, Florida 32399-3258, telephone: (850)488-0595, or email, Dayle.Mooney@flhealth.gov.

DEPARTMENT OF HEALTH
Board of Physical Therapy Practice

NOTICE IS HEREBY GIVEN that on June 21, 2023, the Board of Physical Therapy Practice, received a petition for Variance or Waiver filed by Ashima Chohan. Petitioner is seeking a variance or waiver from Section 486.031(3)(b), Florida Statutes, which states that to be eligible for licensing as a physical therapist, and applicant must have received a diploma from a program in physical therapy in a foreign country and have educational credentials deemed equivalent to those required for the educational preparation of physical therapists in this country, as recognized by the appropriate agency as identified by the board, and have passed to the satisfaction of the board an examination to determine her or his fitness for practice as a physical therapist as hereinafter provided.

Comments on this petition should be filed with the Board of Physical Therapy Practice, 4052 Bald Cypress Way, Bin #C05, Tallahassee, Florida 32399-3253, within 14 days of publication of this notice.

A copy of the Petition for Variance or Waiver may be obtained by contacting: Allen Hall, Executive Director, Board of Physical Therapy Practice, 4052 Bald Cypress Way, Bin #C05, Tallahassee, Florida 32399-3253, or by electronic mail-Allen.Hall@flhealth.gov.

FLORIDA HOUSING FINANCE CORPORATION

RULE NO.: RULE TITLE:

67-48.0072 Credit Underwriting and Loan Procedures

NOTICE IS HEREBY GIVEN that on June 21, 2023, the Florida Housing Finance Corporation, received a petition for waiver from paragraph 67-48.0072(17)(h) (5/24/2017), Florida Administrative Code from WRDG T3A, LP, allowing the General Contractor to subcontract to two affiliates.

A copy of the Petition for Variance or Waiver may be obtained by contacting: Ana McGlamory, Corporation Clerk, Florida Housing Finance Corporation, 227 North Bronough Street, Suite 5000, Tallahassee, FL 32301-1329. The Petition has also been posted on Florida Housing's website at floridahousing.org. Florida Housing will accept comments concerning the Petition for 14 days from the date of publication of this notice. To be considered, comments must be received on or before 5:00 p.m., Eastern Time, on the 14th day after publication of this notice at Florida Housing Finance Corporation, 227 North Bronough Street, Suite 5000, Tallahassee, Florida 32301-1329.

Section VI

Notice of Meetings, Workshops and Public Hearings

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, July 24, 2023, 1:00 p.m. – 4:00 p.m.

PLACE: 2796 Overseas Highway, Marathon, FL 33050 and online through TEAMS at

https://teams.microsoft.com/l/meetup-join/19%3ameeting_MjBjOGNiZTUyYjQ3NS00MmUyLWlWl3ZTMtNjkyNzE3NjBINGU5%40thread.v2/0?context=%7b%22Tid%22%3a%22679d4c83-aea2-4635-b4f1-9f5012551b6a%22%2c%22Oid%22%3a%228a4d3c12-ab28-41cd-8d18-33487b7c82ba%22%7d

GENERAL SUBJECT MATTER TO BE CONSIDERED: The Advisory Committee for the Coupon Bight Aquatic Preserve Management Plan is meeting to review and discuss the draft

update to the Coupon Bight Aquatic Preserve Management Plan, previously approved in 1992. The management plan is available online at <https://publicfiles.dep.state.fl.us/CAMA/Coupon-Bight-AP-Management-Plan-DRAFT.pdf>. Members of the public are invited to attend and listen to comments. A separate public meeting will be held to present the management plan to the public for their comments.

A copy of the agenda may be obtained by contacting: Aquatic Preserve Manager, Dr. Nicholas Parr at Nicholas.Parr@FloridaDEP.gov.

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: Dr. Nicholas Parr at Nicholas.Parr@FloridaDEP.gov. 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

Northwest Florida Water Management District

The Northwest Florida Water Management District announces a public meeting to which all persons are invited.

DATE AND TIME: July 18, 2023, 2:00 p.m., Eastern Time (ET).

PLACE: Northwest Florida Water Management District, 81 Water Management Drive, Havana, Florida 32333.

GENERAL SUBJECT MATTER TO BE CONSIDERED: In accordance with the timeframe set forth in section 120.525, Florida Statutes, the District announces the opening of bids received in response to ITB No. 23B-012 - 2023 GROUND SITE PREP HERBICIDE TREATMENT SERVICES.

A copy of the agenda may be obtained by contacting: Northwest Florida Water Management District's website (<http://www.nwfwater.com>); the State of Florida's Vendor Information Portal website at: MyFloridaMarket Place Vendor Information Portal; or may be obtained by calling (850)539-5999.

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 72 hours before the workshop/meeting by contacting: Benjamin Faure at Office (850)722-9919 or Cell (850)510-0399, Benjamin.Faure@nwfwater.com. 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: Benjamin Faure at Office (850)722-9919 or Cell (850)510-0399, Benjamin.Faure@nwfwater.com.

SPACE FLORIDA

The Space Florida announces a public meeting to which all persons are invited.

DATE AND TIME: June 30, 2023, 9:00 a.m., EDT

PLACE: Virtual Meeting via Zoom Meeting Link

<https://spaceflorida.zoom.us/j/6277636389?pwd=OUdidzMOejU5aGhXZUtdU5hU2pvdz09>

GENERAL SUBJECT MATTER TO BE CONSIDERED: Space Florida Transition Team Meeting

A copy of the agenda may be obtained by contacting: Terrie Ireland at tireland@spaceflorida.gov or (321)730-5301, ext. 241

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 2 days before the workshop/meeting by contacting: Terrie Ireland at tireland@spaceflorida.gov or (321)730-5301, ext. 241. 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).

If any person decides to appeal any decision made by the Board with respect to any matter considered at this meeting or hearing, he/she will need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence from which the appeal is to be issued.

For more information, you may contact: Terrie Ireland at tireland@spaceflorida.gov or (321)730-5301, ext. 241.

DEPARTMENT OF HEALTH

Board of Medicine

The Board of Medicine – Special Probable Cause Panel announces a public meeting to which all persons are invited.

DATE AND TIME: Thursday, June 29, 2023, 2:30 p.m., EST, or soon thereafter.

PLACE: You may join the meeting from your computer, tablet, or smartphone through the following link: <https://global.gotomeeting.com/join/841195637>. You may also join the meeting using your phone at the following number: (646)749-3122, access code: 841-195-637. To maximize your access to the meeting, the Department highly recommends that you download the GoToMeeting app on your computer, tablet, or smartphone prior to the meeting.

GENERAL SUBJECT MATTER TO BE CONSIDERED: The panel will conduct a meeting related to public disciplinary cases.

A copy of the agenda may be obtained by contacting: April Houston at (850)558-9858 or emailing her at April.Houston@flhealth.gov.

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

C.2.3 / Meeting Summary

Monday, July 24th, 2023, 1 PM

Florida Department of Environmental Protection

Teams Live Event:

Agenda

Welcome and Introductions

Discussion on Revisions to Draft Management Plan

1. Water Quality- Goals, Objectives, Strategies, and Measures
2. Wildlife and Habitat Protection- Goals, Objectives, Strategies, and Measures
3. Break (if needed)-15 minutes
4. Public Awareness- Goals, Objectives, Strategies, and Measures
5. Sustainable Public Use- Goals, Objectives, Strategies, and Measures
6. Other Steps

Next Steps

Closing

Welcome and Introductions

- Dr. Nicholas Parr- FKNMS and Keys Aquatic Preserve Manager, head for the FL Keys Office of Resilience and Coastal Protection
- Sarah Fangman- Superintendent to for FKNMS
- Benjamin Rawls- DEP, Division of Environmental Assessment and Restoration
- Chris Eggleston-Refuge Manager for USFWS – Florida Keys National Wildlife Refuge Complex
- Reece Spencer- Executive Director of Seacamp
- Dr. Jerry Lorenz- State Director of Audubon Florida
- Harry Appel- President of Save a Turtle
- Tom Matthews-Researcher with FWRI
- Barry Roberts- Local property owner

Discussion on Revisions to Draft Management Plan

1. Water Quality- Goals, Objectives, Strategies and Measures

Background Information- No Comment

Goal 1

- Objective 1:
 - Sarah- Do we need to do any part of gap identification? In reference to water quality data, it needs a gap identification exercise. Does that need to be explicitly referenced or implied?
 - Harry- Is ppm going to be taken in parts where there is dead ponds? Some sections of CBAP is over 30,000 ppm where the mangroves won't grow. It is very important to clean out tidal silt and adjacent bodies can cause problems.
 - Jeff-There are people who are referenced in CBAP and indication to more regularly collect data within CBAP. A deeper question, do we know who is permitted to work in the area and the people who are regularly taking data in the area? Is there a way to expand the data pool that is collected? Is there a way to communicate permitting to DEP?
 - Kevin- Identifying data gaps would be helpful including long-term and temporary.

- Barry- This is just a comment on the practicality of the document for the public, the graphs don't show much change. In discussing water quality, the public would want to know why these sites are chosen and what is being looked for? Temperature is also not included which might be helpful.
- Kevin- The water quality standard can be expanded, what can be protected and is a helpful point to be mentioned.
- Objective 2:
 - Reece- Is there data in regards to water quality when the plan was first put out in 1992?
 - Nick- Sadly, due to a hurricane there is gaps in the data.
 - Reece- There was a trial/talk of a resort/condo within the road from Seacamp, is there any record within the court documents of this?
 - Nick- Document may be somewhere, we can do some digging!

Goal 2

- Objective 1:
 - Kevin- There is some historic data from LakeWatch that began in 2001 to the present. We can share that all with you for consideration including in the report.
 - Harry- Are suspected instances of violations reported to FWC or to others perhaps more local?
 - Nick- There is a hotline to call, but DEP does try to get involved if possible, resources are limited.
 - Harry- I took a recent drone video, it looks like the seagrass scarring has increased significantly, maybe there is a possibility to increase signage coming from private areas such as the Long Beach area to larger channels, where it is very shallow. It seems that boats are going throughout the canal more frequently, including jetskis and more traffic within that area.
 - Nick- Newfound Harbor Channels are maintained by the Coastguard, but more markers are possible that are steering people away from the shallows and hitting the seagrass.

Background Information:

Harry- What is the delineation line for lobster traps?

Nick- There is no delineation line for lobster traps that I know of besides out of SPA's.

2. Wildlife and Habitat Coordination- Goals, Objectives, Strategies, and Measures

Goal 1

- Objective 1:
 - Sarah- That raises a question, the goals and the strategies of the plan look great and reflect a lot of work. I am wondering if these tasks are done by DEP or coordinating partners? It looks like a ton of work, is this possible?
 - Nick- With Lignumvitae and CBAP, these are goals and it is a lot. We happily welcome partners such as Seacamp, Seabase and other organizations to help us with some of these goals.
 - Reece- We at Seacamp, are happy to take water quality samples, as long as a location is given.
 - Harry- Citizen science is also helpful, incorporating local residents would also be helpful.

Goal 2

- Objective 1:
 - Jeff- So far your conservation has been aimed at submerged resources, what about resources that are not submerged? Wondering also about restoration regarding areas such as mangrove planting such as Picnic Island. You can see on drone footage the continued erosion, for example the rookery area on Bird Island that got wiped out after

- Irma.
- Harry- Recently out in Little Island, saw different boats there. Is there an ability to get no signage such as no beaching?
 - Nick- Picnic Islands are not part of CBAP, there is a plan to restore the islands to place them in conservation hands to restore. They are privately owned so maybe establishing the rookery area again. But, at DEP we are not actively managing them because they are out of the aquatic preserve.
 - Harry- Also, there is a need to monitor paving because oils come off them when paving. They put a slit barrier but something that needs to be monitored when the county does this.
 - Barry- You talk about submerged resources leaves out a lot of key species. Are you relying on other agencies to provide this data? For example, marsh rabbits, turtles, etc. And also regarding restoration, you are limited, but wording may give the wrong hint.
 - Nick- Goal two is relevant to the upland portions. The buffer preserve is managed by the wildlife refuge, we rely on them for the upper shoreland. The beaches are managed by DEP.
 - Reece- Where is the delineation line between agencies?
 - Nick- Usually within mean high, if the mean high hits it usually falls within the aquatic preserve.

Goal 3

- Objective 1
 - Harry- DEP has been notified for over three years and are aware of the three docks that were left over from the hurricane. They have not been removed and can cause issues with other things. For the kayak launch, its fine on the bay side but not on the oceanside because of the substrate. I am very concerned with the docks that are there
 - Nick- We can work on following up with that and in the past that has been challenged.
 - Barry- It might be helpful to include how resource management areas are defined, permits are particularly limited. It doesn't mention any of the survey requirements that are needed.
 - Nick- The very least it can reference definitions, statues, etc. We can reference where to find it in the document.
 - Harry- The brief, benthic surveys are not incredibly accurate, so there should be more criteria regarding what a benthic survey should entail.
 - Harry- Does DEP regulate installation of moorings?
 - Nick- The private ones, yes. It is very difficult for people to place in private moorings.
 - Jeff- There has been talks about the possibility for private vessels to pull out traps, such as individuals pulling out derelict traps.
 - Nick- There is possibility for organizations or events to get a permit to pull out traps, it can be a financial burden for many individuals.
 - Thomas- There is a possibility for individuals to pull out traps, with permits which will be sent around if anyone wants to obtain it.

Goal 4

- Objective 1
 - Harry- A flyer would be helpful in regards to the vegetation or other things that would be helpful in regards to educating the public.
 - Barry- It would also be helpful to look how populations change in regards to emergent things?
 - Nick- We would definitely be able to partner with other agencies, such as Key Deer and marsh rabbit we would be able to track the population differences. But anything below the water or slightly above, we would be happy to partner with other agencies such as FWC on their sawfish.

Goal 5

- Objective 1
 - Jeff- Bonefish and Tarpon should be mentioned in other groups, they are important species commercially. They are deserving of protection and worth mentioning.
 - Talia- I have been in touch with Bonefish and Tarpon Trust within LKAP, so getting them involved within CBAP should be doable.
 - Jeff- Maybe a hotline would be interesting in regards to gathering data on endangered species, so citizen scientists could bring in what they are seeing. This would allow us to have more data and be helpful.
 - Barry- This is similar to in upstate New York, citizen scientists report things and a lot of people enjoy it.

Break: 15 minutes

1. Education and Outreach- Goals, Objectives, Strategies, and Measures

- Objective 1
 - Jeff- You have two sides, one where an aquatic preserve is supposed to be pristine, with less signage. But, then you have another side where seagrass scarring is a recurring issue so maybe more signage within the area would be helpful.
 - Reece- I think it would be helpful to have a QR code that would explain the importance of the aquatic preserve. It would also be helpful in informing the people renting nearby houses about where the shallow areas are and maybe that's directing them in an area that isn't so shallow.
 - Nick- It might be helpful to place channel markers on the backside of Horseshoe to save the seagrass.
 - Nick- We are going to place flyers in the visitor center, Eden Pines Boat Park, fishing lodge, and the refuge visitor center.

Other Sections

- Harry- Save a Turtle was not mentioned in the entirety of the document. We have documents stating how important the beachfront properties are to nesting habitats for endangered and protected sea turtles and other beach species, but no protection of the rules aforementioned the document. Also, the Florida Trust for rights to walk in the public domain of the beaches is not mentioned. This new plan should prioritize the shoreline beach habitat for rebuilding and maintenance to protect the entire preserve. At Save a Turtle, we have been trying to work with private owners but funding is limited. If the beachfront habitat is destroyed on the eastern side of Long Beach, there will be severe consequences for the entire aquatic preserve. I am also not seeing any protections for the species that use CBAP as a nursery such as sawfish, tarpon, and other species that use it as protection from larger predators.
- Dr. Barry- It was mentioned to add in other organizations such as Save a Turtle, which is a great idea. Another suggestion would be to include University and College departments to collaborate with. It would offer students to help in the preserve and in research focused data collection. It would also be helpful to indicate more clearly the boundaries of CBAP, particularly in relation to adjacent public lands. It would also be helpful to delineate the boundaries between private property and submerged lands. It would also be helpful to enforce clarification regarding that DEP locates Long Beach as "USFWS Long Beach" on its public beach access map. Right now, it only highlights the kayak launch which is a double edged sword because continued use of it can disturb wildlife. Furthermore, it would be helpful to add some more certain key species such as the Key Deer, smalltooth sawfish, and sea turtles that now nest on Long Beach. Two listed genera rely on CBAP: the mole skink and the marsh rabbit. Manatees are also now regularly seen in the Bight so maybe the protections of the Manatee Protection Act (68C-22) would be considered for the Bight. It is also crucial to highlight the professional standards required for surveys carried out in relation to CBAP.

C.3 / 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 Coupon Bight Aquatic Preserve Draft Management Plan.

C.3.1 / Florida Administrative Register Posting

Florida Administrative Register

Volume 49, Number 180, September 15, 2023

PLACE: Florida Department of Transportation, 801 N. Broadway Ave, Bartow, FL 33830
GENERAL SUBJECT MATTER TO BE CONSIDERED: Permit applicant has requested an AMRC meeting to discuss the needed improvements at the intersection of US 27 and 4 Corners/Bella Cita Blvd, in Davenport, FL
A copy of the agenda may be obtained by contacting: Jimmy Vilce, P.E., (863)519-2311.
For more information, you may contact: Jimmy Vilce, P.E., (863)519-2311.

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: Tuesday, October 17, 2023, 9:00 a.m. – 3:00 p.m.
PLACE: Marathon City Council, 9805 Overseas Highway, Marathon, FL 33050
GENERAL SUBJECT MATTER TO BE CONSIDERED: The Florida Department of Environmental Protection's Office of Resilience and Coastal Protection is presenting the draft Coupon Bight Aquatic Preserve Management Plan Meeting as an item during the Florida Keys National Marine Sanctuary Advisory Council Meeting, of which Coupon Bight Aquatic Preserve is completely within the boundaries of the Florida Keys National Marine Sanctuary. Members of the public are invited to review the management plan and provide feedback. The management plan is available at <https://publicfiles.dep.state.fl.us/CAMA/Coupon-Bight-AP-Management-Plan-DRAFT.pdf>.
In addition to the Sanctuary Advisory Council, members of the Coupon Bight Aquatic Preserve Management Plan Advisory Committee have also been invited to attend and listen to comments, and they may also participate in the discussion. A copy of the agenda may be obtained by contacting: Dr. Nicholas Parr at Nicholas.Parr@FloridaDEP.gov. 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 48 hours before the workshop/meeting by contacting: Dr. Nicholas Parr at Nicholas.Parr@FloridaDEP.gov. 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 public meeting to which all persons are invited.
DATE AND TIME: Monday, September 25, 2023, 5:00 p.m.

PLACE: SFWMD Headquarters, B-1 Building, Auditorium, 3301 Gun Club Road, West Palm Beach, FL 33406 or via Zoom:
<https://sfwmd.link/3MVia2X>. The link will go live September 25, 2023, at approximately 5:00 p.m.
GENERAL SUBJECT MATTER TO BE CONSIDERED: Recreational Public Forum
The Recreational Public Forum is a public meeting regarding the public recreational issues and opportunities within the South Florida Water Management District.

The public and stakeholders will have an opportunity to view and comment on the meeting by attending in person or utilizing the following link: <https://sfwmd.link/3MVia2X>. The link will go live at approximately 5:00 p.m. on September 25, 2023. One or more members of the Governing Board of the South Florida Water Management District may attend and participate in this meeting. No Governing Board action will be taken. A copy of the agenda may be obtained by contacting: Molly Brown at mobrown@sfwmd.gov. The agenda will be posted to the District's website, www.SFWMD.gov/meetings, seven days prior to the meeting.
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 seven days before the workshop/meeting by contacting: Molly Brown, Interim District Clerk, at mobrown@sfwmd.gov. 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: Molly Brown at mobrown@sfwmd.gov.

WATER MANAGEMENT DISTRICTS
South Florida Water Management District
The South Florida Water Management District announces a public meeting to which all persons are invited.
DATE AND TIME: Tuesday, September 26, 2023, 4:00 p.m.
PLACE: <https://sfwmd.link/3TIIRMd>. The link will go live September 26, 2023, at approximately 4:00 p.m.
GENERAL SUBJECT MATTER TO BE CONSIDERED: Audit & Finance Committee Meeting
The Audit & Finance Committee of the Governing Board of the South Florida Water Management District will discuss and consider District business, including regulatory and non-regulatory matters. The public and stakeholders will have an opportunity to view and comment on the meeting by utilizing the following link: <https://sfwmd.link/3TIIRMd>. The link will go live at approximately 4:00 p.m. on September 26, 2023. The Audit & Finance Committee may take official action at the meeting on any item appearing on the agenda and on any item that is added to the agenda as a result of a change to the agenda

C.3.2 / Newspaper Advertisement



Published Weekly
Marathon, Monroe County, Florida

PROOF OF PUBLICATION

**STATE OF FLORIDA
COUNTY OF MONROE**

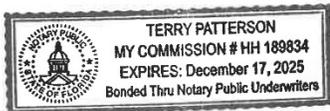
Before the undersigned authority personally appeared **JASON KOLER** who on oath, says that he is **PUBLISHER** of the **WEEKLY NEWSPAPERS**, a weekly newspaper published in Marathon, in Monroe County, Florida: that the attached copy of advertisement was published in said newspaper in the issues of: (date(s) of publication)

October 5 & 12, 2023

Affiant further says that the said **WEEKLY NEWSPAPERS** is a newspaper published at Marathon, in said Monroe County, Florida, and that the said newspaper has heretofore been continuously published in said Monroe County, Florida, once each week (on Thursday) and has been qualified as a second class mail matter at the post office in Marathon, in Monroe County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement. The affiant further says that he has neither paid nor promised any person, firm, or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper(s) and that The Weekly Newspapers is in full compliance with Chapter 50 of the Florida State Statutes on Legal and Official Advertisements.

Sworn to and subscribed before me this day of *Oct. 12*, 2023
(SEAL)

Notary



PUBLIC MEETING NOTICE
Notice of Meeting/Workshop
Hearing
**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: Tuesday,
October 17, 2023, 9 a.m. - 3
p.m.
PLACE: Marathon City Council,
9805 Overseas Highway,
Marathon, FL 33050
**GENERAL SUBJECT MATTER TO
BE CONSIDERED:** The Florida
Department of Environmental
Protection's Office of
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Preserve Management Plan
Meeting as an item during
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Preserve is completely
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In addition to the Sanctuary
Advisory Council, members
of the Coupon Bight Aquatic
Preserve Management Plan
Advisory Committee have also
been invited to attend and
listen to comments, and they
may also participate in the
discussion.
A copy of the agenda may
be obtained by contacting:
Dr. Nicholas Parr at Nicholas.
Parr@FloridaDEP.gov.
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
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hours before the workshop/
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Publish:
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C.3.3 / Summary of the Formal Public Meeting

Notes from the October 17 FKNMS Advisory Council Meeting Session on CBAP Management Plan Updates

V. COUPON BIGHT AQUATIC PRESERVE MANAGEMENT PLAN UPDATE

George introduced Dr. Nicholas Parr, of Florida DEP, to present updates to the management plan for Coupon Bight Aquatic Preserve. DEP is the state's lead agency for environmental management and stewardship. CBAP is south of Big Pine Key, and surrounds the Newfound Harbor Keys. The seaward extent is the 12' depth contour. This encompasses 5,400 acres of seagrass meadows, hard bottom communities, mangrove wetlands, and coral patch reefs. This is the most ecologically diverse of the Aquatic Preserves. The goals of the management plan were reviewed; this is a non-regulatory plan. The management plan can be found on the DEP website.

Water Quality

Goal 1: Improve CBAP's long term water quality monitoring in order to understand current status and future changes in CBAP's natural resources.

- Obj 1: Understand water quality trends in CBAP from existing data and through ongoing data collection. DEP has monthly samples and a data sonde that collects data every 15 minutes. The sonde will be deployed at the end of Newfound Harbor Channel.
- Obj 2: Seek easy to improve existing water quality data collection.

Goal 2: Restore, enhance or maintain water quality within CBAP.

- Obj 1: Identify water quality problem areas within CBAP, both point and non-point sources of pollution.
- Obj 2: Reduce or eliminate identified water quality problem areas.

Comments/questions/suggestions from the SAC:

- Karen Neely asked what we know and what we don't know that we should get more data on? Are there things we should be testing that we aren't?
- Nick: Looking to see what effect Big Pine Key has on water quality in the AP. Identify what is locally derived vs. other sources. These are otherwise the same issues we deal with throughout the sanctuary, nitrogen, dissolved oxygen, etc. Have sampled for sunscreen and have been unable to detect it thus far (it is below the mean detection limit).
- Ben Daughtry - can we test for endocrine disruptors? Is this being done?
- DEP is not doing this, but they are supporting CFK that is getting into this research. It's hard to test for and DEP doesn't have any regulations that are applicable. DEP is not testing because it's not currently regulated, but that could change in the future.
- Karen Neely: Regarding Goal 2, is there reason to suspect there are water quality areas?
- There are some issues - e.g., mosquito ditches that are slowly recovering on their own. For the most part, septic to sewer is completed, road related water quality issues are being addressed by the WQPP currently.

Wildlife and Habitat Protection

Goal 1: Conduct and maintain natural resource inventories.

- Obj. 1: Conduct and maintain a natural resource inventory. We cannot protect it if we don't know what we have.

- Obj 2: Conduct and maintain inventories of wading and diving birds and their habitats. Some areas are inaccessible, but DEP will monitor what they can. They do Christmas bird counts, and are working on implementing benthic monitoring to be paired with water quality stations.

Goal 2: Restore habitat in the aquatic preserve

- Obj: Restore or enhance suitable habitats or resources where feasible.
- Currently only one seagrass bank on the south side of Munson Island has been identified for restoration. Have added signage to try and stop boats from cutting across the flat.

Goal 3: Protect submerged resources

- Obj 1: Minimize potential damage to submerged resources in the AP.
- Working with Seacamp to possibly add additional channel marking.

Goal 4: Protect emergent vegetation and habitats

- Obj 1: Collaborate with the US Florida Fish and Wildlife Service on management of the publicly-owned islands with Coupon Bight Aquatic Preserve and the Coupon Bight Buffer Preserve.
- Obj 2: When appropriate, work with partner agencies or organizations to perform ecosystem restoration activities on upland areas.

Goal 5: Protect listed species and their habitat.

- Obj 1: Determine which portions of the aquatic preserve serve as habitat for listed species.
- Obj 2: Protect all listed species of animals and plants.

Goal 6: Maintain or enhance the functional integrity of habitats

- Obj 1: Determine the primary factors that influence the survival of marine grass beds and algae.
- Obj 2: Determine the primary and secondary factors that affect the species of the hardbottom and coral patch reefs.
- Obj 3: Encourage applied research directed toward enhancing the management of the preserve's resources.

Goal 7: Identify and locate unknown archaeological and historical resources within CBAP.

- Obj 1: Assist with management and monitoring of existing archaeological and historical resources.
- Note that DEP does not currently know of any archaeological resources in the preserve.

Comments/questions/suggestions from the SAC:

- George: Are people still cutting through between Cooks and Hopkins islands?
- Not as much as they used to. This is hard water to navigate.
- CJ Sweetman: Supports linking water quality and habitat monitoring. What parameters are currently measured?
- WQ grab samples include nitrogen, TKN, nitrate, nitrite, phosphorus, chlorophyll a, turbidity. Field sample also measures salinity, DO, temperature, pH, etc.
- The sensor measures salinity, DO, temperature, etc. too. Sunscreen compounds are also tested quarterly at Newfound Harbor SPA.
- Ken Nedimyer: Are listed coral species included in goal 5?
- Yes. Obicella sp. primarily exist on the patch reef. There are no acroporids. This is also an Iconic Reef, so a lot of work is happening in this area.
- Sara Ayers-Rigsby: there are 12 documented resources in the preserve. Has the area been surveyed? Why is the assumption that no more exist?
- The area has not been systematically surveyed. If something is identified, the agency will respond appropriately with the correct expertise.
- Are there any invasive species to be addressed?
- Australian pine has been removed; there are not many other invasive species observed. Lionfish are occasionally observed and removed.

- Non-point source pollution and runoff. Anything to address marine debris?
- We do have a marine debris removal program. DEP hasn't had to do much in this area as the Conch Republic Marine Army is very active in this area, and willing to partner. DEP is currently working on a project in Lignumvitae Key Aquatic Preserve; the lessons learned from that will be incorporated into CBAP.
- DEP did spend a lot of time and money to get all the debris out of the preserve following Hurricane Irma.
- Karen: Is anchoring an issue, and is it being addressed?
- There are a few vessels that anchor in the area, but they haven't created bad impacts. Most who anchor are there for a month or so. This area is not eligible for a mooring field.
- Will Benson: Has Seacamp asked for any support with buoy installations in this area?
- DEP works closely with Seacamp, this is not something they've requested.

Public Awareness

Goal 1: Enhance knowledge of natural resources in CBAP and how visitors can be good stewards.

- Obj 1: Improve education and outreach programs of the Florida Keys Aquatic Preserves regarding awareness of the Florida Aquatic Preserve Program and how the public can help protect it.
- Obj 2: Provide a permanent space for the public to learn about the Florida Keys Aquatic Preserves.

Goal 2: Improve education and outreach programs of CBAP to protect wildlife and habitats found within the AP.

- Obj 1: Use outreach and communication on how to be good stewards of the seagrass beds and decrease prop scarring and other seagrass damage by raising awareness of how to safely navigate the aquatic preserve.
- Obj 2: Use outreach and communication regarding the marine debris issue and how aquatic preserve users can reduce their impact to the aquatic preserve.

Goal 3: Increase awareness of management activities inside the AP.

- Obj 1: Provide timely and accurate water quality data to the public and other interested parties.
- Obj 2: Improve public knowledge of aquatic preserve status and trends.
- Plan to have an annual Florida Keys Aquatic Preserve report that updates the public with data. This will likely begin this year.

Comments/suggestions from the SAC:

- George Garrett asked about sharing the visitor center with FWS on US-1?
- This is something DEP loosely explored; will continue the conversation. They are also exploring Windley Key State Park as a location for LKAP.
- Sara Ayers-Rigsby: Please include information about historic and archaeological use in the area in outreach efforts. People tend not to understand the long term history of this area. Thank you for including the cultural history in the Management Plan.
- Erinn Muller: Can you integrate with the FKNMS Sanctuary Explorer App.
- Lindsey Crews noted that we partner with others to write "Discover Stories" for the app. Will collaborate with the APs to create content.
- Nick added that APs often show up on charts as no-discharge zones; since the entire sanctuary is designated as such and there are no other specific regulations associated with the AP boundaries, these are hard to get on the NOAA charts.

Public Access

Goal 1: Improve visitor access potential into CBAP.

- Obj 1: Facilitate access to CBAP through enhanced visibility of existing designated access points. Note that the goal is not to increase visitors, but to improve the quality of experiences

- and the awareness of the visitors.
- Obj 2: Attempt to understand levels of use and potential carrying capacity limits in order to protect resources. CBAP has low visitor usage inside the bight, the offshore portion has a lot of visitation at the SPA and transit through the area.
- Obj 3: Partner with ecotourism operators to provide visitors with an educational experience that increases their appreciation of the resources. Currently working with Sea Base and Seacamp to ensure awareness of CBAP.

Comments/questions/suggestions from the SAC:

- DO you have signage?
- There is signage at the Spanish Harbor Ramp, Big Pine Fishing Lodge, and the kayak launch. A sign will also be added to the Key Deer Visitor Center. There is also a sign at Little Palm Island.
- Do you have a partnership/fixed displays at the Sunshine Key and Big Pine Fishing Campground?
- Nothing at Sunshine Key. There is a sign at Big Pine Fishing Campground. Nothing more extensive has been considered.

Council Discussion / Q&A:

Q: George Garrett noted that APs came along with the Outstanding Florida Waters program. Coupon Bight was already established when he first got here. They attempted to create an AP across the entire Florida Keys. At the time, the regulatory component of the AP was OFW. OFW was put into place, but the AP was not. This has been in place since 1986 or 1987.

A: APs are designated as OFWs automatically. This is the highest tier of water quality protection. State waters across the entire Keys are designated as OFWs, as are the Looe Key and Key Largo Sanctuary areas. The idea of making the entire Keys an Aquatic Preserve was tabled with the designation of FKNMS.

Q: Are there signs within the AP itself?

A: They have started with seagrass signs visible when leaving NFH channel. They are also working with Seacamp on additional signage to let folks know they are in an AP and that seagrasses have a higher level of protection in the AP. These are informational signs, but also have a regulatory component associated.

Q: Will Benson asked if the channel marking process will be open for public comment? Can the fishing guides be included in that discussion?

A: There is not a process currently, but Nick and DEP are open to input. They worked with Seacamp to identify the location for the current proposed markers. They are absolutely open to hearing from local guides.

Q: Ken Nedimyer: Are fisheries still managed by FWC in the AP?

A: Yes, FWC is the lead on fishery management within the APs and state parks. Coupon Bight does have the SPA zone as well. State law prohibits damaging hardbottom, but there hasn't been a need to enforce this.

Q: Marissa Carrozzo referenced the WIN database and appreciation for making WQ data more accessible. What is the interface going to be for that? A map, station listings, downloadable, etc?

A: Currently they are considering an interface for the entire southeast. This will be a map with clickable

stations for the various monitoring programs.

DEP is accepting official public comments to Nick for the next week or so, but comment received at any time is valuable. This is going to the Acquisition and Restoration Council in Tallahassee for review and approval in February, and the plan needs to be ready for review 3 months in advance. Nick can be reached at Nicholas.Parr@FloridaDEP.gov.

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 red font and *italics* indicate funding not available at this time.

Large, beneficial projects, outside the current capacity of CBAP’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	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Issue 1: Water quality															
Goal 1: Improve CBAP’s long-term water quality monitoring in order to understand current status and future changes in CBAP’s natural resources.															
Objective 1: Understand water quality trends in CBAP from existing data and through ongoing data collection.															
Strategy 1: Acquire, maintain and review all records of water quality data for the aquatic preserve area.	Ecosystem Science	2015	Ongoing	\$1,400	State/Federal	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400
Strategy 2: Regularly review water quality data collected and make publicly available through Florida Keys	Ecosystem Science	2023	Ongoing	\$1,400	State/Federal	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Aquatic Preserves Annual Report.															
Objective 2: Seek ways to improve existing water quality collection.															
Strategy 1: Continue, and where possible improve, water quality monitoring program within CBAP.	Ecosystem Science	2015	Ongoing	\$20,000	State/Federal	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
Goal 2: Restore, enhance, or maintain water quality within CBAP.															
Objective 1: Identify water quality problem areas within CBAP, both point and non-point sources of pollution.															
Strategy 1: Coordinate with regulatory and management agencies in identifying and managing areas within and adjacent to the aquatic preserve that may be contributing to	Resource Management	2024	Ongoing / as needed	\$900	State	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
sedimentation or other undesirable impacts to the aquatic preserve.															
Strategy 2: Report suspected or identified instances of violations to appropriate regulatory and enforcement agencies.	Resource Management	2024	As needed	\$700	State	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700
Objective 2: Reduce or eliminate identified water quality problem areas															
Strategy 1: Work with partnering agencies to develop a plan to address them on a case-by-case basis and at a local-to-federal scale, if necessary.	Resource Management	2024	As needed	\$900	State	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900
Issue 2: Wildlife and Habitat Protection															
Goal 1: Conduct and maintain natural resource inventories.															

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Objective 1: Develop and establish monitoring programs for submerged habitats															
Strategy 1: Conduct an inventory of marine grass beds, algal beds, coral banks, patch reefs and hardbottom areas by using LANDSAT imagery, aerial photography, and ground truthing efforts every three years.	Ecosystem Science	2023	Ongoing	\$20,000	State/Federal	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
Objective 2: Inventories of wading and diving birds and their habitats within the aquatic preserve are conducted and maintained.															
Strategy 1: Collect data on birds using the aquatic preserve.	Ecosystem Science	2021	Ongoing	\$1,000	State/Federal	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Strategy 2: Coordinate with public or conservation agencies that may be conducting similar inventories of species, populations, life histories, migration patterns and	Ecosystem Science	2024	Ongoing	\$700	State/Federal	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
habitat needs where mutual benefits in knowledge and management objectives are to be gained.															
Goal 2: Restore habitat within the aquatic preserve.															
Objective 1: Restore or enhance suitable habitats or resources where feasible.															
Strategy 1: Using resource inventories generated from Goal 1, identify those resource areas that have been or are being negatively impacted by external influences.	Resource Management	2024	Ongoing	\$1,400	State/Federal	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400
Strategy 2: Prioritize potential restoration areas according to severity of impact to the immediate resources and to the overall functional	Resource Management	2024	Ongoing	\$1,400	State/Federal	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
integrity of the preserve.															
Strategy 3: Monitor and review progress on restoration projects.	Resource Management	2024	Ongoing	\$1,400	State/Federal	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400
Strategy 4: Inventory and report all abandoned vessels and traps to FWC and encourage removal in a timely manner.	Resource Management	2019	Ongoing	\$700	State/Federal	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700
Goal 3: Protect submerged resources.															
Objective 1: Minimize potential damage to submerged resources of state-owned lands in the aquatic preserve.															
Strategy 1: Follow agency guidance in determining Resource Protection Areas (RPA) for all permit applications within the aquatic preserve.	Resource Management	1969	Ongoing	\$700	State/Federal	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700
Strategy 2: Coordinate with the appropriate	Resource Management	2016	Ongoing / as needed	\$900	State/Federal	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
regional DEP or SFWMD staff to process field staff comments to applications for use in a timely manner.															
Strategy 3: Report activities that do not appear to have been authorized to the appropriate enforcement agent.	Resource Management	2016	Ongoing / as needed	\$700	State/Federal	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700
Strategy 4: Assist in maintenance of the mooring buoy system near the larger patch reefs in the aquatic preserve.	Resource Management	2012	Ongoing	\$1,400	State/Federal	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400
Goal 4: Protect emergent vegetation and habitats.															
Objective 1: Collaborate with the US Florida Fish and Wildlife Service on management of the publicly-owned islands with Coupon Bight Aquatic Preserve and the Coupon Bight Buffer Preserve															
Strategy 1: Conduct debris removal on upland areas.	Resource Management	2019	Ongoing	\$13,000	State/Federal	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000
Objective 2: When appropriate, work with partner agencies or organizations to perform ecosystem restoration activities on upland areas.															

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Strategy 1: Conduct ecosystem restoration on upland areas.	Resource Management	2024	Ongoing	\$13,000	State/Federal/Non-profits	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000
Goal 5: Protect listed species and their habitat.															
Objective 1: Determine which portions of the aquatic preserve serve as habitat for listed species.															
Strategy 1: Coordinate with the Florida Fish and Wildlife Conservation Commission, U.S. Fish and Wildlife Service, the Audubon Society, and any other relevant group or agency to determine which listed species use what portion of the aquatic preserve for various aspects of their life cycle.	Resource Management	2024	Ongoing	\$900	State/Federal	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900
Strategy 2: During the course of routine field work and patrols, staff	Resource Management	2024	Ongoing	\$0	No additional cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
will observe and record sightings, locations, activity, and other information relevant to a listed species.															
Objective 2: Protect all listed species of animals and plants.															
Strategy 1: Report any incidence of harassment, poaching, killing, taking or other unlawful activity.	Resource Management	2016	Ongoing	\$700	State/Federal	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700
Strategy 2: Coordinate and cooperate with appropriate management and enforcement agencies to evaluate potential impacts to listed species as a result of a proposed project or activity.	Resource Management	2016	Ongoing / as needed	\$900	State/Federal	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900
Goal 6: Maintain or enhance the															

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source										
						23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
functional integrity of habitats.															
Objective 1: Determine the primary factors that influence the survival of marine grass beds and algae.															
Strategy 1: Pursue grant funding and support partner groups in research directed toward identifying physical, chemical and/or pathogenic sources of marine grass bed damage.	Resource Management	2024	Ongoing	\$4,000	State/Federal	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000
Strategy 2: Pursue grant funding and support partner groups in research directed toward boating impacts (prop dredging, shading, sediment suspension, etc.) on marine grass beds.	Resource Management	2024	Ongoing	\$4,000	State/Federal	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000
Objective 2: Determine the primary and secondary factors that affect the species of the hardbottom and coral patch reefs.															

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Strategy 1: Pursue grant funding and support partner groups for research that identifies the physical, chemical and pathogenic factors that influence coral growth, recruitment and mortality.	Resource Management	2024	Ongoing	\$4,000	State/Federal	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000
Strategy 2: Review and encourage, where appropriate, proposals for the culture of hardbottom sponges in the preserve.	Resource Management	2024	Ongoing	\$900	State/Federal	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900
Objective 3: Encourage applied research directed toward enhancing the management of the preserve's resources.															
Strategy 1: Review and encourage, where appropriate, applied research proposals that may be carried out within in the preserve.	Resource Management	2024	Ongoing	\$900	State/Federal	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Strategy 2: Explore and pursue available grant funding for applied research projects and to expand capacity for aquatic preserve management.	Resource Management	2024	Ongoing	\$4,000	State/Federal	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000
Goal 7: Identify and locate unknown archaeological and historical resources within CBAP.															
Objective 1: Assist with management and monitoring of existing archaeological and historical resources.															
Strategy 1: Staff will monitor for unidentified cultural resources during activities in the aquatic preserve.	Resource Management	2024	Ongoing	\$0	No additional cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Issue 3: Public Awareness															
Goal 1: Enhance knowledge of natural resources in CBAP and how visitors can be good stewards.															
Objective 1: Improve education and outreach programs of FKAP regarding awareness of the Florida Aquatic Preserve Program, information on the specific aquatic preserve, and how the public can help protect it.															

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Strategy 1: Lead outreach events and participate as an outreach booth at festivals and other local events attended by users of CBAP	Education and Outreach	2023	Ongoing	\$2,400	State/Federal	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400
Strategy 2: Enhance the knowledge of environmental education, conservation psychology, and outreach techniques for aquatic preserve staff.	Education and Outreach	When additional funding is available	Ongoing	\$2,400	State/Federal	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400
Strategy 3: Develop more interactive outreach activities and content.	Education and Outreach	When additional funding is available	Ongoing	\$1,400	State/Federal	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400
Objective 2: Provide a permanent space for the public to learn about the Florida Keys Aquatic Preserves.															
Strategy 1: Procure a space/ kiosk with exhibits and literature on the aquatic preserve.	Education and Outreach	When additional funding is available	Ongoing	\$3,000	State/Federal	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Goal 2: Improve education and outreach programs of CBAP to protect the wildlife and habitats found within the aquatic preserve.															
Objective 1: Use outreach and communication on how to be good stewards of the seagrass beds and decrease prop scarring and other seagrass damage by raising awareness of no-motor zones and how to safely navigate the aquatic preserve.															
Strategy 1: Increase number of outreach events where promoting seagrass stewardship is a major component of the outreach event.	Education and Outreach	When additional funding is available	Ongoing	\$2,400	State/Federal	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400
Strategy 2: Increase availability of interpretive signage, and other materials regarding seagrasses	Education and Outreach	2018	Ongoing	\$900	State	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900
Objective 2: Use outreach and communication regarding the marine debris issue and how aquatic preserve users can reduce their impact to the aquatic preserve.															
Strategy 1: Collaborate with established, local organizations to remove marine debris from the aquatic preserve.	Education and Outreach	When additional funding is available	Ongoing	\$13,000	State/Federal	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Strategy 2: Promote reporting of derelict traps and marine debris via the Southeast Florida Action Network (SEAFAN) incident report form.	Education and Outreach	2018	Ongoing	\$900	State	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900
Goal 3: Increase awareness of management activities inside the aquatic preserve.															
Objective 1: Provide timely and accurate water quality data to the public and other interested parties															
Strategy 1: Use existing databases and/or develop new tools for providing data for public use.	Education and Outreach	2019	Ongoing	\$700	State/Federal	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700
Objective 2: Improve knowledge of aquatic preserve resource status and trends to the public and other agencies.															
Strategy 1: Produce CBAP status reports with sections on management goal progress and the status and trends (when and where appropriate) of major habitat/wildlife types.	Education and Outreach	2023	Ongoing	\$13,000	State/Federal	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Strategy 2: Promote CBAP through social media	Education and Outreach	2019	Ongoing	\$700	State/Federal	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700
Issue 4: Public Access															
Goal 1: Increase visitor access potential into CBAP															
Objective 1: Facilitate access to CBAP through enhanced visibility of existing designated access points.															
Strategy 1: Advertise CBAP at access points and throughout local community through the development and production of signage and brochures.	Public Use	2022	Ongoing	\$900	State/Federal	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900
Objective 2: Attempt to understand levels of use and potential carrying capacity limits to protect preserve resources.															
Strategy 1: Support studies designed to count usage of CBAP.	Public Use	2021	2-3 years	\$900	State/Federal	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900
Objective 3: Partner with ecotourism operators to provide visitors with an educational experience that increases their appreciation of the resources.															

Goals, Objectives & Integrated Strategies	Management Program	Implementation Date (Planned)	Length of Initiative	Estimated Average Yearly Cost	Funding Source	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33
Strategy 1: Establish relationships with ecotourism operators currently providing tours within the aquatic preserve.	Public Use	2022	Ongoing	\$700	State/Federal	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700
Strategy 2: Provide tour operators with information on best practices for operating in the aquatic preserve and educational materials to share with visitors	Public Use	2024	Ongoing	\$700	State/Federal	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700

D.2 / Budget Summary Table

Fiscal Year	Ecosystem Science	Resource Management	Education & Outreach	Public Use	Annual Total
2023-2024	\$47,000	\$54,900	\$40,800	\$3,200	\$145,900
2024-2025	\$47,000	\$54,900	\$40,800	\$3,200	\$145,900
2025-2026	\$47,000	\$54,900	\$40,800	\$3,200	\$145,900
2026-2027	\$47,000	\$54,900	\$40,800	\$3,200	\$145,900
2027-2028	\$47,000	\$54,900	\$40,800	\$3,200	\$145,900
2028-2029	\$47,000	\$54,900	\$40,800	\$3,200	\$145,900
2029-2030	\$47,000	\$54,900	\$40,800	\$3,200	\$145,900
2030-2031	\$47,000	\$54,900	\$40,800	\$3,200	\$145,900
2031-2032	\$47,000	\$54,900	\$40,800	\$3,200	\$145,900
2032-2033	\$47,000	\$54,900	\$40,800	\$3,200	\$145,900
Ten Year Totals	\$470,000	\$549,000	\$408,000	\$32,000	\$1,459,000

D.3 / Major Accomplishments Since the Approval of the Previous Plan

From 1996-2015, after the creation of the Florida Keys National Marine Sanctuary and adoption of a sanctuary-wide management plan, the Florida Keys Aquatic Preserves were managed as part of the larger sanctuary. Most of the Florida Keys Aquatic Preserves records prior to 1996 were lost due to office moves, office closures, gaps in management, and hurricanes.

In 2016, the Aquatic Preserve Manager initiated a nearshore water quality monitoring program for the Florida Keys Aquatic Preserves which continues today. Two sites are located in Coupon Bight Aquatic Preserve (CBAP), one on the north side of the bight near the end of Big Pine Ave, and one on the south side of the bight at the kayak launch on Long Beach Road. These sites were sampled quarterly through 2019 and monthly since then. Additionally, a quarterly site was added on at the western mooring field in Newfound Harbor SPA Zone in 2020. These monitoring efforts analyze chlorophyll-a, turbidity, total Kjeldahl nitrogen, pheophytin a, nitrate-nitrite, total phosphorus, dissolved oxygen, pH, and salinity.

In 2021, the Florida Keys Aquatic Preserves was able to secure funding to begin a water quality data sonde program. As part of a two-year study into the tidal effects on water quality in Coupon Bight, a sonde was temporarily deployed starting in September 2021 in the middle of Coupon Bight. A permanent sonde station was established at the end of Newfound Harbor Channel in November 2023. The YSI Exo2 data sondes collect readings on temperature, pH, salinity, dissolved oxygen, chlorophyll-A, and turbidity every 15 minutes on a continuous basis.

Recognizing that aquatic preserves are not well known by the public or Florida Keys visitors, in 2019, the aquatic preserve manager developed and produced signage to be installed at access points to the Florida Keys Aquatic Preserves. These signs give the public clear information about the importance of the ecology, recreational, and educational opportunities available in the aquatic preserves. Three signs

for CBAP were produced and installed at two access points to the aquatic preserve: Spanish Harbor Boat Ramp and Big Pine Fishing Lodge. Additionally, a sign was installed at the kayak launch on Long Beach Drive, designating it as an official access point for the aquatic preserve and attempting to limit the number of visitors accessing the preserve through private property further up that road. In 2022, an additional sign was installed on the water at the end of Newfound Harbor Channel to compliment the three signs installed by Little Palm Island Resort to notify mariners of the shallow seagrass area adjacent to the channel. However, Hurricane Ian destroyed DEP's newly installed sign as well as the outermost Little Palm Island Resort sign. Therefore, in 2023 Aquatic Preserve staff replaced both signs with new signs warning mariners of the seagrass bank, informing them that they are within CBAP, and stating the aquatic preserve's regulatory authority to protect seagrass (253.04(3)(a) F.S.).

A benthic monitoring program have been in development and will be initiated in 2024. CBAP staff will conduct quarterly benthic monitoring at three sites coupled with quarterly water quality sampling, two sites oceanside and one within the bight.

A large amount of staff effort and resources were devoted to removing marine debris from Coupon Bight following Hurricane Irma. DEP has spent \$14,267 total to have contractors remove large debris and derelict vessels from Coupon Bight and another \$950 to remove a sailboat mast from Newfound Harbor SPA Zone. Additionally, DEP worked with FWC and Monroe County to identify and remove the remaining three derelict vessels in the Aquatic Preserve.

Other efforts have been made to remove marine debris from Coupon Bight. In 2021, Aquatic Preserve staff and Florida Sea Base Brinton Environmental Center teamed to start an annual clean-up of Newfound Harbor SPA zone with a large number of scouts searching the reef, removing small debris, and flagging larger debris for staff removal. Additionally, starting in 2023 Aquatic Preserve staff have begun removing all out-of-season traps that can be found between the closure of stone crab season on May 1st and the opening of lobster season at the beginning of August (work performed under a FWC Special Activities License and following criteria as established by Rule 68B-55, FAC).

Staff, working in collaboration with the Division of State Lands and Monroe County, facilitated the acquisition of 65 acres of submerged lands, wetlands, and mangrove islands around the Long Beach community. This will allow staff to manage all of the mangrove islands within the Bight, therefore enhancing the aesthetic and ecological value of CBAP.

Staff have and continue to provide technical and other support to other land management and regulatory authorities, including assisting with fieldwork, giving comments and recommendations, and notifying the proper agencies of natural resource violations or issues.

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 Coupon Bight Aquatic Preserve in regards to creating and maintaining healthy ecosystems and economies, and the table identifies the previous Coupon Bight Aquatic Preserve 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 CBAP management plan
Water Quality Protection (Monroe County Canal and Stormwater Quality Improvements)	\$10,000,000	Monroe County	Goal A.4, Objective A.4.1
Large Scale Restoration of Channel and Bank Habitats of the Florida Keys	\$3,393,083	Bonefish and Tarpon Trust, CVS Ocean Sciences Inc.	Goal A.1, Objective A.1.1 Goal A.2, Objective A.2.2 Goal A.2, Objective A.2.3 Goal B.1, Objective B.1.4 Goal C.1, Objective C.1.1
Florida Keys Forever Land Acquisition	\$99,700,000	FWC, National Wildlife Refuge Association, Defenders of Wildlife	Goal B.2, Objective B.2.1 Goal B.2, Objective B.2.4 Goal B.3, Objective B.3.1
Restoring Threatened Corals to Enhance Reef Functions, Fisheries Habitat and Tourism Opportunities in the Florida Keys and Dry Tortugas	\$15,000,000	The Nature Conservancy	Goal A.3, Objective A.3.1 Goal B.3, Objective B.3.1 Goal C.1, Objective C.1.3 Goal C.1, Objective C.1.4 Goal C.2, Objective Ce2.1
Florida Forever Land Acquisition: Coupon Bight/Key Deer	\$9,142,863	National Wildlife Refuge Association Defenders of Wildlife Monroe County Land Authority, USFWS, SFWMD, The Nature Conservancy	Goal B.1, Objective B.1.4 Goal B.3, Objective B.3.1

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	Ex. Summ.
2	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	p.1
3	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	p.1, 7-10
4	The legal description and acreage of the property.	18-2.018 & 18-2.021	Ex. Summ., App. A.4
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	p. 18
6	An assessment as to whether the property, or any portion, should be declared surplus. <i>Provide Information regarding assessment and analysis in the plan, and provide corresponding map.</i>	18-2.021	n/a
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. <i>Please clearly indicate parcels on a map.</i>	18-2.021	n/a
8	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	p. 14-17
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)	p. 7-8 ,17
10	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	p. 38-40

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	p. 19
12	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	p. 13-17, 63-64
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	n/a
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	p. 7-10, 44-64
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	p. 36, App. E.2

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	p. 38-40
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)	p. 62-64
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	p. 7-10, 44-64
19	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	App. E.3
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	p. 22-25, 51-64
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	n/a
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	n/a
23	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	p. 62-63
11	The designated single use or multiple use management for the property, including use by other managing entities.	18-2.018 & 18-2.021	p. 17-18, App. A.4

*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	App. C
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)	App. C.3
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. <i>Include the advisory group members and their affiliations, as well as the date and location of the advisory group meeting.</i>	259.032(10)	App. C.2
27	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	App. C.2.3
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. <i>Include a copy of each County's advertisements and announcements (meeting minutes will suffice to indicate an announcement) in the management plan.</i>	253.034(5) & 259.032(10)	App C.3
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. <i>Include manager's replies to the team's findings and recommendations.</i>	259.036	n/a
30	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	n/a
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	n/a

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. <i>Use brief descriptions and include USDA maps when available.</i>	18-2.021	p.22-23
33	Insert FNAI based natural community maps when available.	ARC consensus	p. 27
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	p. 25-32

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	p. 17-18, 37-39
36	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	p. 32
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	p. 22
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	p. 24-35
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	p. 25-35
40	The identification or resources on the property that are listed in the Natural Areas Inventory. <i>Include letter from FNAI or consultant where appropriate.</i>	18-2.021	p. 25-32
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)	p. 25-32, 36, 56-59, App. E.2
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)	p. 24-32, 36, 56-59
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)	App. D.1
42-C.	The associated measurable objectives to achieve the goals.	259.032(10) & 253.034(5)	p. 56-59
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures. <i>Include fire management plans - they can be in plan body or an appendix.</i>	259.032(10) & 253.034(5)	p. 53-56
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)	App. D.1
43	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage. <i>See footnote.</i>	253.034(5)	n/a
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)	n/a
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)	n/a

44-C.	Measurable objectives (see requirement for #42-C).	18-2.021, 253.034(5) & 259.032(10)	n/a
44-D.	Related activities (see requirement for #42-D).	18-2.021, 253.034(5) & 259.032(10)	n/a
44-E.	Budgets (see requirement for #42-E).	18-2.021, 253.034(5) & 259.032(10)	n/a
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)	p. 32-37, 56-59
45-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 56-59, App. D.1
45-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 56-59
45-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p.54-56
45-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.1
46	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage. <i>See footnote.</i>	253.034(5)	App. B.3.3
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	App. B.4
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)	p. 35-36, 56-59
48-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 56-59, App. D.1
48-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 56-59
48-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 54-56
48-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.1

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. <i>If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.</i>	18-2.018 & 18-2.021	p. 18
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	Exec. Summ., p. 7-10, p. 19-53

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	p. 31-32
52	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage. <i>See footnote.</i>	253.034(5)	p. 26
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)	p. 51-61
53-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 51-61, App. D.1
53-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 51-61
53-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 64
53-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.1
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. <i>If yes, provide a list of the appropriate managing agencies that have been notified of the proposed plan.</i>	18-2.018 & 18-2.021	p. 18

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. <i>Include maps of all cultural resources except Native American sites, unless such sites are major points of interest that are open to public visitation.</i>	18-2.018, 18-2.021 & per DHR's request	Ex. Summ., p. 36-37, App. B.5
55	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	p. 36, App. B.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	P. 36, p. 59
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)	p. 59, App. D.1
57-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 59, App. D.1
57-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 59
57-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 54-56
57-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.1

**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. <i>See footnote.</i>	253.034(5)	p. 67-68
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)	p. 60-61, App. D.1
59-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 60-61, App. D.1
59-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 60-61
59-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 60-61
59-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.1
60	*** Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	p. 62-63
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)	p. 64, App. D.1
61-B.	Detailed description of both short and long-term management goals (see requirement for # 42-B).	259.032(10) & 253.034(5)	p. 64, App. D.1
61-C.	Measurable objectives (see requirement for #42-C).	259.032(10) & 253.034(5)	p. 64
61-D.	Related activities (see requirement for #42-D).	259.032(10) & 253.034(5)	p. 62-63
61-E.	Budgets (see requirement for #42-E).	259.032(10) & 253.034(5)	App. D.1

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	Front and App. E.1
63	Place the Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	Ex. Summ.
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	App. D.3
65	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	p. 52-64

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)	App. D.1
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)	App. D.1
68	A statement of gross income generated, net income and expenses.	18-2.018	n/a

*** = 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

County of Monroe

Planning & Environmental Resources Department
Marathon Government Center
2798 Overseas Highway, Suite 400
Marathon, FL 33050
Voice: (305) 289-2500
FAX: (305) 289-2536



Board of County Commissioners:
Mayor Holly Merrill Raschein, District 5
Mayor Pro Tem James K. Scholl, District 3
Craig Cates, District 1
Michelle Lincoln, District 2
David Rice, District 4

We strive to be caring, professional, and fair

November 9, 2023

Mr. Earl Pearson
Florida Department of Environmental Protection
Office of Resilience and Coastal Protection
2600 Blair Stone Road, MS 235
Tallahassee, FL 32399-2400

RE: COUPON BIGHT AQUATIC PRESERVE MANAGEMENT PLAN

Mr. Pearson,
Thank you for the opportunity to review the Coupon Bight aquatic preserve management plan (CBAPMP).

As requested, I have reviewed the CBAPMP for its compliance and/or consistency with the Monroe County Comprehensive Plan. I find that the CBAPMP is not inconsistent with the Monroe County 2030 Comprehensive Plan. There are several Goals, Objectives and Policies (GOP's) within the Comp Plan that align directly with the stated Coastal Zone Management issues addressed in the CBAPMP. I have provided below a brief summary of GOP's that relate directly to the CBAPMP.

CZM Issue 1 – Water Quality

Comprehensive Plan Policy 202.1.1

Monroe County shall continue to coordinate with EPA, FDEP, SFWMD and NOAA to document pollutant loads for Florida Keys waters.

CZM Issue 2 - Wildlife and Habitat Protection

Comprehensive Plan Objective 203.1

Monroe County shall protect its mangrove wetlands by continuing to implement regulations which will further reduce disturbances to mangroves and which will mitigate the direct and indirect impacts of development upon mangroves.

Comprehensive Plan Objective 203.2

Monroe County shall protect submerged lands vegetated with seagrasses by maintaining regulations which further reduce direct and indirect disturbances to seagrasses.

Comprehensive Plan Objective 203.3

Monroe County shall continue to support state and federal agencies in development and implementation of management measures designed to protect coral reefs and other hardbottom communities located in the waters off the Florida Keys.

CZM Issue 3 – Public Awareness

Comprehensive Plan Objective 203.3

Monroe County shall continue to support state and federal agencies in development and implementation of management measures designed to protect coral reefs and other hardbottom communities located in the waters off the Florida Keys. [F.S. § 163.3177(6)d.2.d., e.]

Comprehensive Plan Policy 203.3.1

Monroe County shall continue to support the public education program for users of the Florida Keys National Marine Sanctuary as outlined in the Florida Keys National Marine Sanctuary Revised Management Plan (U.S. Dept. of Commerce, NOAA). This program promotes user education related to, among other items, coral reef conservation and navigational safety. [F.S. § 163.3177(6)d.2.d., e., f.]

Comprehensive Plan Policy 206.2.1

Monroe County shall distribute management guidelines (if available) for wildlife species designated as threatened and endangered by the state and federal governments. The guidelines shall provide public education to residents and prospective developers within critical habitat areas regarding activities disruptive or harmful to specific wildlife species. As appropriate for each species, the guidelines may address items such as feeding, free-roaming domestic pets, invasive exotic species, noise, traffic, fencing, pesticide applications, etc.

CZM Issue 4 - Public Access

Comprehensive Plan Objective 217.1

Monroe County shall adopt and implement incentives and criteria to encourage the preservation of 1) public access to the navigable waters of the State, 2) commercial fishing uses and 3) recreational and commercial working waterfront uses, as defined by Section 342.07, F.S., excluding transient uses. [F.S. § 163.3178(2)(g)]

Thank you again for the opportunity to review the Coupon Bight Aquatic Preserve Management Plan.

Sincerely,



Michael Roberts, PWS, CEP, CFM
Assistant Director/Environmental Resources

CC; Nicholas Parr, Ph.D. - FKNMS and Regional Aquatic Preserves Manager

E.4 / Division of State Lands Management Plan Approval Letter



FLORIDA DEPARTMENT OF Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

February 9, 2024

Mr. Earl Pearson
Office of Resilience and Coastal Protection
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, MS 235
Tallahassee, Florida 32399-3000

RE: Coupon Bight Aquatic Preserve

Dear Mr. Pearson,

On **February 9, 2024**, the Acquisition and Restoration Council (ARC) recommended approval of the **Coupon Bight Aquatic Preserve** management plan. Therefore, Division of State Lands, Office of Environmental Services (OES), acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Coupon Bight** management plan. The next management plan update is due February 9, 2034.

Pursuant to s. 253.034(5)(a), F.S., each management plan is required to “describe both short-term and long-term management goals and include measurable objectives to achieve those goals. Short-term goals shall be achievable within a 2-year planning period, and long-term goals shall be achievable within a 10-year planning period.” Upon completion of short-term goals, please submit a signed letter identifying categories, goals, and results with attached methodology to the Division of State Lands, Office of Environmental Services.

Pursuant to s. 259.032(8)(g), F.S., by July 1 of each year, each governmental agency and each private entity designated to manage lands shall report to the Secretary of Environmental Protection, via the Division of State Lands, on the progress of funding, staffing, and resource management of every project for which the agency or entity is responsible.

Pursuant to s. 259.032, F.S., and Chapter 18-2.021, F.A.C., management plans for areas less than 160 acres may be handled in accordance with the negative response process. This process requires small management plans and management plan amendments be submitted to the Division of State Lands for review, and the Acquisition and Restoration Council (ARC) for public notification. The Division of State Lands will approve these plans or plan amendments submitted for review through delegated authority unless three or more ARC members request the division place the item on a future council meeting

Mr. Earl Pearson
Page 2
February 9, 2024

agenda for review. To create better efficiency, improve customer service, and assist members of the ARC, the Division of State Lands will notice negative response items on Thursdays except for weeks that have State or Federal holidays that fall on Thursday or Friday. The Division of State Lands will contact you on the appropriate Friday to inform you if the item is approved via delegated authority or if it will be placed on a future ARC agenda by request of the ARC members.

Pursuant to s. 259.036(2), F.S., management areas that exceed 1,000 acres in size, shall be scheduled for a land management review at least every 5 years.

Conditional approval of this land management plan does not waive the authority or jurisdiction of any governmental entity that may have an interest in this project. Implementation of any upland activities proposed by this management plan may require a permit or other authorization from federal and state agencies having regulatory jurisdiction over those particular activities. Pursuant to the conditions of your lease, please forward copies of all permits to this office upon issuance.

Sincerely,

Deborah Burr Digitally signed by
Deborah Burr
Date: 2024.02.13
20:46:24 -05'00'

Deborah Burr
Office of Environmental Services
Division of State Lands



Coupon Bight Aquatic Preserve 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