# Coordination of SWIM, Aquatic Preserve, and Local Government Comprehensive Plans

## FINAL REPORT


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Funds for this project were provided by the Department of Environmental Regulation, Office of Coastal Management using funds made available through the National Oceanic and Atmospheric Administration under the Coastal Zone Management Act of 1972, as amended.

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# Preface

Florida is blessed with an abundance of coastal resources, including some 1,300 miles of shoreline that stretches from the St. Mary's River near Fernandina Beach to the Perdido River west of Pensacola. For more than twenty years, the State of Florida has been involved in efforts to better manage the state's coastal resources through a variety of programs prescribed by the Florida legislature. The range of management techniques involved in these programs ranges from efforts to develop better planning for coastal uses and activities, direct regulation of many of these uses and activities, the promotion of sound building and development practices in sensitive coastal areas, hurricane planning and other types of disaster preparedness, marine fisheries management, and land acquisition to protect environmentally sensitive areas and to provide for public recreation and enjoyment of the state beaches and coastal waters.

This report examines three major state programs that involve different types of planning for coastal development and resource protection. In preparing this report, the research team from Florida State University and Florida Atlantic/Florida International University looked at plans prepared for aquatic preserves, local government comprehensive plans, and plans that are prepared by water management districts to help protect and restore important surface waters of the state. The authors have tried in this study to answer the question of whether plans developed for these three purposes are consistent with each other, and if so, to what extent. To help answer this question, the authors closely examined a number of plans that have been developed for these purposes in two areas of the state, and talked with a number of people who have been involved in preparing and implementing these plans.

The authors gratefully acknowledge the participation and assistance of all of the people working in federal, state, regional and local government agencies who graciously gave of their time and their experience to help us complete this project. Whether through formal interviews, telephone conversations, written correspondence, or reviews of various draft material for this final report, many people too numerous to name cooperated with the researchers and aided us in preparation of this final report. Agencies with whom we conducted interviews for this project are listed in Appendix 2, and we thank each one of those persons who were involved for their input and contribution to our work.

Additionally, we wish to recognize and thank two individuals in particular who were very instrumental in analyzing the many plans and other documents that were examined during the course of the project, and who also helped write portions of the final report. Anne Guthrie of the FAU/FIU Joint Center for Environmental and Urban Problems and Steve Ovendon, a graduate student in FSU's Department of Urban and Regional Planning both made significant contributions to the final report, and we thank them for their help.

Finally, the authors acknowledge and thank the coastal management staff in the Department of Community Affairs for their help during the course of the project, as well as those persons in the Department of Environmental Regulation who administered the coastal management program prior to the legislature transferring it to the Department of Community Affairs, effective April 1992. David Worley and Jim Stoutamire from DER were particularly helpful in getting the project underway, and during the transition of the contract from one state agency to another during the course of the project.

# Executive Summary

The Florida State University's Homer Hoyt Center for Land Economics and Real Estate, in cooperation with the Florida Atlantic /Florida International Universities' Joint Center for Environmental and Urban Problems, evaluated the degree of consistency between the goals, objectives, policies, and implementation strategies contained in the SWIM, Aquatic Preserve, and Local Comprehensive Plans for portions of two areas, Tampa Bay and the Indian River Lagoon. The study was carried out at the request of the Department of Environmental Regulation (DER) pursuant to Florida's Coastal Zone Management program. In addition, a review of law and rule was conducted to determine whether conflict exists among the enabling legislation for each of the three planning efforts. Based on this evaluation and analysis, conflicts among these plans were identified and a report with recommendations for corrective actions (needed on a statewide basis) was produced.

Additionally, the Homer Hoyt Center, in cooperation with the FSU Florida Resources and Environmental Analysis Center (FREAC), originally planned to examine the consistency of technical data needs and transfer of information between the three plans, the theory being that the availability of common data sets to different agencies will result in more consistent and rigorous plans. However, the Homer Hoyt Center study team found during interviews with the Hillsborough County Environmental Protection Commission that the Commission, under the direction of the Hillsborough County Commission, is currently working with the Tampa Bay Regional Planning Council to inventory and acquire Geographic Information System (GIS) data for the purpose of developing a resource management strategy for the Cockroach Bay Aquatic Preserve. Therefore, the Homer Hoyt Center documented the efforts to date of the task force responsible for inventorying and acquiring relevant digital data for the Cockroach Bay area.

Chapter I of this study provides an introduction to the three programs and their plans, and provides the context in which these plans are written and implemented. Chapter II is an analysis of the enabling legislation and other relevant statutes and rules for the three planning programs studied. Chapter III presents the comparison and analysis of the plans themselves. Chapter IV offers a summary of findings, conclusions, and a set of eight recommendations for consideration. Finally, Appendix 1 is a case study of Cockroach Bay and the efforts to address its environmental problems through a comprehensive plan amendment and the creation of a set of digital environmental and other data for inclusion into a GIS. Appendixes 2 through 6 are the set of policy matrices used in the analysis and comparison of the three types of plans for the Tampa Bay and Indian River Lagoon areas.

Overall, the review and consistency analysis of the SWIM, aquatic preserve, and local government comprehensive plans within the two study areas of Florida revealed general consistency among these three types of plans. At a minimum, all local government comprehensive plans have policies that call for coordinating with the agencies responsible for writing and implementing the aquatic preserve and SWIM plans within their jurisdiction, and most local government comprehensive plans within both study areas directly acknowledge the existence of aquatic preserve and SWIM plans within their jurisdiction. Furthermore, the review and analysis of the statutes and administrative rules for the three programs revealed no overt inconsistencies among them.

Funds for this project were provided by the Department of Environmental Regulation, Office of Coastal Management using funds made available through the National Oceanic and Atmospheric Administration under the Coastal Zone Management Act of 1972, as amended.

# Chapter I

## Coordination of SWIM, Aquatic Preserve, and Local Government Comprehensive Plans

### PROJECT DESCRIPTION

Florida's coastline has always served as a magnet for growth. During the 1960s, increasing development pressure and dredge and fill activity, particularly noticeable along the southern Gulf Coast, generated concern for protection of state submerged lands. Two areas, Boca Ciega Bay and Estero Bay, received special attention for estuary protection measures due to public concern for habitat degradation from extensive dredging of state-owned submerged bottom lands to provide fill for new waterfront housing developments. From the time of fledgling efforts to respond to these coastal crises to the present, some twenty-five years later, Florida has taken many steps to protect its coastal resources and manage development in the coastal zone. It has pioneered many programs of its own, and it has participated with other coastal states in an effort to manage the nation's coasts wisely. This report looks at coastal protection plans prepared under three major programs that the state of Florida has developed to protect and preserve its coastal resources.

These programs are overseen by three state agencies and are implemented at all three levels of government in Florida: state, regional, and local. They are:

- the Aquatic Preserve program,
- the Local Government Comprehensive Planning and Land Development Regulation act, and
- the Surface Water Improvement and Management (SWIM) program.

Although these programs vary considerably in terms of their purpose, scope, and processes, all three involve planning efforts that precede a management process. In the case of aquatic preserves, the focus is on managing state-owned submerged lands in sensitive coastal areas to prevent disruption from development activities. The Florida Department of Natural Resources prepares resource management plans that are to guide all activities and decisions taken by the Trustees of the Internal Improvement Trust Fund (the Governor and Cabinet) with respect to submerged lands and waters within an aquatic preserve. Under the local comprehensive planning and land development regulation statutes, local governments prepare comprehensive plans that are to guide growth and development within their community, partly in anticipation of adopting land development regulations that will help carry out those plans. Finally, under the SWIM program, the state in partnership with water management districts is attempting to clean up and restore major water bodies that have been degraded over many years by abuse, neglect, and the steady pressure on marine resources that stems from development activities and population growth in the state's coastal areas. Management plans are prepared for water bodies designated under the SWIM program that outline specific protection and restoration measures that should be carried out to improve water quality.

The state's role in these three programs varies, from landlord in the case of aquatic preserves, to guidance and oversight of local government actions in the case of local comprehensive plans, and a direct agent of physical change in the case of the SWIM program. The three state agencies who are most directly involved in environmental protection, natural resource management, and growth management efforts are in charge of these activities. Respectively, they are the Department of Environmental Regulation, the Department of Natural Resources, and the Department of Community Affairs. Florida's coastal management program serves as a source of policy guidance, interagency coordination, and to some extent direct funding to address specific coastal protection issues and conflicts in particular geographic areas.

### Project Purpose

The purpose of the study was to evaluate the degree of consistency among the goals, objectives, policies, and implementation strategies contained in SWIM, aquatic preserve, and local comprehensive plans in an east and a west coast setting in Florida. The study was conducted by research teams at Florida State University's Homer Hoyt Center for Land Economics and Real Estate and the Joint Center for Environmental and Urban Problems at Florida Atlantic and Florida International Universities. It was requested by the Department of Environmental Regulation, which until April 1992 administered the state's coastal management program.[1] This analysis of plan consistency among three major state programs is seen as important to the ongoing efforts under Florida's coastal management program to better coordinate state policies concerning coastal land and water uses. The results of the consistency analysis are presented and discussed in this report.

In addition to examining potential conflicts among the three types of plans involved with these two study areas, the study also examined the underlying laws and rules that govern the operation of these three programs to determine if there are any inconsistencies that exist at the enabling level of agency statutory authority. Chapter II of this report describes how the SWIM, aquatic preserve, and local comprehensive planning programs are legally constituted, and how they relate to each other.

A microcosm of how these programs can work together is revealed in a case study in Appendix 1 that was prepared for the Cockroach Bay area in Hillsborough County. The case study documents the activities of a number of federal, state, regional, and local authorities that are cooperating on an interagency basis to address coastal development problems in this area. All three of the state programs that are examined in this study are involved in this effort. Comprehensive planning, water management, land development regulation, land acquisition, marine research, citizen participation, and public education and awareness are all key ingredients in this effort.

### Study Area

The study focused on water bodies of statewide significance targeted for protection and restoration under the state's Surface Water Improvement and Management Act of 1987. Tampa Bay and the Indian River Lagoon are two of six such areas in Florida that were top matters of legislative concern when the SWIM program was founded in 1987. Tampa Bay and the Indian

[1] At the request of the Governor, the legislature transferred administration of the coastal management program to the Department of Community Affairs by enactment of Chapter 92-276, Laws of Florida, effective April 14, 1992.

River Lagoon are also two of only three areas in Florida designated for special funding and management attention under the National Estuary Program.

Additionally, both areas contain aquatic preserves for which the Governor and Cabinet have adopted management plans, which is not the case for all SWIM water bodies. Likewise, not all of Florida's 42 aquatic preserves have adopted management plans, a prerequisite for those aquatic preserves selected for study (see Table 1, below).

Table 1. Aquatic Preserve Management Plans Needing Revision, Being Revised, or Revised.

| Aquatic Preserves w/ Management Plans Needing Revision | Aquatic Preserves w/ Recently Revised Management Plans (Or Being Revised) |
|---|---|
| 1. Alligator Harbor | 1. Apalachicola Bay |
| 2. Banana River | 2. Biscayne Bay-Card Sound |
| 3. Biscayne Bay-Cape Florida to Monroe County* | 3. Big Bend Seagrasses |
| 4. Boca Ciega Bay | 4. Coupon Bight |
| 5. Cape Haze | 5. Ft. Pickens |
| 6. Cape Romano-Ten Thousand Islands* | 6. Guana River Marsh |
| 7. **Cockroach Bay*** | 7. **Jensen Beach to Jupiter Inlet** |
| 8. Estero Bay* | 8. Lake Jackson |
| 9. Ft. Clinch State Park | 9. Lake Weir |
| 10. Gasparilla Sound-Charlotte Harbor* | 10. Lemon Bay |
| 11. Indian River-Malabar to Vero Beach | 11. Lignumvitae Key |
| 12. Indian River-Vero Beach to Ft. Pierce | 12. Mosquito Lagoon |
| 13. Loxahatchee River-Lake Worth Creek | 13. Oklawaha River |
| 14. Matlacha Pass | 14. Pellicer Creek |
| 15. Nassau River-St. Johns River Marshes | 15. Rainbow Springs |
| 16. North Fork St. Lucie | 16. Rocky Bayou |
| 17. Pine Island Sound | 17. St. Andrews Bay |
| 18. Pinellas County* | 18. St. Joseph Bay |
| 19. Rookery Bay* | 19. Tomoka Marsh |
| 20. St. Martins Marsh | 20. Yellow River Marsh |
| 21. **Terra Ceia** | |
| 22. Wekiva River* | |

*To be revised in 1993.

In defining the areas to examine for the consistency study, the researchers looked first at the watershed areas defined in the SWIM plans for the Tampa Bay and the Indian River Lagoon, since they depict the largest geographic units. Attention then turned to that portion of the SWIM watershed which coincided with aquatic preserve areas that could be examined in the study. For the west coast study, there are four aquatic preserves located within the watershed area of the Tampa Bay SWIM plan. However, management plans have only been adopted for two of these

areas, Terra Ceia and Cockroach Bay. The west coast study therefore concentrated on these two areas and on local government comprehensive plans that are associated with them. The Terra Ceia and Cockroach Bay aquatic preserves are relatively adjacent to each other (separated only by Port Manatee), share a common shoreline, and together form a logical study unit for the purposes of this project. Additionally, both preserves are currently experiencing development within their watersheds. The Cockroach Bay watershed in particular is expected to receive a great deal of residential development in the near future, which will test the resource protection plans which have been adopted for this area.

The east coast study area concentrated on the lower portion of the 155-mile long Indian River Lagoon, or more specifically, the aquatic preserve that extends from Jensen Beach to Jupiter Inlet. There are two other aquatic preserves located along the length of the Indian River Lagoon. However, the aquatic preserve management plan that was adopted November 15, 1990 for the lower portion of the Jensen Beach to Jupiter Inlet area represents DNR's statewide prototype for all new and revised aquatic preserve management plans since that time.[2] Therefore, the east coast portion of this study focused on that area and on the local government comprehensive plans associated with it. The general location of the two study areas is shown in the map on page 5.

After defining the two general study areas, attention turned to identifying the cities and counties in which development activities would most directly affect and be affected by activities in the aquatic preserve areas. The objective was to strike a balance between reviewing local plans of literally dozens of cities and counties that, while located within these two general SWIM watershed areas, had no likely direct significance to the subset of areas under investigation, namely, the aquatic preserves.

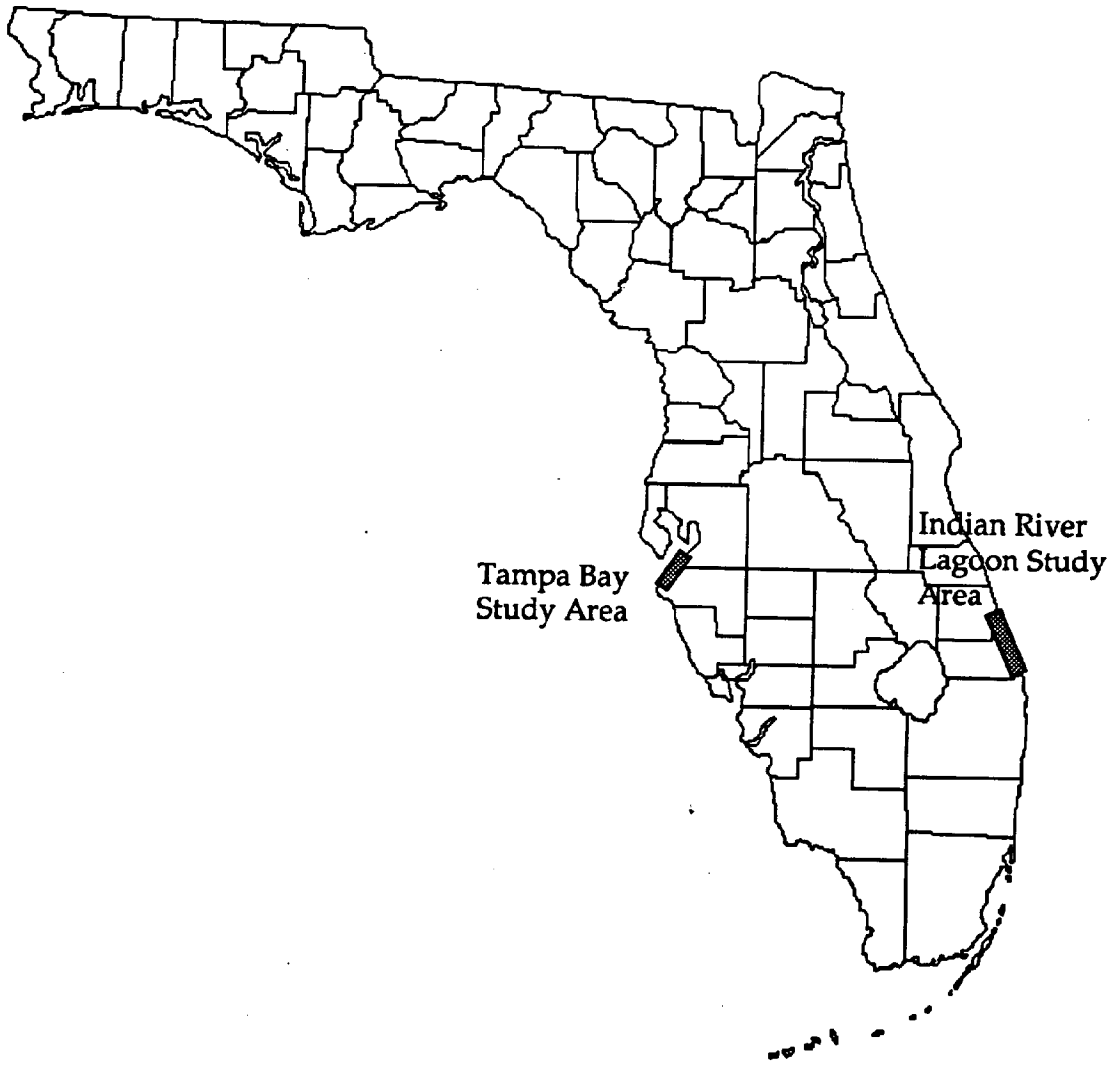
For example, the Tampa Bay SWIM plan watershed area encompasses approximately 2,275 square miles of land and water, including portions of 7 counties, ranging from Pasco County south to Sarasota County, and east to include small portions of Polk and Hardee counties. However, the vast majority of the watershed is contained within the 3 counties of Hillsborough, Pinellas, and Manatee. By concentrating the focus of attention to the aquatic preserve areas, in the case of Tampa Bay this process reduced the focus of the consistency study to Manatee and Hillsborough counties and the City of Palmetto. For the lower Indian River Lagoon area, there were three counties and eight municipalities that were identified to undergo plan consistency analysis through this process. They were:

| Counties | Municipalities |
|---|---|
| 1. Palm Beach | 1. Jupiter |
| 2. Martin | 2. Tequesta |
| 3. St. Lucie | 3. Jupiter Inlet Colony |
| | 4. Jupiter Island |
| | 5. Ocean Breeze Park |
| | 6. Sewall's Point |
| | 7. Fort Pierce |
| | 8. Stuart |

After determining which local governments were most likely to be involved, the researchers then examined the upland watershed sub-basin areas of the three aquatic preserves to insure that the scope of the consistency review had not been narrowed too greatly. In all three cases, those sub-

[2]The Jensen Beach to Jupiter Inlet aquatic preserve management plan is being prepared in two phases. The phase I plan is the one that was adopted in November 1990. It covers the portion of the preserve between Hobe Sound and Jupiter Inlet.

Figure 1. Tampa Bay and Indian River Lagoon Study Areas.



basin areas constituted areas which were physically smaller than the corresponding county planning areas. This meant that when the local comprehensive plans were reviewed as part of the consistency analysis, areas of the county plans beyond those which directly influence the aquatic preserves were also evaluated, accounting to some extent for external influences such as land use and stormwater impacts on the aquatic preserve and the SWIM water body. The researchers also determined in advance that the local comprehensive plans of all five counties and the nine municipalities involved in the two study areas had been adopted and found to be in compliance with state law and rules by the Department of Community Affairs prior to the beginning of the study.

### Study Procedures

In order to determine whether inconsistencies existed among the plans within the two study areas, the researchers collected and evaluated all appropriate plans and supporting documents. Where possible, this included examining the review comments of various public agencies during the three plan adoption processes. The purpose of this was to determine whether inadequacies existed in the plans before they were adopted locally or certified by DCA, and to evaluate the extent to which any such inadequacies were addressed as part of the final adoption process. A major part of this review involved examining the comments of state agencies, regional planning councils, and water management districts for each local government comprehensive plan represented in the study area to determine their areas of concern. All objections, recommendations, and comments contained in reports of the Department of Community Affairs to local governments pursuant to Chapter 163, F.S., were specifically examined when reviewing the final plans of local governments in the two study areas.

This document analysis process was supplemented by an extensive interview process with 53 persons who work with these three programs within 24 different organizations at the federal, state, regional, and local government level. A complete list of agencies that were interviewed for this study is found in Appendix 2. The remainder of this chapter looks briefly at the general nature of Florida's coastal management program and the three specific programs that are examined in this study, in order to provide a context for the chapters that follow.

## AN INTRODUCTION TO FLORIDA'S COASTAL MANAGEMENT PROGRAM

Florida's efforts to protect its valuable coastal resources through an organized coastal management program predates the 1972 federal Coastal Zone Management Act by two years, the legislature having created a Coastal Coordinating Council in 1970. The 1972 federal legislation encouraged all coastal states in the country to develop coastal management programs that would meet federal objectives and criteria specified by Congress and the National Oceanic and Atmospheric Administration (NOAA), the agency which implements the federal legislation. The first several years of the program involved a planning period, during which funding was provided to states in order to help them prepare a coastal management program.

Unlike some other states which created new regulatory and administrative processes for their coastal management program during this period, Florida's coastal management program relies on a series of networked authorities under state law to carry out state policies for protecting and enhancing the state's coastal resources. The state had already enacted numerous resource

planning and protection measures that encompassed many coastal management objectives prior to the legislature's adoption of the Florida Coastal Management Act in 1978. Florida's coastal management program built on this policy and administrative structure in fashioning its application for federal approval.

As an example, the federal act required states to designate "geographic areas of particular concern" as a prerequisite to obtaining approval for Florida's coastal management program. Approval would qualify the state for federal funding to implement its program, as well as encourage consistency of federal activities with the Florida program. The state's existing aquatic preserve program was used as one example of where Florida had already taken steps to recognize the importance of geographically distinct areas for increased coastal protection. Thus, Florida chose to rely instead on doing a better job with the existing authority of the state and regional agencies whose programs collectively comprise Florida's coastal management program, and improving in areas that do not provide sufficient protection for the state's coastal resources.

Implementing a networked coastal management program of this nature relies heavily on intergovernmental coordination strategies that encourage maximum cooperation among the agencies involved, including those at the state, regional and local level. Where shortcomings exist, refinements that will improve the protection of coastal resources can be pursued administratively by agencies under their existing statutory authority, or new approaches can be taken with the approval of the Florida legislature. Since federal approval of Florida's coastal management program in 1981, Florida has taken both of these approaches to improve management of its coastal resources, rather than create a new state authority devoted entirely to coastal management.

### Brief History of the Three Statutory Programs

A complete description of the statutory framework for the three programs discussed in this report is found in Chapter II. The remainder of this chapter will present a brief overview of each program and its evolution to the present time, including the administrative framework within which each program is managed.

### The Aquatic Preserve Program

In 1967, the Florida legislature provided statutory authority (Section 253.03, F.S.) for the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund, to exercise proprietary control over state-owned lands. Following that legislation, an Interagency Advisory Committee was created, and in 1968 the committee issued a report which recommended establishment of twenty-six aquatic preserves. In 1969, the Legislature designated the Boca Ciega Bay Aquatic Preserve for a prescribed area of submerged bottomlands, the water column upon those lands, and the islands owned by the state within the boundaries of the preserve in Pinellas County.[3] The legislative designation had the effect of sharply curtailing dredge and fill practices within the preserve area. It also provided that further sales or leases of state-owned sovereignty lands within the preserve would not be authorized unless it was in the public interest, signaling a shift in the state's prevailing land management philosophy.[4] Later that year, the Governor and

[3]According to a 1989 Performance Audit of the Aquatic Preserve program conducted by the Auditor General's Office, the first aquatic preserve was created in 1966 by the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund.

[4]Section 258.396, Florida Statutes

Cabinet, by resolution, adopted eighteen of the twenty-six aquatic preserves which the Interagency Advisory Committee had recommended.

The legislature designated the Pinellas County Aquatic Preserve in 1972, followed by the Lake Jackson and Biscayne Bay Aquatic Preserves in 1973 and 1974, respectively. By the end of 1974, a total of twenty-two aquatic preserves had been formally adopted by a combination of the Governor and Cabinet resolutions and the legislative acts. This included the Jensen Beach to Jupiter Inlet Aquatic Preserve in the Indian River Lagoon.

In 1975 the legislature enacted the Florida Aquatic Preserve Act.[5] This act consolidated the administration of all aquatic preserves under one single management authority for the first time, declaring "that the state-owned submerged lands in areas which have exceptional biological, aesthetic, and scientific value....be set aside forever as aquatic preserves or sanctuaries for the benefit of future generations."[6] Management responsibility for the aquatic preserves was given to the Department of Natural Resources, and the program was initially placed under the agency's Division of State Lands. The Aquatic Preserve Act further limited the authority of the Trustees of the Internal Improvement Trust Fund to sell or lease submerged lands, and limited the uses and activities that may take place in aquatic preserves. This coincided with the passage of the Environmental Reorganization Act of 1975, which in part also sharply curtailed coastal dredging and filling practices by re-establishing the waterward boundary of bulkhead lines to the line of mean high water.[7] Additional legislative acts designated the Cockroach Bay Aquatic Preserve in 1976 and the Gasparilla Sound–Charlotte Harbor Aquatic Preserve in 1979.[8] The Terra Ceia Aquatic Preserve was established by the legislature in June, 1984.[9] The boundary was amended in June, 1985 to include additional lands in the southern portion.[10] However, Subsection two (2) of this legislation exempted existing wastewater or effluent discharge activities from the requirements of the Aquatic Preserve Act.

Management plans for aquatic preserves were slow to develop. By 1981, a total of thirty-one aquatic preserves existed. However, state funding had never been appropriated to implement the Aquatic Preserve Act's objectives or for management of the preserves. Up to this point, the program existed as a process of designation only. Decisions of the Board of Trustees as to allowable uses, activities, and management practices in aquatic preserve areas were decided on an ad hoc basis, since management plans for the preserves had not been formulated to guide their actions.

In February 1981, Chapters 18-20 and 18-21, Florida Administrative Code were adopted by the Board of Trustees, which provided administrative rules concerning the types of activities allowed within aquatic preserves and state submerged lands. Specifically, Section 18-20.013 mandated the development of a resource inventory and management plan for each aquatic preserve, and Section 18-20.016 called for the coordination of governmental agencies which have related management or permitting responsibilities on state sovereignty lands. In March, 1981, the Trustees adopted *The State Lands Management Plan* which established policies concerning, among other things, submerged lands and grassbeds, unique natural features and "outstanding native Florida landscapes." Those policies served to provide management guidance to the aquatic preserve program. Three aquatic preserves—Boca Ciega Bay, Pinellas County, and Biscayne Bay

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[5]Part II, Chapter 258, F.S.
[6]Chapter 258.36, F.S.
[7]Chapter 75-22, L.F
[8]Chapter 76-197, L.F., and Chapter 79-115, L.F., codified in s. 258.391 and s. 258.392, F.S., respectively.
[9]Chapter 84-312, L.F., codified in s. 253.393, F.S.
[10]Chapter 85-345, L.F.

Aquatic Preserves—were exempted from the provisions of Rules 18-20 and 18-21, and management plans have not been adopted for these aquatic preserves.[11]

With the passing of the state Coastal Management Act (Chapter 380, Part II, F.S.) in 1978, and approval of Florida's coastal management program by the National Oceanic and Atmospheric Administration (NOAA) in 1981, Florida began to qualify for federal CZM grant money to implement its coastal management program. Aquatic preserves were recognized as "geographic areas of particular concern" in Florida's coastal management program. In the absence of state funding, initial funding to prepare aquatic preserve management plans was supported by CZM grants procured through the U.S. Office of Ocean and Coastal Resource Management within NOAA.

The aquatic preserve program received eight CZM grants during the period 1984-1991 totaling approximately $1,109,000 (see Figure 2). In addition, participation in the CZM federal funding program required the state to match 30% of the amount of the federal government's grant of CZM money. However, a large portion of the $1.1 million was used to fund a GIS study and resource inventory of the Little Manatee River watershed involving Landsat imagery. Although this project interested many agency resource managers at first, lack of finer detail in the maps prevented the information from being critically useful in projects requiring more site-specific resource inventories.

In 1983, the first CZM grant enabled DNR to begin hiring personnel and writing aquatic preserve management plans. The first management plan, for the Charlotte Harbor Aquatic Preserve, was approved by the Board of Trustees in May, 1983. In 1986, DNR obtained legislative support for funding staff positions and management. Eleven positions were specifically designated, with the large Indian River Lagoon system of preserves garnering the majority of these. A pattern of funding allocation had emerged where CZM grants were typically used for writing management plans and state funding was used for preserve management and plan implementation.

Between 1983 and 1987, management plans adopted by the Board of Trustees contained policy guidelines that addressed various activities in the preserves, some of which were not specifically regulated by rule. Staff frequently used the plans in making recommendations on development proposals within the preserves. An incident occurred in 1987 that led to a challenge over the utilization of the plans in regulating development activities on submerged lands within the preserves. The challenge was directed at the fact that the plans did not constitute rules of the Board of Trustees, since they had not been formally adopted as rules. A long debate ensued over the issue between the Department's Office of General Counsel and members of the Joint Administrative Procedures Committee. The decision was finally made that all aquatic preserve management plans must be adopted as administrative rules if they were to be used in regulating development activities on submerged lands within the preserves. In 1988, Chapter 18-20, F.A.C., was amended to incorporate by reference all aquatic preserve management plans adopted by the Board of Trustees.

Sporadic state funding of DNR's aquatic preserve program along with a series of CZM grants have allowed the preparation of management plans for all but three of the current total of forty-two aquatic preserves. However, the early aquatic preserve management plans that were

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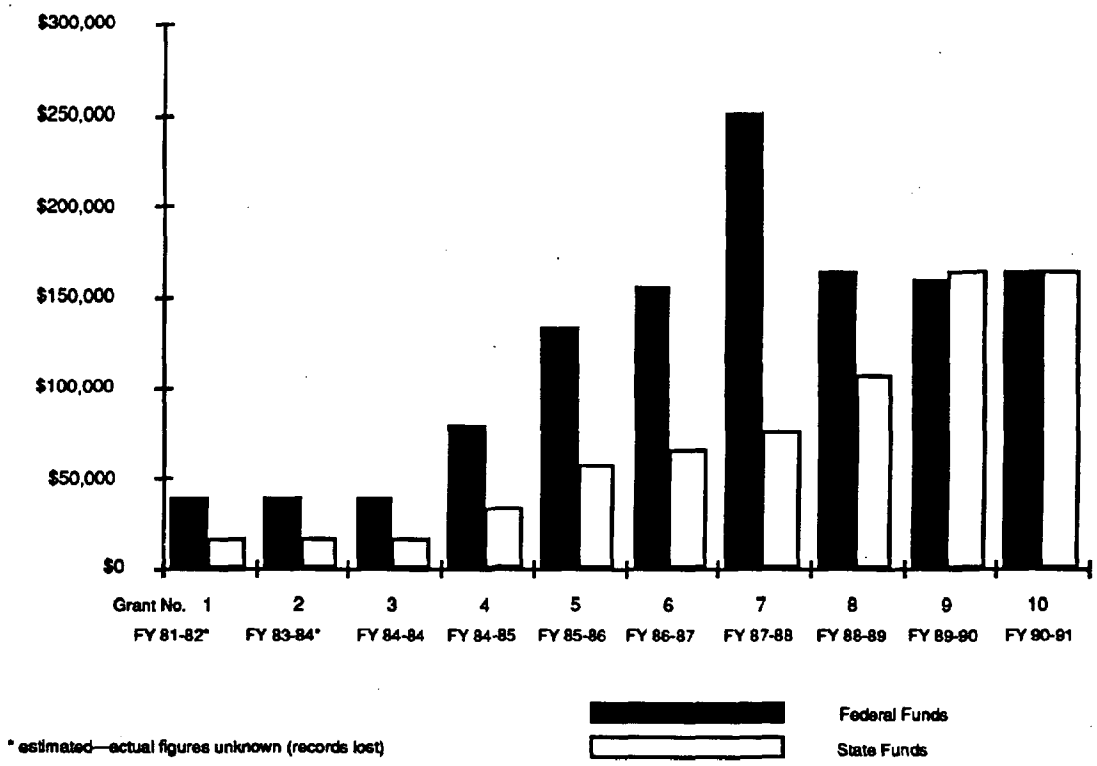
[11]Unlike other less disturbed aquatic preserve areas, these 3 preserve areas were heavily urbanized at the time DNR's rule 18-20 was adopted, and the Department recognized the existence of local permitting programs that were already in place at the time of rule adoption. A draft plan for Boca Ciega Bay has been submitted by Pinellas County to the Trustees for review on several occasions, but a final plan has not been agreed upon.

Figure 2. Federal and State Funding for Florida's Aquatic Preserve Program, 1981–1991.




developed have been criticized as being too general and ineffective. On February 6, 1989, the Florida Office of the Auditor General issued the *Performance Audit of the Aquatic Preserve Program Administered by the Department of Natural Resources, Report No. 11164*. At that time, DNR had completed management plans for only 19 of the 41 aquatic preserves that existed in 1989, according to the audit report. Of the plans that had been completed, the audit found that they lacked adequate resource inventories, were too generic, and did not address each preserve's unique needs. The audit also criticized DNR's effectiveness in protecting the resource by failing to inspect one-third of the applications for use of state-owned submerged lands and not routinely checking completed projects for compliance or investigating and resolving reported violations.

An earlier event that had occurred in 1988 had already prompted DNR to begin changing the manner in which it prepared aquatic preserve management plans. An application for development of a marina within the Jensen Beach to Jupiter Inlet Aquatic Preserve had been recommended for denial by DNR based on the policies of the preserve's management plan. The denial was appealed to the Governor and Cabinet. In their decision to grant development approval, the Governor and Cabinet directed DNR to recognize the "urban characteristics" in certain areas adjoining aquatic preserves and to adopt management policies which were more compatible with adjoining land uses. Public criticism of the decision combined with DNR's objective to provide a more site-specific form of resource management led to the adoption in 1988 of a new format for aquatic preserve management plans.

DNR's responses to the Auditor General's findings made frequent mention of the need for sufficient funding of staff and equipment in order to meet the program's goals of protecting the preserves' resources. DNR began reworking some management plans to make them more detailed and site-specific, and referenced the St. Joseph Bay Aquatic Preserve Management Plan as the first such "second generation" plan. In addition, first priority was given to completing general plans for those preserves which had greater development pressure or that already had existing staff to write them.

The review and adoption of aquatic preserve management plans after 1988 also involved increased public involvement and a more critical review by agencies and local governments, compared to plan review prior to 1988. Since 1990, final aquatic preserve management plans have been sent to the affected local governments for verification of consistency with their local comprehensive plan, prior to adoption of the management plan by the Governor and Cabinet. Local governments are requested to provide a letter to DNR stating that the proposed management plan does not conflict with the local comprehensive plan.

At present, there are a total of forty-two formally established aquatic preserves in Florida, comprised of both estuarine and freshwater systems. According to DNR, 28 preserves have management plans which have been recently revised or are in the "second generation" plan preparation process now. (The remaining plans are in need of revision, including the Terra Ceia management plan.) The Jensen Beach to Jupiter Inlet Aquatic Preserve, Phase I, management plan is a completely revised plan, adopted on November 15, 1990. However, Phase II is not yet complete. It will cover the northern portion of the preserve, from Hobe Sound to Jensen Beach. Also, two additional aquatic preserves have been designated for the Indian River Lagoon. They extend north from Jensen Beach to Fort Pierce, and from Ft. Pierce to Malabar, respectively.

**The Local Government Comprehensive Planning and Land Development Regulation Act**

Prior to 1975, comprehensive planning had been a voluntary and largely advisory exercise for local governments in Florida, with many cities and counties lacking any formal planning structure at all. To the extent that local governments exercised land use controls through traditional means such as zoning and subdivision regulations, they were largely unguided by comprehensive plans setting forth the manner in which communities should grow and develop in an orderly fashion. Rapid population growth became increasingly difficult for many local governments to handle, and no-growth citizen movements appeared in several parts of Florida during the early 1970s in response to problems created by unplanned and uncontrolled growth.

Comprehensive planning became mandatory for each municipality and county in Florida in 1975. In that year the legislature enacted a measure recommended by the Governor's first Environmental Land Management Study Committee (ELMS I) requiring each city and county to adopt a comprehensive plan that would have the force and effect of local law. The 1975 Local Government Comprehensive Planning Act (LGCPA), contained in Part II of Chapter 163, F.S., declared the intention of the legislature to " . . . utilize and strengthen the existing role, process, and powers of local governments in the establishment and implementation of comprehensive planning programs to guide and control future development."[12] The act prescribed the minimum contents of local plans, required internal consistency among plan elements, required each plan to be economically feasible, and set forth a continuing process of planning, evaluation and plan revision. Although the original schedule called for local governments to have their plans adopted

[12]Section 163.3161(1), F.S.

not later than 1979, delays largely due to a lack of initial state funding forced the legislature to postpone compliance until at least 1981.

Dissatisfaction with the quality of many local comprehensive plans during the early 1980s led to legislative and executive re-evaluation of the effectiveness of the 1975 LGCPA. Close scrutiny of and recommended changes to the existing statute suggested by the House Select Committee on Growth Management and the Governor's second Environmental Land Management Study Committee (ELMS II) in 1983 and 1984 led to a sweeping overhaul of the local comprehensive planning act in 1985. New measures included a state review scheme directed by the Department of Community Affairs to insure local government compliance with the law. The new act also required local consistency with adopted state and regional planning policies, enhanced citizens' standing to participate in and help enforce the local planning process, and required mandatory adoption of land development regulations to implement revised local comprehensive plans. New substantive requirements were added for coastal planning and management as well, including 11 minimum components for the coastal management element alone.[13]

Perhaps the most significant new feature of the 1985 legislation linked, for the first time, the issuance of local development permits with the ability to provide infrastructure in a timely fashion to meet the demands of new growth. Termed the "concurrency doctrine," this new planning requirement injected a heavy dose of fiscal reality to the local planning process by requiring infrastructure to be available concurrently with the impacts of new growth, or else local permits for development would be halted. To complement the new importance thus accorded infrastructure planning, a capital facilities planning element became mandatory under the 1985 law. Intergovernmental coordination is heavily encouraged as well by the statute among cities and counties, in order to promote successful plan implementation.

All local governments were given a schedule within which to adopt new local comprehensive plans and land development regulations meeting the requirements of the new act. DCA adopted a minimum criteria rule (9J-5, F.A.C.) for determining whether local comprehensive plans were in compliance with state law. Under the law, DCA reviewed and provided written objections, recommendations, and comments on all 67 county plans as well as those of 393 municipalities prior to their adoption. DCA also reviewed all final local plans for compliance with state law and rules, which often resulted in reaching compliance agreements with local governments to insure that they met the full requirements of the act.

Brevard County became the first locality to adopt a comprehensive plan under the new local planning statute in 1988. All other county and municipal plans were scheduled for adoption on a staggered time schedule that extended from July 1, 1988 to July 1, 1991, beginning with local governments in coastal areas.[14] A small number of cities and counties remain in non-compliance with the act due to unresolved administrative challenges.

**The SWIM Program**

The legislature adopted the Surface Water Improvement and Management (SWIM) Act in 1987 in response to declining surface water quality in some of the state's most popular rivers, lakes, and bays. Similar to aquatic preserves prior to 1975, the legislature had been addressing some of these problems on a piecemeal basis for several years, appropriating money separately for water

[13]Section 163.3178, F.S.

[14]Section 163.3167(2), F.S., and Rule 9J-12, F.A.C., entitled "Schedule for Submission of Revised Local Government Comprehensive Plans and Procedures for Early Submissions."

quality improvements in major water bodies of the state such as Lake Apopka and Lake Okeechobee, Biscayne and Tampa bays, and the Indian River Lagoon.[15] Some of these activities were associated with ongoing aquatic preserve management efforts, such as those in Biscayne Bay.

For example, in 1986 the legislature amended s. 258.397, F.S., pertaining to the Biscayne Bay Aquatic Preserve, authorizing special restoration and enhancement measures for the preserve in response to stormwater quality problems.[16] A majority of the first-time funding provided to DNR for the aquatic preserve program, also in 1986, was earmarked for local protection efforts for the Indian River Lagoon. Similarly, the legislature authorized creation of the Tampa Bay Commission in 1984 to formalize an extensive intergovernmental approach to multi-jurisdictional bay management, initiated earlier by the Tampa Bay Regional Planning Council.[17]

The enactment of the SWIM program provided a uniform way for the legislature to direct DER and the state's five water management districts in new efforts to protect and restore surface water quality in major water bodies in Florida. It also coincided with congressional establishment of the National Estuary Program (NEP) in the Water Quality Act of 1987. Indian River Lagoon and Tampa Bay were designated NEP areas by the Environmental Protection Agency in 1990.

Under the SWIM program, water management districts prepare plans that outline specific measures to protect and restore priority water bodies designated according to criteria outlined in the law and in the rules of DER.[18] The initial legislation focused attention on the following six water bodies:

1. Lake Okeechobee,
2. Biscayne Bay,
3. Indian River Lagoon,
4. Tampa Bay,
5. Lake Apopka, and
6. the Lower St. Johns River.

Others were added in the first year of the program as each district developed a list of priorities among major water bodies of regional or statewide significance needing protection or restoration within their region. (See Figure 3 for current SWIM projects within Florida.) The SWIM priority lists were developed and are maintained in cooperation with DER, the Department of Agriculture and Consumer Services, the Department of Community Affairs, the Game and Fresh Water Fish Commission, DNR, and local governments.[19] DER approves these lists of priority water bodies, and supervises the SWIM program at the state level. The SWIM priority lists are reviewed and updated every three years. Water management districts prepare SWIM plans for the water bodies on the approved priority lists as funds are available, and in cooperation with state and local agencies. SWIM plans are developed on a watershed basis and address major problems contributing to declining water quality such as stormwater runoff, water quality violations, local land use influences, and agricultural activities. The plans must describe the strategies for

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[15] *An Analysis of Florida's SWIM Program*, 1991, May, Brumback et al, p. 10-11.

[16] House Bill 1282 amended Section 258.397, F.S., pertaining to the Biscayne Bay Aquatic Preserve. See Chapter 86-295, L.F. Identical language was also adopted in another bill during the same legislative session. See Chapter 86-186, L.F.

[17] Chapter 84-440, F.S.

[18] Chapter 17-43, F.A.C.

[19] The Department of Agriculture and Consumer Services, the Department of Community Affairs, and local governments were added to this list in 1989.

**SWIM PROJECT LOCATIONS BY WATER MANAGEMENT DISTRICT**

1. Apalachicola River & Bay
2. Deerpoint Lake
3. Lower St. Johns River Basin
4. Indian River Lagoon System
5. Lake Apopka Basin
6. Upper Oklawaha River Basin
7. Upper Suwannee River and Tributaries
8. Lower Suwannee River and Tributaries
9. Santa Fe River and Tributaries
10. Steinhatchee River
11. Alligator Lake
12. Falling Creek
13. Tampa Bay and tributaries
14. Lake Jackson
15. Pensacola Bay area
16. Blue Run (Rainbow River)
17. Lake Tarpon
18. Banana Lake
19. Crystal River/Kings Bay
20. Lake Panasoffkee
21. Lake Okeechobee/Kissimmee River
22. Biscayne Bay
23. Lake Thonotosassa
24. Winter Haven Chain of Lakes

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Prepared by: DER GIS Subsection
Date: March, 1992

restoring or protecting the water body to Class III or better, a schedule for doing so, and estimates of funding needed to carry out the strategies.[20]

In a number of cases, SWIM water bodies encompass one or more aquatic preserves within their planning area. DNR, other state agencies, and local governments are provided copies of proposed SWIM plans for review and comment prior to their adoption by the district governing board, to maximize opportunities for intergovernmental coordination in the SWIM program. After adoption by the governing board, DER has the final authority to ensure that a SWIM plan is consistent with state water policy and the state comprehensive plan.

The legislature established a Surface Water Improvement and Management Trust Fund to provide money to the districts to prepare and implement detailed SWIM plans. Funds are provided to the districts through DER on a 60/40 matching basis.[21] The legislature has not provided a permanent funding source for the SWIM program, relying instead on annual appropriations from the state's general revenues. Water management districts annually provide DER with funding proposals for their SWIM program, identifying activities needing state funding for the next fiscal year and describing the specific restoration or protection activities proposed.[22] DER considers these requests in making its annual budget request to the legislature.

The amount of money appropriated annually to the SWIM Trust Fund has varied considerably, ranging from an initial level of $15 million in 1987 to only $3 million in 1992-93 (see Table 2). The lack of a permanent funding source coupled with this sharp reduction in state funds for the SWIM program has hampered the efforts of water management districts to carry out the full potential of the SWIM program, especially in the Northwest Florida and Suwannee River districts. For different reasons, their ability to raise revenue through their ad valorem tax is considerably less than that of the other three water management districts in Florida.[23]

SWIM plans are updated as necessary, but at least once every three years.[24] Regarding the Indian River Lagoon and Tampa Bay SWIM plans, these efforts are very closely coordinated with the preparation of management plans under the National Estuary Program, as further discussed in Chapters III and IV. Although the timing of the plan adoption cycle for SWIM plans and local comprehensive plans in many instances did not coincide for first round of SWIM plans (SWIM plans generally preceded the adoption of local comprehensive plans), much closer coordination with local government plans and land development regulations is expected in the future.

In 1989, the legislature enacted a water resources bill which contained several features that tie water resource planning closer to local government comprehensive planning. It specifically directs water management districts to assist local governments in developing and revising local comprehensive plan elements or public facilities reports (in the case of special districts, as provided in S. 189.415, F.S.), related to water resource issues.[25] It also required them to provide certain data to local governments before July 1, 1991 that would assist in preparing and

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[20]Section 373.453(2), F.S.

[21]Prior to July 1, 1991, the required match amounts were a minimum of 20% from water management districts and a maximum of 80% from the SWIM Trust Fund.

[22]Section 373.453(4), F.S.

[23]The Northwest Florida Water Management District is limited by Article 7 Section 9 of the Florida Constitution to 1/20th of the ad valorem tax levy enjoyed by the other 4 districts, which is .05 mills. The low tax base within the Suwannee River Water Management District limits its ability to generate district revenues on its own.

[24]Chapter 17-43.035(5), F.A.C.

[25]Section 373.0391(1), F.S.

Table 2. State Appropriations for the SWIM Program, 1987-1993.

| *District* | 1987-88* | 1988-89 | 1989-90 | 1990-91** | 1991-92*** | 1992-93**** |
|---|---|---|---|---|---|---|
| NWFWMD | 96,774 | 1,160,800 | 1,500,000 | 986,988 | 950,000 | 485,000 |
| SJWMD | 4,645,161 | 4,500,000 | 4,000,000 | 2,400,000 | 2,533,333 | 646,667 |
| SFWMD | 6,677,420 | 4,500,000 | 5,500,000 | 1,500,000 | 2,533,333 | 646,667 |
| SWFWMD | 2,032,258 | 4,500,000 | 2,500,000 | 2,694,418 | 2,533,334 | 646,666 |
| SRWMD | 96,774 | 339,200 | 1,500,000 | 718,594 | 950,000 | 575,000 |
| *subtotal* | 13,548,387 | | | *8,300,000* | *9,500,000* | |
| *budget authority* | | | | *6,700,000* | *6,622,824* | |
| *other* | 1,951,613* | | | | 500,000* | |
| Annual total | $15,500,000* | $15,000,000 | $15,000,000 | $15,000,000 | $16,622,824 | $3,000,000 |

*For FY 1987-88 the legislature appropriated SWIM project funding for each of the six priority water bodies specified in the 1987 legislation. The district funding totals in this first column reflect DER's allocations for 5 of these 6 water bodies, in addition to first year planning money for each district. An additional $1,451,613 was divided between the South Florida and St. Johns River water management districts for joint SWIM project work for the Indian River Lagoon System. This is reflected in the "other" category, together with $500,000 that DER returned as part of a cost savings measure for the Governor's Office that year.

**The total legislative appropriation for FY 1990-91 to the SWIM Trust Fund was $15 million. New funding included $3 million of General Revenue money and $5.3 million in interest earned by the SWIM Trust Fund from July 1987 through June 1991. This accounts for the $8,300,000 subtotal. The remainder of the $15 million consisted of $6.7 million in previously allocated but unused funds, held over from the previous year.

***The total legislative appropriation for FY 1991-92 to the SWIM Trust Fund was $16.6 million. New funding included $10 million of General Revenue money, of which DER returned $500,000 in a cost savings measure for the Governor's Office. The remainder of the money for FY 1991-92 consisted of $6.6 million in previously allocated but unused funds.

****The total legislative appropriation for FY 1992-93 to the SWIM Trust Fund was $3 million. Each district received $300,000 in base funding plus an additional agreed-upon amount based upon district need.

implementing their local comprehensive plans or public facilities reports. This includes information about district programs and regulations, surface water basins, groundwater characteristics (including regional water resource needs and sources), land acquisitions, minimum flows for surface water courses, and minimum water levels for aquifers.[26]

This same legislation authorized and directed DER, water management districts, and local governments to develop mutually compatible stormwater management programs. Significantly, after July 1, 1992, local governments developing stormwater management programs as part of their local comprehensive plan must consider four things:

1) state water policy
2) district stormwater management goals
3) approved SWIM plans, and
4) technical assistance information provided by the water management district.[27]

The effect of this requirement will be to further reinforce coordination between district water resource planning, the SWIM program, and the local government comprehensive planning process. Water management districts are also currently engaged in a major process of water resource planning that will culminate with the adoption of regional water management plans no later than November 1, 1994, as required by the State Water Policy Rule.[28] All five districts have completed an assessment of water supply needs and sources within their respective district areas for the next 20 years, based in part upon population projections and other information contained in local government comprehensive plans.[29] Each district has completed a draft water management plan that takes this assessment of future water supply needs and sources into account in its overall long-range water resources plan for the area. These plans also identify current and expected water resource problem areas geographically, and suggest prevention or remediation measures which may be taken to address these problems. The plans will serve as a basis of policy guidance for the district's responsibilities in four major areas:

1) water supply
2) flood protection
3) water quality management, and
4) natural systems management.

When the final district water management plans are completed in 1994, the expectation is that they will be organized by DER into a state water plan for protecting Florida's water resources. The opportunity and imperative for close coordination with local governments in their continuing comprehensive planning efforts during this time must not be overlooked. Creative strategies and hard work will be necessary to bring together state, regional and local governments as part of their ongoing intergovernmental coordination duties to insure that this actually takes place.

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[26]Section 373.0391(2), F.S.
[27]Section 403.0891(3)(a), F.S.
[28]Section 17-40.501, F.A.C.
[29]Cf., Southwest Florida Water Management District, *Water Supply Needs & Sources, 1990-2020*, January 1992 (Revised Draft).

# Chapter II

## Comparative Analysis Of The Three Statutes And Their Implementing Rules

### INTRODUCTION

In order to conduct a complete analysis of the consistency among SWIM, aquatic preserve, and local government comprehensive plans, a legal analysis was performed to highlight any obvious consistencies and inconsistencies between the statutes enabling the establishment of the three programs and the agency rules outlining the implementation of the enabling statutes. This chapter assesses the consistency of three statutory programs: Ch. 163 Part II, F.S., commonly referred to as the Growth Management Act; Ch. 373.451 to .4595, F.S., the Surface Water Improvement and Management Act; and Ch. 258 Part II, F.S., the Aquatic Preserve Act. The major implementing rules of these three programs are Rule 9J-5, Rule 17-43, and Rule 18-20, respectively, of the Florida Administrative Code.

The legal analysis revealed no overt inconsistencies in language or intent among the three programs and their implementing rules. However, the intent and scope of the three programs vary enough that the actual implementation of the plans could possibly result in inconsistent actions. The aquatic preserve program is to "preserve" designated waterbodies, the SWIM program is to "improve" surface water quality of designated waterbodies, and the Growth Management Act, through the implementation of local comprehensive plans, is to "guide and control" future development.

In addition, no clear mandate exists requiring these plans be consistent with each other. On the other hand, clear directives for coordination among the agencies developing and implementing these plans do exist. Herein lies the potential for avoiding inconsistencies between SWIM, aquatic preserve, and local comprehensive plans.

### NATURE OF CONSISTENCY

All state statutes and programs must be consistent with the Florida Constitution. This document delineates the boundaries of permissible government limitation of individual rights, establishes the authority of various governmental entities, and announces specific state policies on a variety of subjects, including natural resources protection. If a program contravenes the constitution, it will be invalidated by the courts.

No similar form of judicial review requires that all state programs be consistent with each other in order to survive challenge, in the absence of specific statutory provisions requiring such consistency. Therefore, it is impossible to assess the consistency of these three different statutory programs with each other without first defining consistency.

The State Comprehensive Planning Act[1] requires that all state agency actions and programs be consistent with the goals and objectives of the State Comprehensive Plan.[2] One of the three

[1]Ch. 186, F.S.
[2]Adopted at Ch. 187, F.S.

statutes, the Growth Management Act, contains a definition of consistency: that one provision must not only be "compatible with" but also "further" the other to be considered consistent with it.[3] The SWIM Act similarly reinforces the State Comprehensive Planning Act by explicitly providing that it must be consistent with the State Comprehensive Plan, as well as the State Water Policy.[4] Therefore, all three programs must be consistent with the Florida Constitution and the State Comprehensive Plan.

**State Constitution**

The Florida Constitution generally supports the policy of protecting the surface waters of the state. Article II, Section 7 provides:

> It shall be the policy of the state to conserve and protect its natural resources and scenic beauty. Adequate provision shall be made by law for the abatement of air and water pollution and of excessive and unnecessary noise.

Article X, Section II of the Florida Constitution addresses waterbodies in particular, and provides that:

> The title to land under navigable water, within the boundaries of the state, which have not been alienated, including beaches below mean high water lines, is held by the state, by virtue of its sovereignty, in trust for all people. Sales of such lands may be authorized by law but only when in the public interest. Private use of portions of such lands may be authorized by law, but only when not contrary to the public interest.

Most states have similar public trust doctrines governing sovereignty of submerged lands, which are defined in Florida as encompassing beaches between mean high-water and mean low-water lines, islands within navigable waters, lands beneath lakes and rivers, and lands under the Gulf of Mexico and the Atlantic Ocean.[5] Navigability is determined with reference to the navigability of waters at the time Florida became a state in 1845, when the lands became vested in the ownership of the state of Florida.[6] The Aquatic Preserve Act, Chapter 258, F.S., establishes preserves in the most valuable of these sovereignty submerged lands, as discussed below.

**State Comprehensive Plan**

The intent of the Plan is to provide long-range guidance for the orderly growth of the state in all of its aspects. The Plan does not authorize action; it is implemented by actions authorized by other statutes. The statute provides for annual review of each section of the Plan by the

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[3] See, e.g., Ch. 163.3177(10)(a), F.S.

[4] The Aquatic Preserve Act predates and has not been amended to address the State Comprehensive Plan.

[5] *Brickell v. Trammell*, 77 Fla. 544, 82 So. 221 (1919).

[6] See Calvarese, Stephen C. et al, "State and Federal Regulation of Construction Activities in the Waters and Wetlands of Florida," in *Florida Environmental and Land Use Law*, Vol. I, page 4-22 through 4-39 for a detailed treatment of Chapter 253, F.S., governing sovereignty of submerged lands.

Executive Office of the Governor in cooperation with those state agencies significantly affected by the provisions under review.[7]

Water resources was one of the major concerns guiding the drafting of the Plan.[8] Several of its goals and policies are relevant to the restoration and preservation of surface waters.

*Water Resources*

The Water Resources goal is to "maintain the functions of natural systems and the overall present level of surface and ground water quality" and to "improve and restore the quality of waters not presently meeting water quality standards."[9] Policies implementing this goal include:[10]

- Identify and protect the functions of water recharge areas and provide incentives for their conservation
- Protect and use natural water systems in lieu of structural alternatives and restore modified systems
- Establish minimum seasonal flows and levels for surface watercourses with primary consideration given to the protection of natural resources, especially marine, estuarine, and aquatic ecosystems
- Discourage the channelization, diversion, or damming of natural riverine systems
- Encourage the development of a strict floodplain management program by state and local governments designed to preserve hydrologically significant wetlands and other natural floodplain features
- Protect aquifers from depletion and contamination through appropriate regulatory programs and through incentives
- Protect surface and groundwater quality and quantity in the state
- Eliminate the discharge of inadequately treated wastewater and stormwater runoff into the waters of the state, and

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[7]Ch. 186.007(8), F.S. The last revisions to the State Comprehensive Plan were in the 1990 legislative session. The Third Environmental Land Management Study Commission considered changes to the form and content of the State Comprehensive Plan, including recommendations for the adoption of a state vision, of a new implementing plan, known as the Strategic Growth and Development Plan, in place of the existing translational plans, and of processes for the regular review and update of the SCP. The Commission reaffirmed the primacy of the SCP in the state's planning and regulatory structure, but recommended integration of the local planning experience and greater coordination with state agencies, regional entities and local governments, consistent with the recommendations of this report. Environmental Land Management Study Committee. *Building Successful Communities*. Final Report. December 1992.

[8]See, e.g., Ch. 186.002(2), F.S.

[9]Ch. 187.201(8)(a), F.S.

[10]Id.

- Reserve from use that water necessary to support essential non-withdrawal demands, including navigation, recreation, and the protection of fish and wildlife.

*Coastal and Marine Resources*

The goal in this area is to "ensure that development and marine resource use and beach access improvements in coastal areas do not endanger . . . important natural resources" and for access and acquisition programs to be "consistent with sound environmental planning."[11] Policies implementing this goal include:[12]

- Accelerate public acquisition of coastal and beachfront land where necessary to protect coastal and marine resources or to meet projected public demand
- Avoid the expenditure of state funds that subsidize development in high-hazard coastal areas
- Protect coastal resources, marine resources, and dune systems from the adverse effects of development
- Encourage land and water uses that are compatible with the protection of sensitive coastal resources
- Protect and restore long-term productivity of marine fisheries habitat and other aquatic resources
- Avoid the exploration and development of mineral resources which threaten marine, aquatic, and estuarine resources
- Prohibit development and other activities that disturb coastal dune systems, and ensure and promote the restoration of coastal dune systems that are damaged, and
- Give priority in marine development to water-dependent uses over other uses.

*Natural Systems and Recreational Lands*

The goal in this area is to "protect and acquire unique natural habitats and ecological systems . . . and restore degraded natural systems to a functional condition."[13] Relevant implementing policies include:[14]

- Conserve forests, wetlands, fish, marine life, and wildlife to maintain their environmental, economic, aesthetic, and recreational values
- Acquire, retain, manage, and inventory public lands to provide recreation, conservation, and related public benefits

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[11]Ch. 187.201(9)(a), F.S.
[12]Id.
[13]Ch. 187.201(10)(a), F.S.
[14]Id.

- Prohibit the destruction of endangered species and protect their habitats
- Establish an integrated regulatory program to assure the survival of endangered and threatened species within the state
- Promote the use of agricultural practices which are compatible with the protection of wildlife and natural systems
- Encourage multiple use of forest resources, where appropriate, to provide for timber production, recreation, wildlife habitat, watershed protection, erosion control, and maintenance of water quality
- Protect and restore the ecological functions of wetlands systems to ensure their long-term environmental, economic, and recreational value
- Promote restoration of the Everglades system and of the hydrological and ecological functions of degraded or substantially disrupted surface waters
- Develop and implement a comprehensive planning, management, and acquisition program to ensure the integrity of Florida's river systems, and
- Emphasize the acquisition and maintenance of ecologically intact systems in all land and water planning, management, and regulation.

*Land Use*

The overall emphasis of this goal is on preservation of natural resources and enhancing the quality of life in the state. To further these ends, the goal is to direct development "to those areas which have in place, or have agreements to provide, the land and water resources, fiscal abilities, and service capacity to accommodate growth in an environmentally acceptable manner."[15] Implementing policies include:[16]

- Develop a system of incentives and disincentives which encourage a separation of urban and rural land uses while protecting water supplies, resource development, and fish and wildlife habitats
- Develop a system of intergovernmental negotiation for siting locally unpopular public and private land uses which considers . . . the impact on . . . important natural resources . . . [and]
- Consider, in land use planning and regulation, the impact of land use on water quality and quantity.

*Plan Implementation*

Finally, a goal of the State Comprehensive Plan addresses the issue of plan implementation and coordination. It provides that "[s]ystematic planning capabilities shall be integrated into

[15]Ch. 187.201(16)(a), F.S.
[16]Id.

all levels of government in Florida, with particular emphasis on improving intergovernmental coordination . . . "[17] Implementing policies relevant to this project include:[18]

- Ensure that each agency's functional plan and management process is designed to achieve the policies and goals of the state plan consistent with state law
- Ensure the development of comprehensive regional policy plans and local plans that implement and accurately reflect state goals and policies and that address problems, issues, and conditions that are of particular concern in a region, and
- Encourage the continual cooperation among communities which have a unique natural area, irrespective of political boundaries, to bring the private and public sectors together for establishing an orderly, environmentally, and economically sound plan for future needs and growth.

State Water Policy

The State Water Policy is intended to clarify the water policy expressed in various statutes and to provide guidance to local governments in the adoption of their comprehensive plans pursuant to the GMA.[19] It states generally that the waters of the state are an important resource that should be managed to conserve and protect natural resources and scenic beauty as well as realize the full beneficial use of the resource.[20] The general statements of policy include:[21]

- reserve from reasonable beneficial use that water necessary to support essential non-withdrawal demands, including navigation, recreation and the protection of fish and wildlife
- utilize, preserve, restore and enhance natural water management systems and discourage the channelization or other alteration of natural rivers, streams and lakes
- protect the water storage and water quality enhancement functions of wetlands, floodplains, and aquifer recharge areas through acquisition, enforcement of laws, and the application of land and water management practices which provide for compatible uses
- mitigate adverse impacts resulting from prior alteration of natural hydrologic patterns and fluctuations in surface and groundwater levels
- establish minimum flows and levels to protect water resources and the environmental values associated with marine, estuarine, freshwater and wetlands ecology, and
- restore and protect the quality of ground and surface water by ensuring high quality treatment for stormwater and wastewater.

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[17]Ch. 187.201(25)(a), F.S.

[18]Id.

[19]Rule 17-40.110(1), F.A.C. The State Water Policy also includes the water quality standards of Rules 17-3 and 17-302, and the SWIM rule, Rule 17-43. 17-40.120(1)-(3), F.A.C.

[20]Rule 17-40.110(2), F.A.C.

[21]Rule 17-40.310, F.A.C.

Permits to use water must be subject to a reasonable beneficial use standard which considers the effects of the use on the source of the water, such as water quality degradation and other harm to the resource.[22] Transport of water across District lines is subject to a public interest standard which includes consideration of the major environmental impacts of the proposed transfer.[23] The establishment of minimum flows and levels of waters is subject to considerations such as the effects on estuarine resources, fish and wildlife habitats, aesthetic and scenic attributes and water quality.[24]

Separate goals are established for surface water protection and management through DER, District and local stormwater management programs:[25]

- protect, preserve and restore the quality, quantity, and environmental values of water resources
- maintain, as much as practicable, the pre-development stormwater characteristics of sites; reduce stream channel erosion, pollution, siltation, sedimentation and flooding; reduce stormwater pollutant loadings to preserve or restore beneficial use; reduce loss of freshwater resources by encouraging reuse of stormwater; enhance groundwater recharge; maintain appropriate salinity regimes in estuaries; and handle stormwater management on a watershed basis
- eliminate discharge of inadequately managed stormwater, minimizing adverse impacts on the resource
- reduce unacceptable pollutant loading from older stormwater management systems by developing watershed management and stormwater master plans or District-wide or basin specific rules,[26] and
- such watershed master plans would not only prevent existing problems from becoming worse, but would also improve water quality and preserve or restore the values of natural systems.

The construction and operation of the facilities of the water management districts may not be harmful to the water resources and must be consistent with DER and District objectives. Harm is defined with reference to such factors as impact on water quality, fish and wildlife, and natural systems.[27] The State Water Policy is reviewed at least every four years.[28]

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[22]Rule 17-40.401, F.A.C.

[23]Rule 17-40.402, F.A.C. The authority of DER to prescribe the procedures governing such transfers through this rule has been upheld against a local government challenge as part of DER's authority to plan for the most beneficial use of the state's water resources. *Osceola County v. St. John's River Water Management District*, 486 So.2d 616 (5th DCA 1986), aff'd, 504 So.2d 385 (1987).

[24]Rule 17-40.405(1), F.A.C.

[25]Rule 17-40.420(1)(a)-(e), F.A.C.

[26]Watershed management goals to reduce pollutant discharges must be developed by the Districts for all watersheds in their boundaries, consistent with the NPDES program. Rule 17-40.420(4)(d), F.A.C. Goals for SWIM water bodies with adopted SWIM plans must be developed by 1994, or as scheduled by EPA if the water body receives stormwater discharges from systems required to obtain NPDES permits.

[27]Rule 17-40.420(3)(a)-(b).

[28]Rule 17-40.601(1), F.A.C.

Table 3. Summary of Aquatic Preserve, SWIM, and Local Comprehensive Planning Programs.

| | Aquatic Preserves | SWIM | Local Comprehensive Plans |
|---|---|---|---|
| **Popular Name** | Aquatic Preserve Act | SWIM Act | Growth Mgmt. Act |
| **Must Be Consistent With** | State Compr. Plan<br>Florida Constitution | State Compr. Plan<br>Florida Constitution<br>State Water Policy | State Compr. Plan<br>Florida Constitution |
| **Unit of Planning** | Aquatic Preserve | Water body | Local Government |
| **Lead Agency** | DNR | WMD | City or county |
| **State Oversight Agency** | DNR | DER | DCA |
| **Key Regional Entity** | DNR district office | WMD | RPC |
| **Florida Statutes Authority** | Chapter 258, Part II (ss. 258.35–258.46) | Sections 373.451–4596 | Chapter 163, Part II (ss. 163.3161-3215) |
| **Major Implementing Administrative Rule** | Chapter 18-20, F.A.C. | Chapter 17-43, F.A.C. | Chapter 9J-5, F.A.C. |
| **Planning Criteria** | None | Ch. 373.453(2)<br>Rule 17-43 | Ch. 163, Part II<br>Rule 9J-5 |
| **Primary Statutory Purpose** | Preserve exceptional state-owned submerged lands and associated waters | Protect and restore surface water quality | Plan for orderly future growth and development |
| **Primary Geographic Focus** | Designated submerged land area | Designated water-bodies and watershed | Individual city or county |
| **Regulatory Requirements** | Yes. Activities within preserves regulated by Board of Trustees (Governor and Cabinet). Act limits transfer or disposal of state-owned lands in preserves, permissible uses, and improvements. | None, but SWIM plan must contain programs and policies | Local governments must adopt land development regulations consistent with and implementing the plan. |
| **Provisions for Coordination** | Requires coordination in that title to preserves, management power over preserves & respon-sibility for water quality in preserves are handled by different agencies. DNR reviews and comments on dredge and fill applications. | Requires coordination with several listed agencies in preparing priority lists and SWIM plans.<br><br>Review and comment by listed agencies on SWIM plans. | Requires intergovern-mental coordination element in local plan. Requires consistency among local plan elements, between plan & regs & with regional & state plans. All state agencies must cooper-ate with local govts. in plan preparation. State agencies review & comment on local plans being evaluated by DCA. |
| **Key Planning Document** | Aquatic preserve man-agement plan | SWIM plan | Local comprehensive plan |
| **Primary Coastal Development Issue** | Dredge and fill practices, sale/lease of submerged lands | Surface water quality, stormwater runoff, and restoration | Land development and population growth |

### Summary

Clearly, there are many state policies in place which provide the framework for the three programs considered in this study, and by which proposed changes or enhanced coordination may be measured. However, it is also clear that many of these goals and objectives may, if pursued in isolation from the others, result in inconsistent and contradictory policies and programs. The statutory policies driving the three programs considered in this project are generally more narrow and thus more internally consistent, but there are similar concerns regarding consistency and compatibility among the programs.

## BRIEF DESCRIPTION OF THE THREE STATUTORY PROGRAMS[29]

### The Growth Management Act

The Local Government Comprehensive Planning and Land Development Regulation Act,[30] referred to herein as the Growth Management Act, establishes a scheme of state-mandated comprehensive planning covering all planning activities of local, regional and state governmental bodies. Each level of government is required to adopt a plan, meeting the minimum criteria of the state's implementing rules. Each local plan is required to be consistent with the regional planning council's comprehensive regional policy plan and the state comprehensive plan. Local land development regulations and development orders are required to be consistent with the local comprehensive plan. State agencies, such as the Department of Natural Resources and the Department of Environmental Regulation, prepare agency functional plans that must be consistent with the State Comprehensive Plan. Regional planning councils must prepare comprehensive regional policy plans that are consistent with state goals and tailored to the specific concerns of the eleven regions. Local governments must adopt comprehensive plans consistent with the comprehensive regional policy plan and the State Comprehensive Plan, and complying with the Growth Management Act and Rule 9J-5, Florida Administrative Code, which provides the minimum criteria each local plan is required to meet. Required elements of local comprehensive plans include a conservation element and a coastal management element for coastal areas. The conservation element provides for the "conservation, use and protection of natural resources in the area,"[31] and assesses water needs and sources.

The coastal management element sets forth "the policies that shall guide the local government's decisions and program implementation." Statutory objectives include:[32]

- Maintenance, restoration and enhancement of the overall quality of the coastal zone environment, including, but not limited to, its amenities and aesthetic values
- Continued existence of viable populations of all species of wildlife and marine life
- The orderly and balanced utilization and preservation, consistent with sound conservation principles, of all living and non-living coastal zone resources
- Avoidance of irreversible and irretrievable loss of coastal zone resources, and

[29]A summary of these programs is provided in Table 3.
[30]Ch. 163, part II, F.S.
[31]Ch. 163.3177(6)(d), F.S.
[32]Ch. 163.3177(6)(g)F.S.

- Ecological planning principles and assumptions to be used in the determination of suitability and extent of permitted development.

The statute further provides that the Legislature's intent is to restrict development activities where such activities would "damage or destroy coastal resources".[33]

Other relevant elements include a future land use element[34] and an infrastructure element that addresses issues such as sanitary sewer, drainage, and natural groundwater aquifer recharge.[35] After adopting the required plan, each local government must adopt land development regulations that are "consistent with and implement" the plan.[36] These regulations must, among other things, provide for drainage and stormwater management and "ensure the protection of environmentally sensitive lands designated in the comprehensive plan".

### The Surface Water Improvement and Management Act

The SWIM Act requires the five regional water management districts of Florida to plan for the improvement and protection of their surface waters and to coordinate statewide research on the causes and effects of surface water pollution.[37] Districts must prepare a list of priority surface waterbodies of regional or statewide significance most in need of either preservation or restoration, including the priority waterbodies identified in the Act.[38] The Act also creates the SWIM Trust Fund, from which districts may receive grants for up to eighty (80) percent of planning and land acquisition costs.[39] Rule 17-43, Florida Administrative Code, implements the SWIM Act. It describes the requirements and procedures for establishing the priority list, obtaining Trust Fund monies, and preparing the SWIM plans.

### The Aquatic Preserve Act

As early as 1969, the legislature established individual aquatic preserves. The state's obligation to manage sovereignty submerged lands in the public interest proved insufficient in protecting the most exceptional waterbodies of Florida. As a result, as early as 1969, the legislature established individual aquatic preserves. Many waterbodies located in regions of increasing urbanization, often subjected in the past to extensive dredge and fill for development, exploratory oil well drilling, shell and sand mining, pollution, and drainage for mosquito control were candidates for designation as preserves.[40] Concern over these problems motivated the passage, in 1975, of the Florida Aquatic Preserve Act. This Act incorporated earlier designated preserves and provided for the designation of new preserves.[41] As of 1992, forty-two

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[33]Ch. 163.3178(1), F.S.
[34]Ch. 163.3177(6)(a), F.S.
[35]Ch. 163.3177(6)(c), F.S.
[36]Ch. 163.3202(1), F.S.
[37]Ch. 373.451(6) and (7), F.S.
[38]Ch. 373.453(1), F.S.
[39]Ch. 373.451(8) and .453(4), F.S.
[40]Christie, Donna R. *Florida Coastal Law and Policy: Cases and Readings*. Sea Grant Project Number IR-83-5. Florida State University College of Law. 1985.
[41]The Biscayne Bay Aquatic Preserve was separately established in 1974 and has a separate set of management rules at Rule 18-18, F.A.C. In the event of conflict between the general act and the specific

preserves have been designated, mostly in coastal areas.[42] The intent of this Act is to preserve those state-owned submerged lands that have "exceptional biological, aesthetic and scientific value" forever "for the benefit of future generations."[43] The Act provides a procedure for establishing aquatic preserves, and places limits on the transfer or development of lands so designated. It also provides a procedure for establishing rules and regulations governing all human activity within preserves.[44]

## NATURE OF THE PROBLEM ADDRESSED BY THE THREE PROGRAMS

The earliest of the three programs is the Aquatic Preserve program. It was motivated by concern over the possible degradation of exceptional waterbodies. It does not regulate privately owned lands or waters, although the condition of such lands and waters certainly affects the quality of the sovereignty submerged lands. Rather, it is a set of principles to guide the Board of Trustees of the Internal Improvement Fund in managing the state's property while accommodating public, water-dependent uses. The statutory goal is to ensure the preservation of existing waterbodies of exceptional value forever.

In contrast, the SWIM Act is concerned with improving the quality of all of the surface waters of Florida, whatever their ownership. The Legislature identified specific and immediate problems, such as the fact that the water quality of many of the "surface waters of the state" were in danger of becoming or were already degraded. The natural systems associated with the waters were being altered so that the waters no longer performed their normal functions, such as providing the people of Florida with aesthetic and recreational pleasure; providing habitat for native plants, fish and wildlife; ensuring a safe drinking water supply; and attracting visitors and other economic benefits to the state.[45]

The Legislature also found that declining water quality was detrimental to the rights of the public to enjoy state-owned waters, and that it was the duty of the state to enhance the environmental and scenic values of such waters.[46] Factors contributing to the decline in the ecological, aesthetic, recreational and economic value of the waters were identified as point and non-point source pollution and the destruction of natural systems, which normally purify the surface waters and provide habitats.[47] Finally, the Legislature found in enacting the SWIM program that these water problems could be corrected and prevented through surface water improvement and management programs planned, designed and implemented by the water management districts and local governments.[48] The SWIM act takes a larger view than the Aquatic Preserve Act, and thus has the potential to address more of the activities and conditions that affect the viability and quality of a waterbody.

In Ch. 163, the Legislature expressed an intent that local government comprehensive plans restrict development activities where these activities would destroy or damage coastal resources as well as protect human life and limit public expenditures in areas that are subject to

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Biscayne Bay rules, the stronger provision prevails. Ch. 258.39(27), F.S. Rule 18-18 regulates privately owned submerged lands, unlike the general Act.

[42]Ch. 258.35 -.394 and 258.40 -.46, F.S.

[43]Ch. 258.36, F.S.

[44]Ch. 258.43, F.S.

[45]Ch. 373.451(2), F.S.

[46]Ch. 373.451(3), F.S.

[47]Ch. 373.451(4), F.S.

[48]Ch. 373.451(5), F.S.

destruction by natural disaster.[49] This section is unique in that the Legislature failed to express such explicit policies regarding the many other elements of comprehensive plans required in Chapter 163. Moreover, coastal elements are subject to an additional consistency requirement: that they be consistent with coastal resource plans prepared and adopted pursuant to general or special law.[50]

The Legislature made no specific findings in adopting the bill containing the bulk of the GMA. However, in a separate bill requiring the local comprehensive plans to include a groundwater aquifer recharge element, the Legislature found that:

- the protection and management of the freshwater resources of the state is of the utmost importance to the health, economy and welfare of Florida's citizens.[51]

The Growth Management Act was designed to address a broad range of problems facing Florida, only one of which is natural resource protection. It replaced the former zoning enabling act with a recognition of the broad land use planning and development regulation powers of all local governments under the Florida Constitution.[52] The Legislature found the Growth Management Act necessary for local governments to preserve and enhance present advantages; encourage the most appropriate use of land, water and resources, consistent with the public interest; overcome present handicaps; and deal effectively with future problems that may result from the use and development of land within their jurisdictions.[53] It required local planning and regulation to: further a larger agenda, supplied by regional and state plans; be consistent with each other; and meet uniform minimum criteria for data, analysis and scope established by the Act and its implementing rule, 9J-5.

## GOALS AND INTENT OF THE THREE PROGRAMS

### The Growth Management Act

The stated purpose of this Act is to strengthen the existing roles, processes and powers of local governments in the establishment and implementation of comprehensive planning programs to guide and control future development.[54] The Act also states that future public and private development may be permitted only if it is in conformity with comprehensive plans adopted under the Act.[55] This provision has been interpreted to create a legal duty in local governments to permit only conforming development, similar to the local governmental duty to pass ordinances that are reasonable.[56]

The Legislature stated that the implementation of the Act constituted the minimum requirements necessary to achieve the above-stated purposes; to protect human, environmental, social, and economic resources; and to maintain, through orderly growth and development, the character and stability of present and future land use and development in Florida.[57] Finally,

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[49]Ch. 163.3178(1), F.S.
[50]Ch. 163.3178(2), F.S.
[51]Preamble, Law 85-42, Laws of Florida.
[52]Ch. 163.3161(8), F.S.
[53]Ch. 163.3161(3), F.S.
[54]Ch. 163.3161(2), F.S.
[55]Ch. 163.3161(5), F.S.
[56]*Citizens Growth Management Coalition of West Palm Beach, Inc. v. City of West Palm Beach*, 450 So.2d 204 (1984).
[57]Ch. 163.3161(7), F.S.

the Act was intended to encourage and assure (i) cooperation between and among municipalities and counties, and (ii) coordination of planning and development activities of units of local government with the planning activities of regional planning agencies and state government, as allowed by law.[58]

### The SWIM Act

The SWIM Act established two programs to restore and manage surface waters. First, each water management district must develop plans and programs to manage and improve its surface waters.[59] Second, the Department of Environmental Regulation must conduct or coordinate statewide research aimed at improving the understanding of the causes and effects of surface water pollution and the destruction of natural systems, to provide a better basis for the required plans and programs.[60]

### The Aquatic Preserve Act

The legislative intent of this act was to set aside, forever for the benefit of future generations any state-owned submerged lands with exceptional biological, aesthetic, and scientific value as sanctuaries.[61]

### Comparison

The Growth Management Act (GMA) is intended to control many of the activities that cause the water quality problems identified by the Legislature in the SWIM Act, such as development, which increases point and non-point source pollution and displaces or destroys natural systems for water purification. The GMA's thrust is to accommodate such development so long as it is consistent with the planning scheme, which in turn is consistent with the State Comprehensive Plan. Thus, the effectiveness of the GMA is almost entirely dependent on the quality of each of the various state, regional and local comprehensive plans it authorizes, and cannot readily be assessed in isolation. Similarly, activities may proceed in areas subject to the SWIM Act and the Aquatic Preserve Act, so long as they conform to the principles of the SWIM or the Aquatic Preserve statutes, rules and plans, respectively. The emphasis on preservation is strongest in the intent of the Aquatic Preserve Act but, as discussed below, the implementing regulations allow many activities to proceed within the preserves. The most obvious difference between the intent of the GMA and the intent of the two other programs is that the GMA balances a far greater range of competing goals and objectives against the preservation and restoration of surface water quality.

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[58]Ch. 163.3161(4), F.S.

[59]Ch. 373.451(6), F.S.

[60]Ch. 373.451(7), F.S. Note, however, that the Legislature has never appropriated money to DER to implement the SWIM program. According to DER staff, one result is that this particular provision has not been implemented.

[61]Ch. 258.36, F.S.

## SCOPE OF PROGRAMS

### The Growth Management Act

The units of planning under the Growth Management Act most relevant to individual waterbodies are the regional planning council and the local government (whether county or municipality). They must meet the requirements of the Act for all of their jurisdiction.[62] Charter counties have the option of adopting county-wide planning for the incorporated areas as well as the unincorporated county, thus creating an intermediate planning unit between the region and local government.[63] Only a few counties have implemented this option.

Regarding special districts, the Legislature enacted the Uniform Special District Accountability Act of 1989 to provide in one chapter for the definition, creation and operation of special districts. As part of this act, the Legislature expressed its intent to improve communication and coordination between special districts and other local entities regarding local government comprehensive planning.[64] The act also established that the policy of the state is that independent special districts (as defined in the act) exercise their powers in compliance with all applicable governmental comprehensive planning laws, rules and regulations.[65] Finally, the Legislature recognized in a finding of fact that growth and development issues transcend the boundaries and responsibilities of individual units of local government, and that the actions of one unit of government will affect other units of government.[66]

The focus of the act is upon general reporting and informational requirements, especially with regard to financial disclosure and the construction, expansion or major alteration of capital facilities. One of the reporting requirements provides an opportunity for coordination of policy regarding public facilities that may affect coastal waterbodies. Beginning in March of 1991, independent special districts must submit annual public facility reports to the local general purpose governments in which they are located, which describes their existing facilities and plans for changes or additions to these facilities for at least the next five years.[67] The report also must address existing and projected capacity and demand statistics relevant to these facilities. The act further explicitly provides that local governments may rely upon these annual reports in the preparation of their comprehensive plans pursuant to the GMA.

The act goes beyond procedural reform in that it requires that all construction, expansion, or major alterations[68] to public facilities by special districts be consistent with the applicable local comprehensive plan.[69] However, this requirement is severely limited in that the act specifically rejects the local government's ability to require through its comprehensive plan that independent special districts construct, expand, or alter facilities.[70] The local plan may

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[62]Ch. 163.3171(1), F.S.

[63]Ch. 163.3171(2) and 163.3174(1)(b), F.S. The provisions of the charter control on this point.

[64]Ch. 189.402(2)(c), F.S.

[65]Ch. 189.402(4)(b), F.S.

[66]Ch. 189.402(8)(a), F.S.

[67]Ch. 189.415(2)(a)-(e), F.S. Deepwater ports may submit their comprehensive master plans prepared pursuant to Ch. 163.3178(2)(k), F.S., and all other ports are required to submit these annual reports.

[68]Defined in the act as those alterations affecting the quantity or quality of the level of service for that facility. Ch. 189.4155(1), F.S.

[69]Ch. 189.4155(1), F.S. Water management districts and regional water supply authorities are specifically excluded from this requirement. Ch. 189.4155(3), F.S. However, the act requires water management districts to provide technical assistance to loca governments in their development of local comprehensive plan elements to water resource issues. Ch. 189.4156, F.S.

[70]Ch. 189.4155(1)(a), F.S.

impose such requirements on dependent special districts, but only to the extent that the requirements do not impair any covenants or agreements related to bonds issued by that district.[71] Moreover, if either type of special district possesses a development order for a public facility project, this section may not be used to limit or modify the district's rights under the development order.[72] Finally, the Legislature provided that this section was not intended to alter the respective rights of local governments and special districts to provide facilities or services in a given geographical area or to affect the extent of the local police power or requirements under Ch. 163.[73]

### The SWIM Act

The unit of planning in this program is the priority waterbody. The statute and rule provide qualitative criteria by which such waterbodies are designated, including several measures of water quality, biological condition, and threats to recreational uses and to the public water supplies.[74] No physical or geographic area criteria are addressed.

### The Aquatic Preserve Act

An Aquatic Preserve is defined as an "exceptional area of submerged lands and its associated waters set aside for being maintained essentially in its natural or existing state."[75] Preserves are classified into three types, of primarily biological, aesthetic or scientific value.[76] Aquatic Preserves may include only lands or water bottoms owned by the state.

Privately owned lands or waters and lands or waters owned by other governmental agencies may be included in preserves by the agreement of the private owner or the governmental agency.[77] This agreement must include a lease of at least ten years duration, at a rental of no more than one dollar per year,[78], e.g., Cockroach Bay (Port Authority land). The Board of Trustees may terminate any lease if that would be in the best interests of the Aquatic Preserve system, and may provide for the management of such lands.[79] The Act exempts two categories of property: (i) publicly owned and maintained navigation channels and similar public works

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[71]Ch. 189.4155(1)(b), F.S.
[72]Ch. 189.4155(2), F.S.
[73]Ch. 189.4155(4), F.S.
[74]Ch. 373.453(1)(b), F.S. and Rule 17-43.030(1), F.A.C.
[75]Ch. 258.37(1), F.S. The "essentially natural condition" is defined as those functions which support the continued existence or encourage the restoration of the diverse population of indigenous life forms and habitats to the extent they existed prior to the significant development adjacent to and within the preserve. Rule 18-20.003(14).
[76]Ch. 258.37(2)-(4), F.S. "Aesthetic value" is defined as scenic characteristics or amenities of the preserve in its essentially natural state or condition, or the maintenance thereof. Rule 18-20.003(3), F.A.C. "Biological value" is defined as the preservation and promotion of indigenous life forms and habitats, with a representative list included. Id. at (7). "Scientific value" is defined as the preservation and promotion of certain qualities or features which have scientific significance. Id. at (36).
[77]Ch. 258.40(1) and Rule 18-20.008(1)-(2), F.A.C.
[78]Rule 18-20.008(3), F.A.C.
[79]Rule 18-20.008(3)(b), F.A.C.

designed to enhance navigation or commerce,[80] and (ii) lands lost by avulsion or artificially induced erosion.[81]

The Act further provides that it may not infringe upon the traditional riparian rights of property owners adjacent to or within the preserves. It recognizes that improvements for access, mosquito control, shore protection, public utility, surface water drainage, oil and gas transportation, and other purposes may be allowed within preserves.[82] The Aquatic Preserve Act is explicitly made subject to the provisions of the Electrical Power Plant Siting Act, which establishes the process for application and review of power projects by the Department of Environmental Regulation.[83]

### Comparison

The scope of each of these three programs is different, both geographically and in terms of what is regulated or addressed by each program. The GMA requirements apply to all local governments, while the other two programs come into play only in designated areas. The GMA is defined exclusively by political jurisdictional boundaries, while the SWIM and Aquatic Preserve programs are defined by the boundaries of the resource. However, the definition of the resource is far narrower in the Aquatic Preserve program than in the SWIM program. The SWIM plans are based on a watershed-level unit of analysis, the unit most likely to take into account all of the factors affecting a single waterbody.

## PLANNING REQUIREMENTS

### The Growth Management Act

First, each local government must establish a local planning agency that is responsible for developing a recommended plan and set of land development regulations for the local governing body.[84] Generally, the plans must: be internally consistent among the various elements; further the goals and objectives of the State Comprehensive Plan and the region's comprehensive policy plan; comply with the statute and with Rule 9J-5; identify mechanisms for implementation including measurable objectives, policies, programs and activities; and ensure intergovernmental coordination with other local governments, the regional planning council, the regional water management districts, and state and federal agencies as needed.[85]

Rule 9J-5 establishes in detail the requirements for local plan content.[86] As an example, the conservation element must inventory specific natural resources, including rivers, bays, lakes, wetlands, estuarine marshes, fisheries, and marine habitats.[87] It must identify the existing

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[80]Ch. 258.40(2), F.S.
[81]Ch. 258.40(3), F.S.
[82]Ch. 258.44, F.S.
[83]Ch. 258.45, F.S. The Electrical Power Plant Siting Act is codified at Ch. 403.501 through 403.518, F.S.
[84]Ch. 163.3174, F.S.
[85]Ch. 163.3177(9), F.S.
[86]See above at Brief Description for statutory provisions re: coastal management, conservation and infrastructure elements.
[87]Rule 9J-5.013(1)(a), F.A.C.

uses, known pollution problems, and potential for conservation, use, or protection.[88] The goals of the element must establish the long-term end toward which the conservation programs and activities are ultimately directed.[89] The objectives must address the requirements discussed above in the Brief Description, as well as conserve, appropriately use, and protect (i) the quality and quantity of current and projected water sources and waters that flow into estuarine or oceanic waters; and (ii) fisheries, wildlife, wildlife habitat, and marine habitat, among other things.[90]

Conservation policies must include implementation activities addressing topics including:[91]

- protection of water quality by restriction of activities known to adversely affect quantity and quality of identified water sources including existing cones of influence, water recharge areas and waterwells
- restriction of activities known to adversely affect the survival of endangered and threatened wildlife
- protection and conservation of the natural functions of existing soils, fisheries, wildlife habitats, rivers, bays, lakes, floodplains, harbors, wetlands including estuarine marshes, freshwater beaches and shores, and marine habitats
- protection of existing natural reservations identified in the recreation and open space element
- continuing cooperation with adjacent local governments to conserve, appropriately use, or protect unique vegetative communities located within more than one jurisdiction, and
- designation of environmentally sensitive lands for protection based on locally determined criteria which further the goals and objectives of the conservation element.

The coastal management element must include extensive data and analysis. It must inventory existing land uses, with identification of the need for development sites for water-dependent uses and the location of existing water-dependent uses.[92] The effect of the plan's future land uses on natural resources in the coastal region must be estimated.[93] An inventory of estuarine pollution conditions and actions needed to maintain estuaries, taking into account the development and facilities proposed in the other elements of the plan, and of existing programs which may be used to maintain or increase estuarine quality is required.[94] Inventories of beach and shore systems, public beach or shore access facilities, and existing infrastructure are also required.[95] Finally, extensive data and analysis regarding natural disaster planning, including the designation of a coastal high-hazard area, are required.[96] This is important to natural resource protection because of the damage to the resources inflicted by buildings, roads and bridges breaking up during a severe storm. For example, the normal drainage patterns of southern Dade County canals were severely disrupted in 1992 by Hurricane Andrew. Debris,

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[88]Rule 9J-5.013(1)(b), F.A.C.
[89]Rule 9J-5.013(2)(a), F.A.C.
[90]Rule 9J-5.013(2)(b), F.A.C.
[91]Rule 9J-5.013(2)(c), F.A.C.
[92]Ch. 163.3178(2)(a) and (g); Rule 9J-5.012(2)(a), F.A.C.
[93]Ch. 163.3178(2)(b); Rule 9J-5.012(2)(b), F.A.C.
[94]Ch. 163.3178(2)(c); Rule 9J-5.012(2)(d), F.A.C.
[95]Ch. 163.3178(2)(e) and (g); Rule 9J-5.012(2)(f)-(h), F.A.C.
[96]Ch. 163.3178(2)(d), (h) and (j); Rule 9J-5.012(2)(e), F.A.C.

especially from vegetation lining the banks of these canals, impeded water flow and increased the amount of sediment in the water.

The goal statement of the coastal management element must reflect the statutory intent that the plan restrict development activities that would damage or destroy coastal resources, and protect human life and limit public expenditures in areas subject to natural hazards.[97] Objectives must address subjects such as:[98]

- protect, conserve or enhance remaining coastal wetlands, living marine resources, coastal barriers, and wildlife habitat
- maintain or improve estuarine environmental quality
- provide criteria or standards for prioritizing shoreline uses, giving priority to water-dependent uses
- protect beaches or dunes, establish construction standards which minimize the impacts of man-made structures on beach or dune systems, and restore altered beaches or dunes
- limit public expenditures that subsidize development permitted in coastal high-hazard areas except for restoration or enhancement of natural resources, and
- direct population concentrations away from known or predicted coastal high-hazard areas.

Policies must identify regulatory and management techniques for:[99]

- limiting the specific and cumulative impacts of development or redevelopment upon wetlands, water quality, water quantity, wildlife habitat, living marine resources, and beach and dune systems
- restoration or enhancement of disturbed or degraded natural resources including beaches and dunes, estuaries, wetlands, and drainage systems, and programs to mitigate future disruptions
- general hazard mitigation and identification of coastal high-hazard areas
- establishing priorities and performance standards for shoreline land uses and developments, and criteria for marina siting that address: existing protective status or ownership, protection of water quality, water depth, environmental disruptions and mitigation actions, among others
- the orderly development of deepwater ports if applicable[100]
- protecting estuaries that are within the jurisdiction of more than one local government, including methods for coordinating with other local governments to ensure adequate sites

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[97]Ch. 163.3178(1); Rule 9J-5.012(3)(a), F.A.C.

[98]Rule 9J-5.012(3)(b), F.A.C.

[99]Rule 9J-5.012(3)(c), F.A.C.

[100]Local governments over a certain population threshold must include a separate port element, if applicable. Ch. 163.3177(7)(b), F.S. and Rule 9J-5.009, F.A.C. Deepwater ports must prepare a port master plan meeting the requirements of Rule 9J-5.012(4), F.A.C.

for water-dependent uses, prevent estuarine pollution, control surface water runoff, protect living marine resources, among other things, and

- demonstrating how the local government will coordinate with existing resource protection plans such as resource planning and management plans, aquatic preserve management plans, and estuarine sanctuary plans.

All development must be consistent with the local comprehensive plans, as must the local development regulations.[101] The strictness of the interpretation of consistency has varied among Florida's District Courts of Appeal, and the subject has not been settled by the Florida Supreme Court.[102]

## The SWIM Act

### *Identification of Priority Waterbodies*

Each water management district, in cooperation with several state agencies and the local governments within its jurisdiction, is required to prepare and maintain a list of priority waterbodies, ranked by their regional or statewide significance.[103] The list must be reviewed and updated every three years; the first lists were adopted in 1987.

Criteria for selection and ranking are detailed in Rule 17-43:[104]

- The degree to which state water quality standards are violated, as determined by the following factors:

    1. Status and trends of water quality in the waterbody, including nature and extent of pollution loading from point and non-point sources and extent to which uses are impaired

    2. Whether waterbody can reasonably be expected to meet or maintain water quality standards without actions to control pollution sources, and

    3. Nature and extent of pollution sources which contribute to violation of standards.

- The nature and extent of conditions that adversely affect the waterbody, including:

    1. Nutrient balance

    2. Trophic state

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[101]Ch. 163.3194, F.S. Consistency is defined generally as "compatible with and furthers;" more specific definitions are given at 163.3194(3)-(4).

[102]For example, in *Machado v. Musgrove*, 519 So.2d 629 (3d DCA 1987), the Third District held that rezonings that were inconsistent with the plan were subject to strict scrutiny. In *Southwest Ranches Homeowners Ass'n, Inc. v. Broward County*, 502 So.2d 931 (4th DCA 1987), rev. denied, 511 So.2d 999, the Fourth District chose not to adopt a strict scrutiny rule.

[103]Ch. 373.453(1)(a), F.S. The state agencies include the Department of Environmental Regulation, the Department of Agriculture and Consumer Services, the Department of Community Affairs, the Game and Freshwater Fish Commission, and the Department of Natural Resources.

[104]Rule 17-43.030(1)(a)-(g), F.A.C.

3. Existence of or need for continuous aquatic weed control

4. Biological condition

5. Physical condition, and

6. Reduced fish and wildlife values.

- Threats to water supplies for agriculture and urban uses, and to public recreational opportunities, as measured by two factors:

  1. Whether uses of waterbody are impaired, including whether waterbody does not meet state water quality standards or can meet them only with control programs, and

  2. Whether conditions intermittently or frequently prevent a beneficial use.

- Threats to or need for long-term protection of exceptional or outstanding waterbodies currently in good condition

- The extent to which plans, ordinances, and policies of local governmental units with jurisdiction over the waterbody are consistent with the water management district's protection or restoration efforts

- The feasibility of monitoring the success of restoration or protection efforts in the waterbody, and

- The economic and environmental feasibility of accomplishing the restoration or protection goals.

The SWIM Act itself lists specific waterbodies deemed by the Legislature to be priority waterbodies. This list includes all of the waterbodies examined in this study.[105]

The water management district priority lists must be approved by the Department of Environmental Regulation (DER), which must establish a uniform format for SWIM plans and a schedule for reviewing and updating the plans.[106] Lists and supporting documentation must be submitted to DER for approval, and reviewed and updated at least every three years.[107]

*Content of SWIM Plans*

Each water management district must prepare a SWIM plan for each waterbody on the priority list, in cooperation with the same state agencies and local governments as the priority lists.[108] The plans *must* include a list of components, and *may* include others. The required components are:[109]

- A description of the waterbody system, historical and current uses, hydrology, and the history of the conditions leading to the need for restoration or protection

[105]Ch. 373.453(1)(c). See also Rule 17-43.100, Table 1, F.A.C.
[106]Ch. 373.453(2), F.S.
[107]Rule 17-43.030(2) and (4), F.A.C.
[108]Ch. 373.453(2), F.S.
[109]Ch. 373.453(2)(a)-(j) and Rule 17-43.035(1)(a)-(k), F.A.C.

- An identification of all governmental units that have jurisdiction over the waterbody and its drainage basin within the approved SWIM plan area, including local, regional, state and federal units
- A description of the land uses within the drainage basin of the approved plan area and the land uses around important tributaries, point and non-point sources of pollution, and permitted discharge activities
- A list of owners of point and non-point sources of pollution discharged into each waterbody and tributary thereto, that adversely affect the public interest
- A separate list of sources that are operating without a permit, operating with a temporary operating permit, or presently violating effluent limits or water quality standards
- Recommendations and schedules for bringing all sources into compliance with state standards, when not contrary to the public interest
- A description of strategies or potential strategies to restore or protect the waterbody to Class III or better
- A listing of studies that are being or have been prepared for the waterbody
- A list and current status of active restoration or protection projects for the waterbody
- A description of research and feasibility studies to be performed to determine strategies to restore or protect the waterbody
- A description of measures needed to manage and maintain the waterbody once restored, and to prevent future degradation
- A schedule for restoration and protection of the waterbody, and
- An estimate of funding necessary to carry out restoration or protection strategies.

The water management districts are also responsible for planning and coordinating restoration and protection strategies for priority waterbodies. Water management districts are given the authority to contract with other governmental agencies or private entities for all or portions of the SWIM plans.[110]

DER reviews the SWIM plans to determine (1) whether the costs described in the plan are reasonable estimates of actual costs, (2) the likelihood that the plan will significantly improve or protect water quality and associated natural resources, and (3) whether the plan activities can be funded based on the available revenues of the SWIM Trust Fund, or other funding proposed by DER, the district, or local governments.[111] If DER makes a negative determination as to these criteria, then it must recommend modifications or additions to the plan to address these problems.[112]

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[110]Ch. 373.453(6), F.S.
[111]Ch. 373.455(2)(a), F.S.
[112]Ch. 373.455(2)(b), F.S.

DER also has the exclusive authority to determine whether the plan is consistent with the State Comprehensive Plan and the State Water Policy.[113] If DER finds the plan inconsistent, it must recommend changes to the governing board of the relevant water management district. However, the governing board may choose to adopt the plan without making the recommended changes, if it states the reasons for doing so.[114] Substantially revised plans must also be submitted for consistency review if they significantly impact the completion of any portion of the adopted plan or add new plan strategies.[115]

### The Aquatic Preserve Act

The majority of Aquatic Preserves were designated prior to the passage of the Aquatic Preserve Act. The Act provides for an alternative method of establishing preserves. The Board of Trustees of the Internal Improvement Fund may establish Aquatic Preserves by a resolution describing the area, designating the type of preserve, stating generally what is sought to be preserved, and clearly establishing management responsibilities for the area, subject to confirmation of the Legislature.[116] The resolution must also require the development of a natural resource inventory and management plan for the new preserve,[117] and is recorded in local land records.[118] If the property falls into one of the two categories of exemptions discussed above[119], the resolution must also include the required agreement with the owner. Preserve designation may not be withdrawn except by act of the Legislature.

The Division of State Lands of the Department of Natural Resources is responsible for the development of a resource inventory and management plan for each preserve.[120] Management plans have been developed for thirty-nine of the forty-two Aquatic Preserves, using Coastal Zone Management grants.[121] Plans are implemented by DNR rules and onsite management, and by coordination with other agencies regarding review of permit applications and coastal development planning.

### Comparison

The statutory and rule requirements for local comprehensive plans and for SWIM plans are quite detailed. In contrast, the Aquatic Preserve statute and rule merely authorize the preparation of plans, without specifying what is required of these plans. Both the SWIM and local comprehensive plan provisions are concerned with intergovernmental coordination. DNR, as manager of aquatic preserves, coordinates with DER whenever a proposed activity within a preserve requires a DER permit. It uses the information DER collects, through the permit application and the biological survey, in drafting its recommendations to the Board of Trustees

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[113]Ch. 373.456(2), F.S. and Rule 17-43.035(4), F.A.C. However, DCA reviews and comments on SWIM plans regarding their impact on Areas of Critical State Concern and the State Comprehensive Plan, as discussed below. Ch. 373.455(6), F.S.

[114]Ch. 373.456(5), F.S.

[115]Rule 17-43.035(6), F.A.C.

[116]Ch. 258.41(3), F.S. and Rule 18-20.009(3), F.A.C.

[117]Rule 18-20.009(3), F.A.C.

[118]Ch. 258.41(7), F.S.

[119]Privately owned lands and lands owned by other governmental entities.

[120]Rule 18-20.013(1), F.A.C.

[121]Rule 18-20.013, F.A.C., directs the Division of State Lands of DNR to develop resource inventory and management plans for each preserve, either itself or through agreements with other entities.

regarding whether the activity should be allowed.[122] However, coordination in planning for preserves is specified by Chapter 258 or Rule 18-20.[123] Generally, the Aquatic Preserve scheme's emphasis is on regulations rather than plans.

## REGULATORY REQUIREMENTS

### The Growth Management Act

Under the GMA, local governments must adopt land development regulations consistent with and implementing the plan. These land development regulations at a minimum must provide for the regulation of areas subject to seasonal and periodic flooding and provide for drainage and stormwater management, and the protection of environmentally sensitive lands designated in the plan, among other things.[124]

### The SWIM Act

The SWIM plans must contain programs and policies to achieve the purposes of the SWIM program, but no separate provision is made for regulation of development.

### The Aquatic Preserve Act

The Bureau of Submerged Lands and Preserves, Division of State Lands, provides staff management of the Aquatic Preserves on behalf of the Board of Trustees. The Act places limits upon the transfer or disposal of state-owned lands in the preserve, permissible uses and improvements. All transfers are subject to a public interest standard.[125] The statutes specify standards for some uses such as aquaculture, which is presumed to be in the public interest if located on or within six inches above the substrate, and limited to areas which will not destroy grassbeds, natural flows of water, or other natural values the preserve program is intended to protect.[126] The Board of Trustees also may not approve the relocation of bulkhead lines waterward of the mean high water line except when public road and bridge construction projects show that such relocation is not contrary to the public interest and there is no reasonable alternative.[127] The Board may accept gifts of property interests in lands within or near preserves to maintain or enhance the quality and utility of the preserve,[128] and may exchange lands if the exchange meets a similar public benefit test.[129]

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[122]Rule 18-20.016, F.A.C.
[123]Rule 18-20.013, F.A.C.
[124]Ch. 163.3202(2)(a)-(h).
[125]"Public interest" is defined as demonstrable environmental, social and economic benefits which would accrue to the public at large as a result of a proposed action, and which would clearly exceed all demonstrable environmental, social, and economic costs of the proposed action. In determining the public interest, the Board of Trustees must consider the ultimate project and purpose to be served by the transfer, activity, use, etc. Rule 18-20.003(25), F.A.C.
[126]Ch. 258.42(1), F.S. and Rule 18-20.004(1)(b), F.A.C.
[127]Ch. 258.42(2), F.S.
[128]Rule 18-20.011, F.A.C.
[129]Rule 18-20.010(1)-(2), F.A.C.

The Act's implementing rules regulate activities within preserves;[130] in evaluating applications for activities within the preserves, DNR is required by rule to consider the cumulative impacts of any activity upon the entire preserve's natural system.[131] As part of this evaluation, DNR considers:[132]

- the number and extent of similar human actions within the preserve that may cumulatively affect the preserve, including those actions taken prior to the Act
- similar activities within the preserve that are currently under DNR consideration
- direct and indirect effects upon the preserve and adjacent preserves that may be reasonably expected to result from the activity
- the extent to which the activity is consistent with the preserve management plan, if developed
- the extent to which the activity is permissible within the preserve under local comprehensive plans and other local, state and federal plans
- the extent to which the loss of beneficial hydrologic and biologic functions would adversely impact the quality[133] or utility[134] of the preserve, and
- the extent to which mitigation may compensate for adverse impacts.

Dredging and filling is proscribed by the Act, but is allowed for the following purposes:[135]

- the minimum necessary for public navigation projects[136]
- the minimum necessary to create and maintain marinas, piers, docks, and related navigation channels
- alteration of physical conditions, which in the opinion of the Board of Trustees, is necessary to enhance the quality or utility of the preserve or the public health, and which are consistent with the Act
- maintenance dredging for existing navigation channels
- installation or maintenance of approved navigation aids

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[130]Preserves are also subject to the requirements of the general rule regarding sovereignty submerged lands, Rule 18-21. The provisions of 18-20 are supplemental to this basic rule. Rule 18-20.004, F.A.C.

[131]Rule 18-20.006, F.A.C.

[132]Rule 18-20.006(1)-(7), F.A.C.

[133]"Quality of the preserve" is defined as the degree of biological, aesthetic and scientific values of the preserve necessary for present and future enjoyment of the preserve in an essentially natural condition. Rule 18-20.003(29), F.A.C.

[134]"Utility of the preserve" is defined as fitness of the preserve for the present and future enjoyment of its biological, aesthetic and scientific values, in an essentially natural condition. Rule 18-20.003(41), F.A.C.

[135]Ch. 258.42(3)(a), F.S. and Rule 18-20.004(1)(d)-(e), F.A.C.

[136]The Act defines public navigation projects as projects primarily for navigation purposes, authorized and funded by the U.S. Congress or by port authorities defined in Ch. 315.02(2). This definition excludes inlet districts. In an administrative hearing, this exclusion was held valid, as rationally related to the statute's intent to minimize dredging. *Jupiter Inlet District v. Department of Natural Resources,* DOAH 86-2751R, 9 FALR 4047 (1987).

- creation or maintenance of a shore protection structure
- reasonable improvements necessary for public utility installation and or expansion
- installation and maintenance of oil and gas transportation facilities, if properly marked with marine aids to navigation.

Dredging seaward of bulkhead lines to provide fill to areas landward of the line is prohibited, as is the drilling of oil or gas wells.[137] However, the Act allows the lease of oil and gas rights and exploratory drilling from outside the preserve if the Board of Trustees approves. The only excavation of minerals allowed within a preserve is the DNR-approved dredging of dead oyster shells.[138]

The erection of structures within preserves is also limited. The Board of Trustees may approve:[139]

private residential docks for reasonable access of riparian owners;

- private residential multi-slip docks, if within a reasonable distance of a publicly maintained navigation channel or other channel adequate to accommodate the watercraft for which the dock is designed without adversely affecting marine resources;[140]
- commercial docking facilities shown to be consistent with the use or management criteria of the preserve, subject to the same reasonable distance criteria; and
- shore protection structures, including restoration of seawalls[141], approved navigational aids, public utility crossings meeting the dredging standards above.

Structures may not be prohibited solely because of the local government's failure to adopt a marina plan or structure siting policies in the comprehensive plan.[142]

Wastes or effluent, whether permitted or not, may not be discharged into preserves if such a discharge would substantially inhibit the accomplishment of the purposes of the Aquatic Preserve Act.[143] The taking of indigenous life forms for sale or commercial use is prohibited with preserves.[144] Exempted from this ban are commercial taking of fin fish, crustacea or mollusks as allowed by law, and fishing by members of the public which is not contrary to other laws and rules.[145]

The Act empowers the Board of Trustees to adopt and enforce rules to regulate human activity within preserves and carry out the purposes of the Act, so long as such rules do not "unreasonably interfere with lawful and traditional public uses . . . such as sport and

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[137]Ch. 258.42(3)(b)-(c), F.S.
[138]Ch. 258.42(3)(d), F.S.
[139]Ch. 258.42(3)(e), F.S.
[140]"Reasonable distance" is determined by DNR rule according to the depth of the water, the nature and condition of the bottom, and the presence of manatees.
[141]Seawall may be restored at the same location, landward of that location, or within eighteen inches waterward of the old location.
[142]Id.
[143]Ch. 258.42(3)(f)-(g), F.S.
[144]Rule 18-20.012, F.A.C.
[145]Id.

commercial fishing, boating, and swimming."[146] Additional and unanticipated uses of the preserve may be allowed by the Board of Trustees upon a finding of compatibility with the purposes of the Act.[147]

The Board of Trustees may delegate to a local government the responsibility to administer and enforce the standards and criteria of a resource inventory and management plan, if the Board of Trustees finds that the delegation is in the public interest, and upon a finding that the local government's program:[148]

- adopts standards and criteria no less restrictive than the approved management plan (if more restrictive, the local policies are not effective until approved by the Board of Trustees as consistent with the Act
- provides for enforcement of these requirements by appropriate administrative and judicial processes
- provides for administrative organization, staff, financial and other resources necessary for effective and efficient enforcement, and
- provides for improved management and enforcement of the plan and any relevant rules.

The Board of Trustees may not delegate the power to approve transfers or uses of state-owned sovereignty lands, but may delegate to local agencies the ability to process applications and present recommendations for action to the Trustees.[149] The rules of DNR's Division of State Lands must include an annually updated list of delegations.[150] The Trustees may designate the local agency as its enforcement arm, but DNR permission is required before a local agency may impose elevated penalties and DNR retains the authority to enforce the Act.[151] The Board of Trustees, based on a DNR report, must annually evaluate the decisions of the local agency and decide whether to renew, withdraw, or renew with recommendations for corrective action the local delegation of authority.[152] Penalties of between $500 and $5000 per day are authorized for violations of the Act or any of its implementing regulations.[153]

**Comparison**

As stated previously, the SWIM program is not a regulatory program, although water management districts can and do use their general regulatory authority under Ch. 373 to carry out the purposes and objectives of SWIM plans. The regulatory basis of the Aquatic Preserve program differs from the GMA program, in that the state owns the land in an aquatic preserve. Thus, while development activities are regulated under both programs, the state as landowner can entirely prohibit certain uses in an aquatic preserve (e.g., drilling of oil or gas wells). The GMA is a planning and land development regulation program intended to primarily require the local regulation of private land and its use.

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[146]Ch. 258.43(1), F.S.
[147]Ch. 258.43(2), F.S.
[148]Ch. 258.43(3)(a), F.S.
[149]Ch. 258.43(3)(b), F.S.
[150]Ch. 258.43(c), F.S.
[151]Ch. 258.43(d), F.S.
[152]Ch. 258.43(e), F.S.
[153]Ch. 258.46, F.S. The Act is subject to the general penalty provisions of Ch. 403.501 - .518, F.S., the Electrical Power Plan Siting Act.

## PROVISION FOR INTERGOVERNMENTAL COORDINATION

### The Growth Management Act

A stated intent of the Act was to encourage and assure cooperation between and among municipalities and counties, and to encourage and assure coordination of planning and development activities of units of local government with the planning activities of regional planning agencies and state government, as allowed by law.[154] The Act allows municipalities and counties to carry out the powers and authorities set out in the Act jointly by mutual agreement, and in such combinations as their common interests may dictate.[155] Coordination and consistency of the elements within the plan is a major objective of the planning process. The capital improvements element, for instance, must be consistent with the coastal and conservation elements.[156] Coordination of the local plan with the plans of other local governmental entities, the region, and state planning policies is also a major objective of the Act.[157]

An intergovernmental coordination element is required in each plan, showing the relationships and stating the principles and guidelines to be used in assuring such coordination, and demonstrating the impact of the plan on these other entities.[158] The intergovernmental coordination element must describe all the entities with which it must coordinate, and identify and analyze the effectiveness of existing coordination mechanisms.[159] It must also identify the problems and needs within each element that coordination might improve, needs for coordination illustrated by comparison with the comprehensive regional policy plan and with Area of Critical State Concern regulations, if relevant.[160]

Coordination element objectives must:[161]

- specify coordination of the plan with plans of other local entities such as school boards, special districts, and neighboring jurisdictions
- ensure that the local government addresses the impacts of the comprehensive plan's planned development on these other jurisdictions, the region and the state, and
- ensure coordination of level of service standards for public facilities among neighboring local governments and with regional and state LOS standards.

Coordination policies must include programs, activities, or procedures for:[162]

- coordination of planning activities mandated by the local plan with other entities
- resolving conflicts through the region's mediation processes

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[154]Ch. 163.3161(4), F.S.
[155]Ch. 163.3167(1); 163.3171(1)-(3); and 163.3174(1)-(2), F.S.
[156]Ch. 163.3177(2), F.S.
[157]Ch. 163.3177(4)(a), F.S. See also Ch. 163.3177(10)(b), F.S.
[158]Ch. 163.3177(6)(h), F.S.
[159]Rule 9J-5.015(1)(a)-(b), F.A.C.
[160]Rule 9J-5.015(2)(a)-(d), F.A.C.
[161]Rule 9J-5.015(3)(b), F.A.C.
[162]Rule 9J-5.015(3)(c), F.A.C.

- reviewing the relationship of proposed development to plans of neighboring local governments, and

- providing consistent and coordinated management of certain bays, estuaries and harbors under the jurisdiction of more than one local government (for local governments required to prepare a coastal element).

Other elements also address issues of intergovernmental coordination. Policies to cooperate with adjacent local governments to conserve, appropriately use, or protect unique vegetative communities located within more than one jurisdiction must be included in the conservation element.[163] The coastal management element must contain policies which (i) address protecting estuaries, which are within the jurisdiction of more than one local government, including methods for coordinating with other local governments to ensure adequate sites for water-dependent uses, prevent estuarine pollution, control surface water runoff, protect living marine resources, among other things, and (ii) demonstrate how the local government will coordinate with existing resource protection plans such as resource planning and management plans, aquatic preserve management plans, and estuarine sanctuary plans.[164]

The Department of Community Affairs coordinates review of local plans and plan amendments.[165] It transmits copies of proposed plans to all appropriate state agencies,[166] which have forty-five days to review and provide comments to DCA.[167] These comments are advisory. Section 163.3184 does not require that DCA specifically respond to agency comments in preparing its objections, recommendations and comments regarding a local plan. Rather, it requires the agencies to provide the comments in a timely manner to DCA and then provides for a forty-five day period within which DCA can consider the comments and incorporate them in its own comments to local governments as it deems appropriate. Considering the comments of other agencies and its own review, DCA must determine whether the plan or plan amendment is in compliance with the requirements of the statute and rule.[168]

DCA, any ad hoc working groups appointed by DCA, and all state agencies are required by the GMA to cooperate and work with units of local government in the preparation and adoption of local plans and regulations.[169]

**The SWIM Act**

The SWIM Act requires coordination at several stages of the SWIM planning process. It recognizes the necessity for cooperation of state and local governments and the water management districts to ensure the overall success of the program.[170] It requires cooperation with several agencies in the preparation and approval of both the priority lists and the SWIM plans for priority waterbodies.[171] The Legislature encourages district governing boards to appoint advisory committees on an as needed basis to assist in formulating and evaluating strategies for waterbody protection and restoration activities, and to increase public awareness

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[163]Rule 9J-5.013(2)(c)8, F.A.C.
[164]Rule 9J-5.012(3)(c)13-14, F.A.C.
[165]Ch. 163.3184 and .3187, F.S.
[166]Including but not limited to DER, DNR, DOT, WMDs, RPC, and applicable county.
[167]Ch. 163.3184(4), F.S.
[168]Ch. 163.3184(8)-(10), F.S.
[169]Ch. 163.3204, F.S.
[170]Ch. 373.451(8), F.S.
[171]Ch. 373.453(1)-(2), F.S.

and intergovernmental cooperation.[172] Suggested members include representatives of the various agencies included in the priority list and plan review processes, relevant federal agencies, existing advisory councils for individual waterbodies, and representatives of the public users of the waterbody.[173]

Several state agencies and relevant local governments are given the opportunity to review and comment on SWIM plans with regard to specific categories of impacts. The governing board must send each such agency a copy of the proposed plan and, if any agency finds adverse impacts that exceed the beneficial impacts on specific resources, it may recommend modifications or additions to the plan to the district.[174] However, the effectiveness of this method of coordination is somewhat limited, because the governing board of the water management district is not required to adopt these suggestions. These agencies may also suggest changes which might result in additional beneficial effects upon the resources.

The Game and Freshwater Fish Commission may review the plan to determine its effect on wild animal life and freshwater aquatic life and their habitats.[175] The Department of Natural Resources may review the plan to determine its effect on state-owned lands and on marine and aquatic life and their habitats.[176] The Department of Agriculture and Consumer Affairs may review SWIM plans to determine their effects on agricultural resources of the state and the region.[177] The Department of Community Affairs reviews SWIM plans to determine their effects on the State Comprehensive Plan (along with DER) and on Areas of Critical State Concern.[178] Finally, local governments may review SWIM plans and comment upon their potential effects on local resources, so long as the comments are consistent with the intent of the SWIM Act.[179] The statute does not provide for local government comment based on potential conflicts with local plans. However, such a check is provided indirectly via DCA's review of SWIM plans for consistency with the State Comprehensive Plan, with which all local plans must also be consistent. All of these comments are submitted to the governing board of the relevant water management district, which considers them along with any public comment before approving the plan and sending it to DER for consistency review and approval.[180]

**The Aquatic Preserve Act**

Given the number of involved entities, intergovernmental coordination is vitally important to the effectiveness of the Aquatic Preserve Program. The Board of Trustees of the Internal Improvement Fund hold the title to the preserves, the Department of Natural Resources has management authority over them, and the Department of Environmental Regulation is responsible for water quality in the preserves and issues permits for effluent discharges. DNR receives copies of the joint DER/Army Corps of Engineers dredge and fill permit applications and biological assessments, from which it makes recommendations to the Board of Trustees and to DER, regarding the advisability of granting such permits.[181] The Board considers these

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[172]Ch. 373.453(5), F.S.
[173]Id.
[174]Ch. 373.455(3)-(7), F.S.
[175]Ch. 373.455(3), F.S.
[176]Ch. 373.455(4), F.S.
[177]Ch. 373.455(5), F.S.
[178]Ch. 373.455(6), F.S.
[179]Ch. 373.455(7), F.S.
[180]Ch. 373.456(1), F.S.
[181]Rule 18-20.016, F.A.C.

recommendations along with those of other agencies with authority over the proposed activity in deciding whether to grant permits.

# Chapter III

## Consistency Analyses: Tampa Bay and Indian River Lagoon Study Areas

### INTRODUCTION

This chapter presents the results of the consistency analysis for both study areas, Tampa Bay and the Indian River Lagoon. Each area is presented separately, and each includes ancillary information to improve the clarity of each analysis. A full set of matrices for both study areas showing goals, objectives, policies, and other relevant information for all plans included in the study is also included within this report. This chapter begins with a general discussion of consistency requirements and standards and some of the factors that influence them.

#### Consistency Requirements and Standards

Since the complete and effective implementation of SWIM and aquatic preserve plans depends greatly on the actions of local governments, local comprehensive plans and land development regulations must reflect, either explicitly or implicitly, the goals and objectives of the other two types of plans. In particular, it is important for local plans to be consistent with, instead of simply not inconsistent with, SWIM plans because many objectives within SWIM plans that focus on monitoring land uses and activities rely on the land use regulatory powers of local governments. However, water management districts, the primary implementing agency of SWIM plans, do not have the authority to mandate local governments to undertake corrective or preventive actions consistent with SWIM. The districts must instead rely on having a good working relationship with the local government or on DCA, through its compliance review of local plans, to ensure that local governments at least recognize other resource plans within their jurisdiction. Conversely, it seems unlikely that SWIM plans could be developed to be consistent completely with all relevant local plans, given that the scope of SWIM plans encompasses multiple and diverse local jurisdictions, such as in the Indian River Lagoon area.

On the other hand, the scope of aquatic preserve plans is limited (as discussed below) to management of the status quo within the jurisdiction of the preserve. Furthermore, aquatic preserves are protected through the authority granted through the statutes to the Board of Trustees to overrule local activities within the preserve such as boating and construction of docks that might adversely affect the preserve. Thus, within a strict interpretation of planning jurisdiction, it does not seem that local plans must be consistent with preserve plans as long as they are not inconsistent with the preserve plans. DNR reviews local plans for potential inconsistencies with the management of the preserve. However, this does not always sufficiently address local activities outside an aquatic preserve that affect the resources of a preserve (e.g., inflow of polluted stormwater runoff), nor does it address local activities such as land acquisition, vegetative buffers, and marsh replanting programs that might enhance protection of the preserve.

Local government comprehensive plans are the key to land use and stormwater treatment and regulation, two of the most critical determinants of surface water quality, also a major concern of most, if not all, SWIM plans. Again, in the absence of mandated consistency between local plans and SWIM plans, the satisfactory consistency of local plans with SWIM plans mostly depends on active direction and technical assistance from the districts to local governments in the form of

model ordinances, funding for restoration projects, and education regarding the impacts of human-related activities on surface waters. However, many local governments, particularly small municipalities, do not retain the in-house expertise needed on behalf of local governments to ensure consistent action such as retrofitting a drainage system or drafting regulations for shoreline development. In the absence of such expertise, local governments mostly rely on the water management district to draft plans consistent with state objectives embodied in SWIM and aquatic preserve plans, or the state (DCA) to specify and assist in complying with state minimum criteria.

No statewide standards appear to exist specifically requiring consistency of local plans with SWIM plans. As required by law, local governments comment on SWIM plans within their jurisdiction, and each water management district comments on local comprehensive plans within its jurisdiction. However, the latter is subject to the internal guidelines of water management districts, which are not uniform across all districts. Regardless, most districts are attuned to the benefits of promoting consistency between local and SWIM plans, especially given cost-sharing of needed local stormwater and other projects as an incentive.

Limited statewide standards exist for the determination of consistency of local plans with aquatic preserve plans. Rule 9J-5 requires local comprehensive plans to " . . . identify regulatory or management techniques for . . . [d]emonstrating how the local government will coordinate with existing resource protection plans such as . . . aquatic preserve plans . . . "[1] This research revealed that although many local governments adequately address this requirement, many vary in how they address coordination with aquatic preserve plans. In fact, not all local governments adjacent to aquatic preserves are even aware that this designation exists for these waterbodies. Reasons for such variations in addressing coordination include the compliance review process itself, in which DCA has deliberately been more flexible (less stringent) in its reviews of local government comprehensive plans from local governments with very limited resources to implement a plan, or has sometimes has accepted the mere recognition of an aquatic preserve or other plan in order not to excessively hold up the compliance review process.[2] It is also perhaps in part a failure of local governments to adequately remain aware of all significant state actions and programs, and the adequacy of the state in specifying how much or what portions of local government comprehensive plans should be consistent with SWIM and aquatic preserve plans.

### Factors Influencing Consistency

The "degree of consistency" [or inconsistency] among the goals, objectives and policies of plans is a nominally measurable phenomena. Any determination of "consistency" is subject to at least some interpretation, and is made more difficult within this study by the comparison of plans that differ in scope and mission. Furthermore, although it is possible to judge the degree of "consistency" between goals, objectives, or policies that address an issue or problem at the same level, it is sometimes only possible to make a judgment of "not inconsistent" between goals, objectives, or policies that do not address the same issue or problem at the same level or scope, or that do not support each other but do not conflict with each other, either.

Additionally, the degree of consistency between the three different types of plans analyzed in this study (SWIM, aquatic preserve, and local comprehensive plans) depends on the particular issue and resource being addressed. Some issues and resources are addressed more consistently between the three types of plans, and some issues and resources are not. For instance, all of the

[1]Rule 9J-5.012(3)(c)14, F.A.C.

[2]According to DCA officials interviewed for this study, this was a real concern several years ago when DCA had to determine compliance with 9J-5 for more than 450 local comprehensive plans.

plans in the study address in some way surface water quality, either by restoring a polluted waterbody, preserving or protecting a non-polluted waterbody, or by influencing the quality and quantity of stormwater runoff. Since addressing this issue is fairly straightforward in a technical sense, all goals outlined in the plans will be fairly simple and consistent, and, although different plans will address different parts of this issue, objectives and policies outlined in the three different plans will be fairly consistent for this issue.

The degree of consistency between the three different types of plans analyzed in this study is also a function of the jurisdiction or scope of a plan. Although these are technically different concepts, they are integral to each other within this study, and are a factor influencing the degree of consistency. As an example, since the landward boundary (and hence, jurisdiction) of aquatic preserves is the mean high water line (and the scope of its plan is the preserve itself), an aquatic preserve management plan is limited to how it can influence activities outside the preserve (e.g., regulating docks). Regarding consistency with other plans, an aquatic preserve management plan can only encourage the coordination of the management plan's goals and objectives with other plans (e.g., local comprehensive plans) whose jurisdiction may include at least part of the aquatic preserve's watershed, if not the preserve itself. This is particularly important concerning the future land use element of adjacent local governments, where there can be significant differences between jurisdictional land use categories, designations, and land development ordinances. For example, if a jurisdictional boundary bisects a watershed, and there is a significant difference in the quality and scope of land use regulations between the two (or more) local governments, then the possibility exists that the protection afforded a waterbody within that watershed may be compromised, or its potential never reached.

Consistency between plans is also a function of the legal requirements (e.g., statutes and regulations) that govern planning processes and products mandating review and comment, coordination, or consistency between plans. For instance, state law requires that water management districts are to review and comment on draft local comprehensive plans.[3] This offers the opportunity to integrate the two plans; however, there is a difference between simply commenting on a comprehensive plan and requiring that a plan be consistent with other plans. As an example, comprehensive plans are required by Rule 9J-5 to be consistent with the state comprehensive plan and the relevant comprehensive regional policy plan (CRPP), as well as internally consistent.[4] However, local plans are not specifically required by Rule 9J-5 to be consistent with district plans, other local comprehensive plans outside or adjacent to their jurisdiction, or other types of plans other than the state comprehensive plan and the CRPP.[5] Finally, it is acknowledged by the Florida Department of Community Affairs, the agency charged with ensuring that all local governments prepare a comprehensive plan that is in compliance with Rule 9J-5, that no local comprehensive plan is perfectly consistent, either internally or externally (with other plans) or in full, exact compliance with 9J-5. This is due in part to the demands of accounting for more than 450 such plans using limited resources within a limited time period.[6] It is also due to DCA's position that some of 9J-5's individual requirements are of minimal significance for certain local governments, and although there may be a technical deficiency within a plan, the plan as a whole can be found to be in compliance.[7]

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[3]Ch. 163.3184(4), F.S.

[4]Chapter 9J-5, F.A.C., Minimum Criteria for Review of Local Government Comprehensive Plans and Determination of Compliance.

[5]A model coastal management element, prepared by DCA's Bureau of Local Resource Planning and published in May 1987, directs local governments to consider aquatic preserve management plans in the formulation of their coastal management elements.

[6]Florida Department of Community Affairs.

[7]Ibid.

A fourth factor in ensuring consistency between plans is timing. The planning process is by definition iterative, even open-ended at times, and the various planning programs in this study have not reached their goals. For instance, as discussed earlier, the aquatic preserve plans reviewed for the Tampa Bay area are to be revised eventually, and it will be years before they are fully, if ever, implemented. Additionally, local comprehensive plans are required to be evaluated every five years for how they are being implemented, among other criteria. This review will offer an opportunity for local governments to "fine-tune" these plans in response to changing conditions as they are being implemented. Finally, the SWIM program largely consists of a series of programs and projects implemented pursuant to a cohesive strategy for controlling point and nonpoint source water pollution and restoring or protecting habitat. These projects are by their nature complex, expensive, and interdisciplinary, and will usually take several years or even a decade or more to implement.

Another aspect of timing is when different plans have been written and adopted. For instance, many local comprehensive plans were already adopted as the first SWIM plans were being written, making problematic the task of coordinating local comprehensive plans with SWIM plans. However, the ongoing revision of aquatic preserve plans by DNR offers a good opportunity to address concerns not adequately addressed in the first round of aquatic preserve planning.

## ORGANIZATION AND METHODOLOGY OF CONSISTENCY ANALYSIS

All relevant goals, objectives, and policies (GOPs) from adopted plans currently in use in 1992 were sorted by issue and then compared with the relevant GOPs from each SWIM and Aquatic Preserve plan for consistency analysis. Only objectives and policies were listed within the matrices, organized and presented by issue. This is because only most objectives and all policies are measurable; goals are statements of long-term desires or conditions, and many are vague. Although SWIM and Aquatic Preserve GOPs were reproduced mostly verbatim, local government comprehensive plan GOPs were paraphrased as necessary to save space. The Florida Department of Community Affairs' Objections, Recommendations, and Comments (ORC) reports for each comprehensive plan within the study areas, along with the comprehensive plan review agencies' comments on draft comprehensive plans, were inserted into the matrices where deemed relevant to help highlight potential inconsistencies. Only those comments that appeared to still be potentially or directly applicable to the adopted comprehensive plans were used. Comments that had been addressed or explained adequately in the judgment of the research team were not used in the analysis of the plans.

Using the matrices, the research team has provided within this report relative judgments of consistency or inconsistency by directly comparing selected GOPs or their equivalent within a matrix. This method provides a reasonable way to determine consistency among the three types of plans for the two study areas, and also allows the highlighting of strengths and weaknesses for the plans.

For the Tampa Bay area, the matrices are presented in two sets, one for each aquatic preserve within the Tampa Bay study area. The matrices for the Indian River Lagoon area are organized by local comprehensive plan, and includes GOPs or their equivalent from the Indian River Lagoon SWIM plan, the Jensen Beach to Jupiter Inlet Aquatic Preserve management plan (Phase 1) and the relevant local comprehensive plans. Where there was too much text within an issue to fit within a single matrix page, additional information was included on a following page.

For clarity, it should be pointed out that the above phrase "GOPs or their equivalent" points to one of the difficulties of this study, which is that the phraseology used in the three different types

of plans within each study area is not consistent. For instance, the Tampa Bay SWIM plan uses a hierarchical format in addressing issues organized into "Goals," "Initiatives," "Programs," and "Projects." The aquatic preserve plans for both Terra Ceia and Cockroach Bay list "management policy initiatives," roughly similar to a combination of objectives and policies. However, these are pre-1988 plans (when a new format was established for aquatic preserve management plans). Newer aquatic preserve management plans list "goals," "objectives," and "tasks." To add to the confusion, many goals in some local comprehensive plans are fairly vague, and so are of limited use for the purposes of this study.

## CRITICAL ISSUES & RESOURCES

Although useful for analysis, it is often very difficult to isolate issues that affect such a natural resource as Tampa Bay or the Indian River Lagoon. Regardless, in order to conduct a meaningful comparative analysis, a set of issues common to the three different types of plans in this study were established. The selected issues were mostly common to all three types of plans, and addressed at least in part by all the plans. Since the SWIM and Aquatic Preserve management plans are natural resource-based plans, the bulk of the selected issues concentrated on natural resources and the effect of human-related activities on them. Additionally, since SWIM plans are the most inclusive and comprehensive in addressing these issues, the general outline of issues was similar to those presented in the SWIM plans for each study area.[8] Issues not recognized and addressed in SWIM plans but present in aquatic preserve management plans were added to the SWIM outline, creating a full set of natural resource-based issues. Included were several other issues that have an impact on the effective management of natural resources. Overall, the emphasis for comparison was how the plans treated the issues in terms of what actions, programs, or some other implementing mechanism were present, and not how the plans and their goals, objectives, or policies were worded.

### Land Use

Land use/land management is perhaps the most important determinant of the water quality of a surface waterbody. It is an axiom of planning and natural resource management that 'everything is connected to everything else,' and certainly this is true here. What happens on the land eventually affects the water. Correspondingly, land use is also perhaps the primary determinant of the breadth and quality of urban areas, and influences the placement, cost, and complexity of infrastructure, including transportation.

The Future Land Use element of a local comprehensive plan outlines the goals, objectives, and policies for future land use and development within the planning area, and displays the existing and future land use patterns through various land use maps. Land development regulations, in combination with the future land use map, offer a opportunity for preserving and restoring surface waterbodies and aquatic preserves through the integration of relevant plan goals, objectives, and policies into the local comprehensive plan. Land development regulations serve as implementing mechanisms for a local comprehensive plan, regulating the intensity and location of stormwater runoff, sewage treatment facilities, development, environmentally sensitive lands, and other determinants of the environmentally quality of SWIM waterbodies or aquatic preserves. In other words, land development regulations are a significant tool for protecting water quality in coastal and other areas.

[8] A detailed account of most of the issues selected here is found in each of the two SWIM plans used in this study.

Although the opportunity exists for water management districts and aquatic preserve managers to influence the design of land use, land use regulation is historically a local issue, primarily addressed by local comprehensive plans; whereas SWIM and aquatic preserve plans are mostly restricted to the resources these plans are designed to address (e.g., waterbodies and submerged preserves). This is not to say that no link exists between SWIM plans and local comprehensive plans. Indeed, water management districts and aquatic preserve managers recognize the impact local comprehensive plans have on the successful implementation of SWIM and aquatic preserve plans, and both are required to work with local governments in the creation of their comprehensive plan. However, the water management districts have had more success in this through their mandated review of draft local comprehensive plans, and the development and dissemination of model land use ordinances to local governments by the districts.

Aquatic preserve managers, on the other hand, have less influence over the local comprehensive planning process, having only the Florida Department of Natural Resources' (DNR) mandated review role for SWIM and local comprehensive plans and the requirement that local governments recognize and demonstrate how they will coordinate with all natural resource planning and management plans, aquatic preserve management plans, and estuarine sanctuary plans within their jurisdiction[9] as their only real means of integrating the concerns of aquatic preserve management plans into local comprehensive plans.

### Other

**Hurricane preparedness issues** as such were not studied or compared for this study. Although much of the coastal element in those local government comprehensive plans for coastal areas[10] deals with issues such as hurricane evacuation, development in areas normally flooded by hurricanes, and other related topics (e.g., location of infrastructure), these issues are generally not addressed in SWIM and aquatic preserve plans, and therefore are not directly comparable with local comprehensive plans . However, where SWIM and aquatic preserve plans addressed land use and the location of infrastructure, an integral part of planning for the impacts of hurricanes in coastal areas, any relevant GOPs or their equivalent were selected and compared.

**Public education and ecological and other natural resource-based research issues** were not studied or compared for this study. Although these issues are both addressed within the SWIM and aquatic preserve management plans used for this study, public education activities, while conducted at one time or another by virtually all government agencies, are usually done for specific issues only, and often sporadically or intermittently. For instance, there are several agencies within the Tampa Bay area that are conducting public education programs for seagrasses; however, these vary in format and timing, and are heavily dependent on available funding. Additionally, it is not currently feasible for many local governments, or even many state or regional agencies, to conduct ecological research, some are now doing routine water quality monitoring. However, these activities are also generally subject to the same constraints and factors as public education issues.

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[9]Chapter 9J-5.012(3)(c)14, F.A.C.

[10]Both the Hillsborough and Manatee County comprehensive plans define the coastal area as "Those portions of [Hillsborough/Manatee] County which lie within the Hurricane Vulnerability Area...This area shall also include water and submerged lands of oceanic water bodies or estuarine water bodies; shorelines adjacent to such water bodies; coastal barriers; living marine resources; marine wetlands; water-dependent or water-related facilities on oceanic or estuarine waters; public access facilities to oceanic beaches or estuarine shorelines; and all lands adjacent to such occurrences where development activities would impact the integrity of the above-mentioned land or water body."

## TAMPA BAY STUDY AREA CONSISTENCY ANALYSIS

### Description of Tampa Bay Study Area

The Tampa Bay estuary is a system of estuaries, embayments, and associated wetlands approximately 398 square miles (1031 square kilometers) in size.[11] The Tampa Bay watershed in includes uplands and freshwaters for a total area of approximately 2,200 square miles (5,698 square kilometers) in size. Naturally shallow with an average depth of 12 feet (four meters), it is cut by a system of 42 nautical miles of navigation channels first begun in the 1880s. Four major rivers drain into Tampa Bay, along with a number of lesser tributaries and three major flood control channels. Tampa Bay, together with its estuaries, is the highest priority surface waterbody on the Southwest Florida Water Management District's (SWFWMD) approved SWIM priority list.[12]

Three aquatic preserves are located within Tampa Bay. These include the Boca Ciega Aquatic Preserve, the Cockroach Bay Aquatic Preserve, and the Terra Ceia Aquatic Preserve. The Boca Ciega Aquatic Preserve surrounds the peninsula of Pinellas County, and the latter two preserves are located within the southern portion of the bay. As of 1984, at least 12 federal agencies, 10 state agencies, five regional agencies, and approximately 50 local governments were involved in some aspect of regulation, review, or policy development of natural resources and issues affecting Tampa Bay in some way.[13]

The causes and conditions of the degradation of the natural resources of Tampa Bay are singularly human-related, and began about 100 years ago.[14] The Tampa Bay Management Committee identified 42 issues regarding the management of the natural resources of the bay, and the Tampa Bay Management Study Commission (both the Management Committee and the Management Study Commission were sponsored by the Tampa Bay Regional Planning Council) further examined and grouped these issues into five categories of related issues. Shown below are the categorized Tampa Bay study area issues from the Tampa Bay Management Study Commission.

1. **Water Quality Improvement**

   - long-term accumulation of organic sediments in Hillsborough Bay
   - proliferation of new and expanded domestic wastewater sources, and impact of new water quality standards for the bay
   - nonpoint sources of water pollution (stormwater)
   - absence of a fully verified computer model to aid DER in evaluating the impact of numerous proposed point source discharges
   - continuing phosphate processing operations within the watershed
   - continuing population growth and land development within the watershed

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[11]Southwest Florida Water Management District. 1992. *Tampa Bay Surface Water Management and Improvement Plan (Draft)*. p. 5, Appendix A.
[12]Ibid.
[13]Ibid., p. 30.
[14]Ibid., p. 25.

2. **Habitat Protection and Restoration**

   - decline of seagrasses
   - dredging of channels, ports, and marinas, and disposal of dredged materials
   - development of coastal and riverine marshes and other wetlands within the watershed
   - development and damming of rivers and creeks within the watershed

3. **Fisheries Management**

   - decline of commercial finfish landings
   - decline of shellfish landings
   - decline of recreational landings
   - lack of biological and other fisheries data

4. **Development and Use of the Bay**

   - replacement of native vegetation with exotic and other nuisance plants
   - shoreline erosion from unanticipated foot and other public traffic
   - impact on recreational uses of the bay from sub-standard water quality and lack of natural habitat
   - impacts of additional marinas
   - impacts of construction and operation of transportation facilities

5. **Legal Framework for Comprehensive Management**

   - absence of a mechanism to coordinate and focus the myriad of local, state, and federal agencies involved in natural resource management within Tampa Bay
   - ineffective enforcement of laws and regulations intended to protect natural resources of the bay.[15]

Management of the natural resources of the Tampa Bay estuary has been historically uncoordinated among the various federal, state, regional, and local governments within the watershed. Towards addressing these and other problems associated with this myriad of authorities, the Tampa Bay Management Commission published *The Future of Tampa Bay* in 1985. This plan summarized the environmental problems of the bay, presented preliminary legislative work plans to address priority issues, considered funding alternatives, and recommended specific projects to begin the restoration of the Tampa Bay ecosystem. Portions of the SWIM management plan have come out of *The Future of Tampa Bay*.[16]

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[15]Ibid., pp. 25-30.
[16]Ibid., p. 31.

The creation of the Agency on Bay Management (ABM), sponsored by the TBRPC, was originally one of the recommendations within the this document. Created in 1985, ABM has served as a public forum for bay management issues, liaison between governmental agencies and interest groups, and has attempted to implement the management plan. Complementary to *The Future of Tampa Bay*, ABM published *The State of Tampa Bay 1986*, providing an update on the environmental status of the bay as well as describing the agency ' s efforts to implement the management plan. Efforts of ABM to implement the management plan have been hampered by lack of funding and staff.[17]

**Tampa Bay SWIM Plan Description**

The Tampa Bay SWIM plan, first adopted and published in 1988, was updated in 1992. The original plan's goals, description of Tampa Bay and its watershed, and the identification and analysis of issues has not been significantly changed in format or content. However, the plan recognizes and calls for coordinating with the federal Tampa Bay National Estuary Program, and calls for identifying Pollution Load Reduction Goals for the Tampa Bay watershed as directed under Chapter 17-40.420 F.A.C.

The Tampa Bay SWIM plan uses a hierarchical format in addressing issues organized into "Goals," "Initiatives," "Programs," and "Projects." The goals of the plan are to be met by implementing a series of initiatives, which are composed of programs, themselves composed of projects that are prioritized.

The management plan was created under the aegis of two advisory committees, SWFWMD's Internal Review Committee and the TBRPC's Agency On Bay Management (ABM) Special Committee on the Tampa Bay Management Plan. The first committee is comprised of District personnel, and has continued to function after completion of the management plan to provide guidance and review of all SWIM activities for the district. The ABM Special Committee on the Tampa Bay Management Plan was composed of members of the Executive Steering Committee of ABM and representatives of the private sector as well as various county, state, and federal agencies, Additional review and input for the plan was solicited from all county and city governments from the three counties bordering the bay, including the Tampa Bay National Estuary Program.

Three goals and four sets of initiatives have been identified for the Tampa Bay ecosystem. The goals of this plan are: (1) to reverse the environmental degradation of the Tampa Bay estuarine system; (2) to optimize water quality and other habitat values, thereby promoting the sustained existence or reestablishment of thriving, integrate biological communities; and (3) to ensure the maintenance ad infinitum of a productive, balanced ecosystem complementary with human needs and uses of the resource. The initiatives within this plan are grouped into four sets: (1) natural systems, (2) water quality, (3) land and public use, and (4) bay management.[18] (There are 43 programs, 18 of which have been prioritized for implementation at this time. Each program is composed of various projects, most of which serve multiple programs.

As required by statute and agency rules of DER, the Tampa Bay SWIM plan contains a description of the estuary and its current conditions and uses; identification of government entities with management responsibilities concerning the estuary ; point and nonpoint pollution sources, permitted discharges, and surrounding land uses; and current and needed strategies, studies, and measures to restore and maintain this waterbody. Additionally, DER's SWIM Review

[17]Ibid.
[18]Ibid., p. 37.

Procedures Manual encourage all SWIM Plans to address point and nonpoint pollution sources, destruction of natural systems, correction and prevention of surface water problems, needed research, public awareness, and inter-agency coordination.

### Terra Ceia Aquatic Preserve Management Plan Description

The Terra Ceia Aquatic Preserve, located in Tampa Bay within Manatee County, is approximately 21,736 acres in size. It was designated an aquatic preserve in 1984 for the primary purpose of preserving the biological resources of the Terra Ceia marshes and associated waters.[19] Consisting mostly of fringing mangroves and mangrove islands with oyster bars, clam beds, and seagrasses, this preserve serves as critical habitat for a variety of fish, birds, and other wildlife. The preserve is fairly pristine, although some of the shoreline has been hardened with residential seawalls and urban stormwater enters the preserve from these residential areas. In addition to this, an existing wastewater treatment facility discharges effluent into Terra Ceia Bay, part of the aquatic preserve. This effluent discharge, while under the regulation of the state, is specifically exempt from the requirements of the Florida Aquatic Preserve Act.[20] The boundaries of the preserve are shown in Figure 1. The actual preserve includes those state-owned submerged lands located waterward of the mean high water line (MHW).

The geographic and jurisdictional scope of the Terra Ceia Aquatic Preserve management plan and the Cockroach Bay Aquatic Preserve management plan is less comprehensive than that of the Tampa Bay SWIM plan, which encompasses Tampa Bay. In addition to detailing the ecological problems of Tampa Bay, the SWIM plan includes a prioritized list of projects within a series of initiatives, programs, and strategies that address the effects of land uses and other activities as they impact water and habitat quality of the whole waterbody. In comparison, the aquatic preserve plans focus on activities within the jurisdiction of the preserve and land uses directly adjacent to it. For example, the SWIM plan addresses entire drainage systems within the basin of the lagoon while the aquatic preserve plans concentrate on points of discharge of the drainage systems into the preserves (e.g., the Manatee River and the Cockroach Bay Aquatic Preserve).

The Cockroach Bay Aquatic Preserve management plan is virtually identical to the Terra Ceia Aquatic Preserve management plan in its organization and layout and management policy initiatives. Both plans are designed to guide the management of the preserves to emphasize the maintenance and enhancement of natural conditions, which, as more site specific information becomes available, are to be further identified, and resources in disturbed areas restored to a natural condition where possible. Toward this end, both plans contain a number of management issues and related major program policy directives to address these issues. Both plans also list a number of onsite management objectives and policies (e.g., field familiarization, mapping, and preparation of protection guidelines) for protecting the natural resources of the preserves, including guidelines for coordinating with federal, state, regional, local, and other organizations and groups in the protection of the preserves' natural resources. Although the latter guidelines are specific concerning federal, state, and regional activities and agencies, the guidelines for coordinating with local governments specify that this is dependent on the willingness of local governments to create or amend their local comprehensive plans, zoning and development codes, and other plans to be more consistent with aquatic preserve plans.

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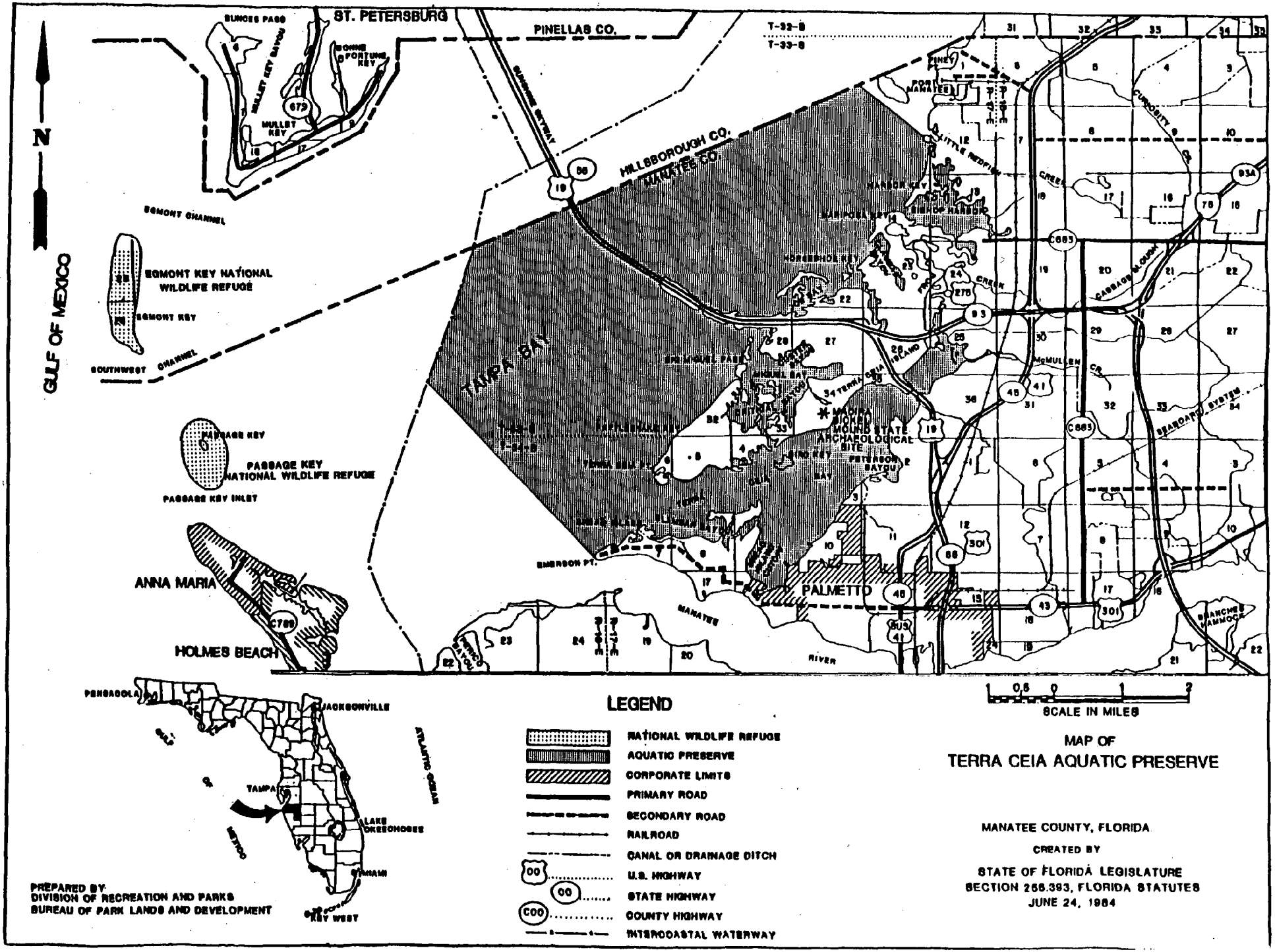
[19]*Terra Ceia Aquatic Preserve Management Plan*, April 1987, Bureau of Submerged Lands and Preserves, Division of State Lands, Florida Department of Natural Resources.
[20]Ch. 258.393(2), F.S.


ST. PETERSBURG
PINELLAS CO.
HILLSBOROUGH CO.
MANATEE CO.
GULF OF MEXICO
N
EGMONT CHANNEL
EGMONT KEY NATIONAL WILDLIFE REFUGE
EGMONT KEY
SOUTHWEST CHANNEL
PASSAGE KEY
PASSAGE KEY NATIONAL WILDLIFE REFUGE
PASSAGE KEY INLET
ANNA MARIA
HOLMES BEACH
TAMPA BAY
PALMETTO
MANATEE RIVER
EMERSON PT.
MADIRA BICKEL MOUND STATE ARCHAEOLOGICAL SITE
PETERSON BAYOU
HARBOR KEY
MARIPOSA KEY
HORSESHOE KEY
BIG MIGUEL PASS
MIGUEL BAY
TERRA CEIA ISLAND
PINEY
PORT MANATEE
LITTLE REDFISH CREEK
CURIOSITY CR.
CABBAGE SLOUGH
McMULLEN CR.
SEABOARD SYSTEM
BRANCHES HAMMOCK
PENSACOLA
JACKSONVILLE
TAMPA
LAKE OKEECHOBEE
MIAMI
KEY WEST
ATLANTIC OCEAN
GULF OF MEXICO
LEGEND
NATIONAL WILDLIFE REFUGE
AQUATIC PRESERVE
CORPORATE LIMITS
PRIMARY ROAD
SECONDARY ROAD
RAILROAD
CANAL OR DRAINAGE DITCH
U.S. HIGHWAY
STATE HIGHWAY
COUNTY HIGHWAY
INTERCOASTAL WATERWAY
SCALE IN MILES
MAP OF
TERRA CEIA AQUATIC PRESERVE
MANATEE COUNTY, FLORIDA
CREATED BY
STATE OF FLORIDA LEGISLATURE
SECTION 258.393, FLORIDA STATUTES
JUNE 24, 1984
PREPARED BY
DIVISION OF RECREATION AND PARKS
BUREAU OF PARK LANDS AND DEVELOPMENT

### Cockroach Bay Aquatic Preserve Management Plan Description

The Cockroach Bay Aquatic Preserve, located in Tampa Bay within Hillsborough County, is approximately 3,600 acres in size. It was designated an aquatic preserve in 1976 for the primary purpose of preserving the biological resources of Cockroach Bay, and is considered to be the most pristine area remaining within Tampa Bay.[21] Consisting mostly of fringing mangroves and mangrove islands with oyster bars, clam beds, and seagrasses, this preserve serves as critical habitat for a variety of fish, birds, and other wildlife. The boundaries of the preserve are shown in Figure 2. The actual preserve includes those state-owned submerged lands located waterward of the mean high water line (MHW). The Cockroach Bay Aquatic Preserve was leased by DNR from the Tampa Port Authority, which owns the lands in Cockroach Bay in fee simple, for the period of July 1, 1976 to July 1, 2016, a period of 40 years.

The Cockroach Bay Aquatic Preserve management plan is virtually identical to the Terra Ceia Aquatic Preserve management plan in its organization and layout and management policy initiatives. These two plans are examples of "first-generation" aquatic preserve management plans; as described elsewhere in this report, these plans are mostly generic in nature, although. The "second-generation" aquatic preserve management plans written after 1988 (for those preserves without management plans and for preserves with plans to be revised) represent an evolution of aquatic preserve management plans into more site-specific plans having more public input, a review of consistency with local comprehensive plans, and a clear set of goals, objectives, and policies or tasks.

## CONSISTENCY BY ISSUE

Overall, there appears to be a fairly high degree of consistency between the three types of plans in the Tampa Bay area. Of course, some issues addressed in all three plans are more consistent than others, and not all issues selected for this study are addressed to the same degree in the three plans—or even addressed at all across all three plans. Shown below are the categorized Tampa Bay study area issues from the 1988 Tampa Bay SWIM plan.

### I. Water Quality

1. Point Source Water Pollution [SWIM & AP]
2. Nonpoint Source Water Pollution [SWIM & AP]
3. Phosphate Processing Operations [SWIM & AP]
4. Urbanization/Land Use/Wildlife Habitat [SWIM & AP]
5. Agricultural Activities and Effects on Water Quality and Living Resources [AP]
6. Mosquito Control Activities and Effects on Wetlands Habitat, Water Quality, And Living Resources [AP]

### II. Natural Systems

7. Destruction/decline of Seagrasses
8. Dredging and Disposal of Dredge Materials [SWIM & AP]
9. Wetlands [SWIM & AP]
10. Development and Damming of Creeks and Rivers [SWIM & AP]

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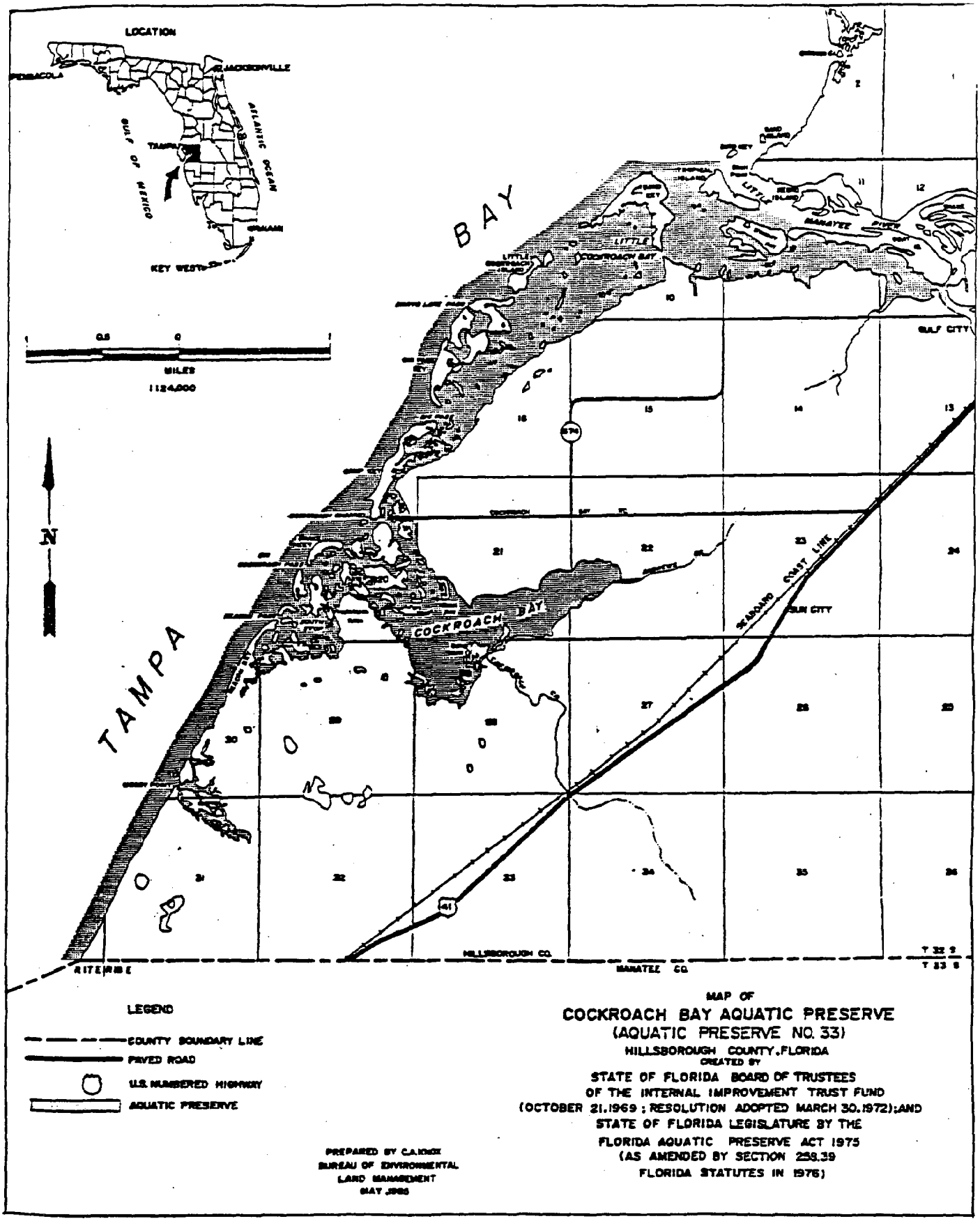
[21] *Cockroach Bay Aquatic Preserve Management Plan*, April 1987, Bureau of Submerged Lands and Preserves, Division of State Lands, Florida Department of Natural Resources.


LOCATION
PENSACOLA
JACKSONVILLE
TAMPA
KEY WEST
GULF OF MEXICO
ATLANTIC OCEAN
MIAMI
0.5
0
1
MILES
1:124,000
N
TAMPA BAY
LITTLE COCKROACH BAY
COCKROACH BAY
GULF CITY
SUN CITY
SEABOARD COAST LINE
MANATEE RIVER
HILLSBOROUGH CO.
MANATEE CO.
RITE RIBE
LEGEND
COUNTY BOUNDARY LINE
PAVED ROAD
U.S. NUMBERED HIGHWAY
AQUATIC PRESERVE
PREPARED BY C.A. KNOX
BUREAU OF ENVIRONMENTAL
LAND MANAGEMENT
MAY 1985
MAP OF
COCKROACH BAY AQUATIC PRESERVE
(AQUATIC PRESERVE NO. 33)
HILLSBOROUGH COUNTY, FLORIDA
CREATED BY
STATE OF FLORIDA BOARD OF TRUSTEES
OF THE INTERNAL IMPROVEMENT TRUST FUND
(OCTOBER 21, 1969; RESOLUTION ADOPTED MARCH 30, 1972); AND
STATE OF FLORIDA LEGISLATURE BY THE
FLORIDA AQUATIC PRESERVE ACT 1975
(AS AMENDED BY SECTION 258.39
FLORIDA STATUTES IN 1976)

III. Fisheries

11. Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

IV. Development and Use of the Bay

12. Replacement of Native Vegetation with Exotic Plants [SWIM & AP]
13. Shoreline Erosion [SWIM & AP]
14. Marinas [SWIM]
15. Construction & Operation of Transportation Facilities [SWIM]

V. Bay Management

16. Intergovernmental Coordination and Planning Consistency [SWIM & AP]
17. Enforcement of Laws and Regulations [SWIM & AP]

VI. Other

18. Ports
19. Identification of Areas, Land Use, Etc.
20. Threatened and Endangered Species; Manatee Protection; Hazardous Waste Disposal; Boundary Expansion and Other Acquisitions.

The degree of consistency for each issue is summarized below, starting with major areas of consistency or inconsistency.

**[1] Point Source Water Pollution**

With the advent of the federal National Pollution Discharge Elimination System (NPDES), industrial and domestic point source pollution discharges have mostly come under regulation, although the treatment and discharge of sewage effluent is still subject to the vagaries of funding, available technology, and operation and maintenance, particularly concerning septic tanks and package treatment plants. In addition, the proliferation of new and expanded domestic wastewater sources is regarded by SWFWMD as a threat to the water quality of Tampa Bay. Although current advanced wastewater treatment standards for point sources discharging into Tampa Bay area are considered by SWFWMD to be adequate for now, there is a possibility that, under SWFWMD's new resource-based water quality standards being developed as a part of the Tampa Bay SWIM plan's water quality assessment program, they may prove inadequate.[22]

Both the Cockroach Bay and Terra Ceia aquatic preserve plans do not address any of these issues specifically, except to require (through the efforts of DER and SWFWMD) the maintenance and upgrading of the water quality of the estuary, and to ensure the natural seasonal flow fluctuations of fresh water into the estuary. However, this is not inconsistent with the SWIM plan and local government comprehensive plans, as DER and the water management districts are primarily responsible for monitoring and addressing water quality and quantity problems within the state, and are doing so through the local government comprehensive planning process, among other avenues.

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[22]P. 26, *Tampa Bay SWIM Plan*, 1988.

There appears to be a fairly high level of consistency between the SWIM plan and the Hillsborough County comprehensive plan for this issue. For local governments, the SWIM plan calls for effluent re-use and other disposal options; regional wastewater treatment systems and greater impact fees for their construction; reduction of effluent discharges; and the strengthening of local government environmental enforcement and compliance monitoring programs.

Correspondingly, the Hillsborough County comprehensive plan calls for advanced wastewater treatment (or elimination of discharges as necessary to meet SWIM plan criteria); the development and promotion of re-use and other effluent disposal options; the restriction of treatment facilities within the Coastal High Hazard Area (CHHA)[23]; upgrading surface waterbody classifications to accommodate higher water quality standards; construction of wastewater treatment regional facilities; increased water quality monitoring; and addressing substandard point discharges.

There appears to be a fairly high level of consistency between the SWIM plan and the Manatee County comprehensive plan for this issue. The latter encourages alternative re-use and disposal options for effluent; constructing regional wastewater treatment plants instead of septic tanks and package treatment plants; requiring new growth to pay its share of the construction of regional wastewater treatment facilities; and regulating onsite disposal of sewage. The aquatic preserve plan does not specifically address any of these issues.

Additionally, Policy 4.1.2.11 (Coastal Management element) of the Manatee County comprehensive plan requires all developments within the coastal area which have or propose to have land uses requiring the issuance of a point source discharge permit to establish and implement water quality management plans which will eliminate all discharges that have not been treated to appropriate state water quality standards into coastal area waters.

A potential inconsistency between the Manatee County comprehensive plan and the Terra Ceia Aquatic Preserve management plan appears to be Manatee County's policy on allowing septic tanks within their Agricultural/Rural (AG/R) land use category (Policy 11.1.1.6, Public Facilities element). According to the county future land use map, this land use category directly borders the Terra Ceia aquatic preserve in several locations, presenting a potential source of water pollution.

An existing wastewater effluent discharge belonging to the City of Palmetto within the Terra Ceia Aquatic Preserve is specifically exempt from the requirements of Chapter 258, F.S., which governs the boundaries, uses, and general restrictions within the Aquatic Preserve program.[24] Although this discharge has been cited by DER as not being up to current water quality standards, an objective within the Coastal Management element of the City of Palmetto's comprehensive plan calls for ensuring that no new point sources shall be permitted to discharge directly into the Manatee River or Terra Ceia Bay during the horizon of the plan, and another policy calls for pollution discharges into Terra Ceia Bay to be in compliance with at least minimum DER Class II water quality standards, although no specific implementing mechanism or deadline listed within this policy. (The former has been faulted for not having addressed the Terra Ceia Aquatic Preserve, and that this objective should be expanded to include nonpoint

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[23]The CHHA, as defined in Rule 9J-5.003(14), means "areas designated by local governments... which have historically experienced destruction of severe damage, from storm surge, waves, erosion, or other manifestations of rapidly moving or storm driven water. These areas shall include all areas within the local government's jurisdiction where public facilities have been damaged or undermined by coastal storms, Federal Emergency Management Agency designated V zones, areas seaward of the coastal construction control line established by the Florida Department of Natural Resources pursuant to Chapter 161, F.S., and inlets which are not structurally controlled."

[24]Ch. 258.393(2), F.S.

source pollution, as well as correcting existing discharges causing pollution (e.g., WWT discharge, septic tank usage, & stormwater runoff).

Other objectives and policies within the City of Palmetto's comprehensive plan addressing this issue appear to be consistent with the Tampa Bay SWIM plan, and not inconsistent with the Terra Ceia Aquatic Preserve management plan. These include:

- ensuring no net reduction in surface and subsurface water quality in coastal and inland areas as a result of existing and future development
- requiring all future urban development to be served by the City's wastewater treatment system to prevent environmental degradation of surface waters, marine & aquatic resources, and underlying groundwater resources
- implementing programs to develop water reclamation and/or reuse alternatives for wastewater effluent and stormwater by 1993
- providing sanitary sewer service to all areas within City limits, and
- requiring the City's sewage collection, treatment, and disposal system to meet or exceed applicable local, state, and federal regulations and guidelines.

Perhaps the most potent policy within the City of Palmetto's comprehensive plan calls for implementing upon adoption of the City's comprehensive plan the Terra Ceia Aquatic Preserve management plan to measurably improve water quality and to increase the productivity of commercially important fisheries and other aquatic resources. However, this policy appears to lack specific implementing mechanisms, and it does not adopt any regulatory wording within Ch. 18-20, F.A.C., governing the management of aquatic preserves.

### [2] Nonpoint Source Water Pollution

(This issue is differentiated from issue #4, **Urbanization/Land Use/Wildlife Habitat**, in that it concentrates more directly on nonpoint source stormwater runoff and septic tank seepage, while issue #4 concentrates on land use and development regulations and their effect on ecosystems and wildlife habitat, including Tampa Bay. This differentiation reflects both the Tampa Bay SWIM plan and most local comprehensive plans' treatment of these issues, meanwhile recognizing that land use and the quality and quantity of stormwater runoff are integral to each other.)

Nonpoint source water pollution is an extremely important issue in Florida, especially for coastal, urban counties, and a great deal of attention is presently being paid to this issue by both state and federal governments. Policies within the Tampa Bay SWIM plan that specifically address this issue include:

- require (if feasible) that runoff quality be no worse than the state water quality criteria or the existing quality of the receiving waterbody, whichever is better
- assist local governments in retrofitting high priority urban stormwater systems through project cost-sharing
- encourage the regulation of stormwater runoff rates for all new development or redevelopment projects (if feasible), and

- ensure the proper regulation and disposal of septage waste.

In comparison, both the Cockroach Bay and Terra Ceia aquatic preserve plans simply require (through the efforts of DER and SWFWMD) the maintenance and upgrading of the water quality of the estuary, and to ensure the natural seasonal flow fluctuations of fresh water into the estuary. There are no policies that address stormwater runoff, septic tanks, or regulating land use, and the only policy directive that specifically addresses off-site conditions encourages DER and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. However, this policy directive is generally consistent with the SWIM plan.

The Hillsborough County comprehensive plan appears fairly consistent with the Tampa Bay SWIM plan regarding the regulation of septic tanks and stormwater runoff, particularly concerning septic tanks. Objectives and policies within the Hillsborough County comprehensive plan that address nonpoint source water pollution include:

- require all new developments to continue to provide stormwater treatment facilities which meet or exceed appropriate local, state, and federal regulations
- require appropriate existing development planned for expansion, modification, and/or replacement to provide some effective form of stormwater treatment, in addition to new development
- restrict septic tanks in the CHHA
- require Best Management Practices (BMPs) within the county where needed to minimize poor quality runoff
- require existing septic systems to connect to the county's wastewater treatment system
- use wetlands for stormwater treatment pending pretreatment; doesn't support lowered surface water quality standards & classification
- provide improved wastewater treatment to developed areas where persistent water quality problems from poorly functioning septic tank systems exist

Additional comprehensive plan policies addressing nonpoint source water pollution include:

- request local and state agencies to improve monitoring and compliance enforcement of point and nonpoint discharges
- request the development via an interagency agreement of scientifically-defensible siting criteria, performance standards, and density limitations for septic systems (with special criteria for siting adjacent to Class I, II, and Outstanding Florida Waters (OFWs))
- restrict development around the Cockroach Bay Aquatic Preserve
- under the Cockroach Bay Overlay District Study, part of the Cockroach Bay plan amendment (explained below), seek to establish a buffer area between the preserve and adjacent upland habitat land uses in order to help protect water quality and aquatic vegetative habitats from degraded stormwater runoff[25]

[25]Policy C-37.4, part of the Cockroach Bay Plan Amendment CPA 92-03, seeks to establish a scientifically-defensible buffer zone between the Cockroach Bay Aquatic Preserve and adjacent upland uses in order to

- develop a program in conjunction with the EPC, SWFWMD, DNR, TECO and other property owners to identify drainage system alterations that facilitate water quality and habitat value improvements in the Cockroach Bay Aquatic Preserve utilizing a variety of mechanisms, such as the use of natural plant communities for the treatment of stormwater, detention of stormwater, and purchase of lands by the Environmental Lands Acquisition and Protection Program (ELAPP) for multiple use as wildlife habitat and stormwater management

- request the ELAP Program to purchase suitable parcels in the Area of Concern[26] and incorporate site restoration projects that achieve water quality and/or habitat benefits to the Preserve, and

- provide public education to residential homeowners addressing surface water quality impacts of improperly managed lawn litter and fertilizer/herbicide/pesticide applications.

Most of these policies are consistent with the Tampa Bay SWIM plan and the Cockroach Bay aquatic preserve plan. Those policies that lack an equivalent policy within the Tampa Bay SWIM plan and the Cockroach Bay aquatic preserve plan do not appear to be inconsistent with either plan.

The Manatee County comprehensive plan appears fairly consistent with the Tampa Bay SWIM plan and the Terra Ceia aquatic preserve plan; however, the Manatee plan has several policies addressing this issue that do not have an equivalent within the Hillsborough plan. For instance, the Manatee plan calls for minimizing and/or eliminating pollutant loadings to Tampa Bay and its tributaries from septic tank seepage; and specifically coordinating with SWFWMD's SWIM program to complement regional water quality management programs with local stormwater programs.

Additional policies within the Manatee County plan that address nonpoint source water pollution include:

- require all projects to meet all applicable local, state and federal stormwater regulations and comply with all coastal management plans (the most stringent standard applying)

- require onsite detention of runoff to remove pollutants

- consider county implementation of needed improvements to poorly maintained or functioning private stormwater management systems and recovering the cost with special assessments

- use natural water storage areas for stormwater retention (if consistent with local, state, and federal regulations)

- prohibit alteration of natural watercourses or floodways unless in the public interest, and

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prevent degradation of water quality and aquatic vegetation habitats as part of the Cockroach Bay Overlay Study called for in Policy C-37.13. This policy is not inconsistent with both the SWIM and Cockroach Bay Aquatic Preserve management plans, and is being currently implemented with the recent ELAPP/SWIM/Coastal America-funded land purchase and restoration adjacent to Cockroach Bay.

[26]The first step of the objective of the Cockroach Bay Plan Amendment is to identify the specific area wherein new permitted discharges of stormwater runoff are likely to impact the Aquatic Preserve. This area is to be known as the "Area of Concern," based on review of the boundaries of the Aquatic Preserve, the Little Manatee River watershed, and drainage basins which discharge to Cockroach Bay and the Aquatic preserve.

- protect natural drainage features and preserve their function for detention of stormwater.

Objectives or policies present in the SWIM plan but not included in the Manatee plan include encouraging public education regarding the causes, effects, and solutions to the effects of water pollution from degraded stormwater runoff; requiring, if feasible, the quality of stormwater discharges be no worse than the state water quality criteria or the existing quality of the receiving waterbody, whichever is better; and encouraging basinwide stormwater management studies to determine existing stormwater deficiencies and future needs.

The City of Palmetto comprehensive plan has a number of policies that address nonpoint source stormwater runoff. The majority of these appear to not be inconsistent with both the Tampa Bay SWIM plan and the Terra Ceia aquatic preserve plan. However, according to DER, the City's comprehensive plan lacks specific, measurable objectives and policies that direct programs and activities towards correcting existing estuarine water quality problems from the wastewater treatment plan discharge, septic tank usage, and stormwater runoff from agricultural and urbanized areas of the City. In addition, the City's comprehensive plan does not specifically recognize or coordinate with SWFWMD's SWIM program for Tampa Bay. Another policy that restricts septic tank use to 'areas in which their efficient use can be determined without environmental degradation of water resources or threat to public health' appears to be inconsistent with another policy requiring all future urban development to be served by the City's wastewater treatment system in order to prevent environmental degradation of surface waters, marine & aquatic resources, and underlying groundwater resources.

**[3] Phosphate Processing Operations**

There is consistency among all three types of plans regarding phosphate processing operations. The Tampa Bay SWIM plan calls for reducing point and nonpoint source pollutant loading to attain the water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and attain the highest possible water use classification. Under this initiative, toxic pollutants such as gypsum, a waste byproduct of phosphate mining, are to be managed in such a manner so as to preclude all future adverse environmental impacts on Tampa Bay. All other previously incurred environmental impacts on Tampa Bay resulting from mismanagement of gypsum fields or other contaminant sources should be readdressed.

The Hillsborough County comprehensive plan mandates that mining activities within the county shall comply with or exceed state regulations related to land reclamation and wetlands, water quality and quantity, and wildlife habitat protection; restrict mining in ecologically unsuitable areas; and continue to enforce the county's mining ordinance to prohibit mining within 25-year river floodplains and restrict mining within the 100-year floodplains of rivers and streams. However, there is no policy requiring reclamation or readdressment of previously incurred environmental impacts from mining or management of waste byproducts.

The Cockroach Bay and Terra Ceia Aquatic Preserve management plans both prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.

The Manatee County comprehensive plan is less restrictive about mining in environmentally sensitive areas than Hillsborough County's plan is. The former requires new applications for mineral resource extraction to be reviewed for adverse environmental impacts and to be in compliance with county Reclamation Ordinance No. 81-22, although this policy and its implementation mechanism lacks necessary wildlife protection measures, according to the Florida Game and Freshwater Fish Commission (FGFWFC). The Manatee County comprehensive

plan also requires that all applications for mineral extraction contain a reclamation program which requires reestablishment of the "form and function of an appropriate land cover."[27] There is no policy requiring reclamation or readdressment of previously incurred environmental impacts from mining or management of waste byproducts.

There is no mention of phosphate mining activities within the City of Palmetto comprehensive plan.

### [4] Urbanization/Land Use/Wildlife Habitat

As mentioned above, this is one of the most inclusive and relevant issues binding all three types of plans in this study together, concentrating on land use and associated development regulations and their effect on ecosystems and wildlife habitat, including Tampa Bay. This includes programs to conserve or preserve land (for the purposes of habitat protection and treatment of runoff, among others), as well as regulation of both private and public development and other activities in upland, riverine, intertidal and subtidal areas and their impact on water quality (water quality and the means to address it being perhaps the most common issue between the three types of plans).

The Tampa Bay SWIM plan presents two major initiatives with associated programs and strategies that address land use and its effects on water quality and habitat. These initiatives include: (1) providing sound environmental policies governing land use which impact the Tampa Bay ecosystem, and (2) preserving, enhancing, and/or restoring upland, riverine, intertidal and subtidal habitats for biological communities, pollution abatement, and aesthetic and recreational purposes.

Programs under the first initiative include: encouraging appropriate land use at the local, state, and federal level; encouraging appropriate development or agricultural use of land bordering the bay and its tributaries; evaluating the adequacy of existing zoning laws, environmental laws and permitting processes as related to land use and environmental resources; and promoting environmentally sound projects and practices. Major strategies for carrying out these programs include the development, evaluation, and promotion of techniques, policies, and laws through means such as technical assistance to local governments, district review of local comprehensive plans and land use ordinances, and review of district rules pertaining to land use and development practices.

Programs under the second initiative include: promoting the preservation of relatively pristine or functional habitats already in existence; expanding and/or exchanging (mitigating) existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands; and restoring habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands. Major strategies for carrying out these programs include promotion and support of local, state, and federal legislation designed to protect habitat, comprehensive planning, and environmental education, stressing consistency among governments; enforcement of existing laws governing habitat protection; existing land acquisition programs; and taxing initiatives for acquisition. The augmentation and restoration of existing and historical habitat is also a strategy that the district is very involved in, both for district lands and local government properties within the Tampa Bay watershed (the latter utilizing cost-sharing between the district and local governments).

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[27]Policy 3.3.4.2, *Manatee County Comprehensive Plan.*

In contrast to the Tampa Bay SWIM plan, which seeks to influence land use within the Tampa Bay watershed and to preserve and restore conservation areas, both aquatic preserve management plans are preservation-oriented, and call for the protection and, where possible, enhancement of threatened and endangered species habitat within the aquatic preserve. Additional onsite policies and procedures include:

- require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present.

- prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat (unless a prior determination has been made by the Board of Trustees of the State of Florida of overriding public importance and that no reasonable alternatives exist). Selected onsite policies and procedures include:

    1. identify and develop guidelines for areas and plant communities in need of restoration

    2. discourage developments within the aquatic preserve that require restoration or mitigation

    3. develop an exotic plant control and removal plan following monitoring

    4. develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.

- prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.

- prohibit non-water dependent uses of submerged lands (including floating residential units) within the aquatic preserve except in those cases where the Board has determined that the project is overwhelmingly in the public interest and no reasonable alternatives exist.

- prohibit storage of toxic, radioactive, or other hazardous materials within the aquatic preserve.

Again, the operative phrase for all of these policies is "within the aquatic preserve." There is only one policy in both aquatic preserve management plans that indirectly calls for influencing land use offsite:

- require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage DER and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.

Overall, these aquatic preserve policies are either consistent with or not inconsistent with the above SWIM plan policies. The possible exception is the aquatic preserve policy that discourages developments within the aquatic preserve that require restoration or mitigation vs. the SWIM plan strategy calling for the evaluation, promotion, and/or drafting of improved laws for mitigation policies and practices, and the evaluation of mitigation banking and other criteria for monitoring and determining the success of a project.[28] The former is clear on the practice of

[28]Strategy #3, Program 1.c., Development And Public Use Initiative 1, *Tampa Bay SWIM Plan*.

mitigation within the preserve, and the latter supports research and "fine-tuning" of mitigation laws, policies, and practices throughout the Tampa Bay area.

In contrast to the SWFWMD's strategy of encouraging environmentally sound and appropriate land use, and the aquatic preserves' concentration on protection of onsite resources (and lack of control of land use outside preserve limits), is the power of local governments to regulate land use. This power is explicitly codified within the local comprehensive planning process and the subsequent creation and adoption of mandated land development regulations. Subsequently, both the Hillsborough County and Manatee County comprehensive plans have a variety of GOPs relating to land use, development practices, and conservation, especially within the coastal area.

The first requirement for consistency within this issue area is the recognizance by local governments of any existing resource protection plans (e.g., aquatic preserve management plans) within the coastal management element, along with regulatory or management techniques for coordinating with the existing resource protection plans(s). Both Hillsborough County and Manatee County comprehensive plans recognize the aquatic preserves within their jurisdictions, and have issued policies within several elements for establishing coordination and consistency with the respective aquatic preserve management plans. (This is discussed further within the **Intergovernmental Coordination and Planning Consistency** issue below.)

Beyond this initial requirement, both comprehensive plans appears to be mostly consistent with the Tampa Bay SWIM plan and the aquatic preserve plans. For instance, the Hillsborough County comprehensive plan has a number of land development policies calling for:

- protection of conservation, preservation, and other environmentally sensitive areas
- multiple use of public lands, such as parks, stormwater treatment, and wildlife habitat
- give priority to locating water-dependent or related land uses along the shoreline of the coastal area (but restricting development of water-related land uses by dredging and filling wetlands or the natural shoreline)
- prohibit solid waste landfills and hazardous waste facilities that may adversely affect rivers and tributaries
- discourage dredging and filling of wetlands
- protect floodplains
- encourage buffers for wetlands, floodplains, and waterbodies, and
- address cumulative environmental impacts.

The Cockroach Bay plan amendment has several policies that directly address land use and associated development regulations and their effect on ecosystems and wildlife habitat. These include:

- under the Cockroach Bay Overlay District Study, part of the Cockroach Bay plan amendment (explained below), seek to establish a buffer area between the preserve (part of the Area of Concern) and adjacent upland habitat land uses in order to help protect water quality and aquatic vegetative habitats from degraded stormwater runoff
- develop a program in conjunction with the EPC, SWFWMD, DNR, TECO and other property owners to identify drainage system alterations that facilitate water quality and

habitat value improvements in the Cockroach Bay Aquatic Preserve utilizing a variety of mechanisms, such as the use of natural plant communities for the treatment of stormwater, detention of stormwater, and purchase of lands by the ELAP Program for multiple use as wildlife habitat and stormwater management, and

- request the ELAP Program to purchase suitable parcels in the Area of Concern and incorporate site restoration projects that achieve water quality and/or habitat benefits to the Preserve, and

These policies appear to be consistent with both the Tampa Bay SWIM plan and the Cockroach Bay Aquatic Preserve management plan. However, according to DCA, a policy requiring soil capability analyses for flood hazards, stability, etc. to be considered for new development appears to be inconsistent with Chapter 163, F.S., and 9J-5.006(3)(b)1, and that this policy needs to be strengthened to guide or coordinate new development to areas having suitable soils.

Mitigation, used by local governments as a tool for compensating for the impacts of new development in environmentally sensitive areas, is controversial. Both local comprehensive plans address mitigation; however, they appear not to perhaps be fully consistent with both aquatic preserve plans regarding mitigation as a condition of development within aquatic preserves, particularly in areas where seagrasses are present.

Both the Cockroach Bay and Terra Ceia Aquatic Preserve management plans call for prohibiting development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat. They also discourage developments within the aquatic preserve that require restoration or mitigation.[29] In contrast, the future land use element of the Hillsborough County comprehensive plan supports mitigation as a condition of development by calling for mitigation of adverse impacts from development, and requiring mitigation as a condition of issuing development orders, including within Natural Preservation Areas (where development for public use has been decided to be in the public interest), other 'natural environmental systems' as defined in the conservation and coastal management elements, and in the county's River Corridor Overlay Districts. Another policy within the same element, however, calls for preserving wetlands by discouraging the use of mitigation, dredge and fill, and similar development activities through revising the county's land development regulations to strictly limit these practices. Additional policies also call for protection of tidal and other wetlands by prohibiting 'unmitigated encroachment,' in addition to requesting regulatory agencies to develop a unified and coordinated wetland mitigation and restoration program, consistent with the Tampa Bay SWIM plan.

However, according to both the Hillsborough County Environmental Protection Commission (EPC), the local environmental regulatory agency for Hillsborough County, and DNR, there is no conflict between the EPC's rules and DNR's rules for mitigation in most aquatic preserves (and no conflict between the EPC's regulations and the comprehensive plan.) Mitigation is not allowed within pristine areas of the Terra Ceia and Cockroach Bay aquatic preserves, but is allowed or at least considered within the less-pristine areas of the preserve. Specifically, on mitigation would be accepted for a proposed project that would impact a resource area designated Resource Protection Area (RPA) 1 or 2. A proposed project would be considered, and mitigation accepted,

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[29]Additionally, both plans state that "[m]itigation measures, other that those associated directly with programs for habitat reestablishment or rehabilitation, are viewed by the Board [of Trustees] as inadequate attempts to compensate for alteration of essentially natural ecological conditions through the establishment of artificial resource systems. Therefore, mitigation will only be encouraged in conjunction with on and off-site projects that are designed to reestablish natural habitat values and where the aquatic preserve will biologically and aesthetically benefit from the proposed restoration actions." (*Terra Ceia* and *Cockroach Bay Aquatic Preserve Management Plan(s)*, pp. 103 and 101 respectively.)

if the area was designated an RPA 3. (RPA 1 is a resource area of natural or pristine qualities while an RPA 3 is usually a barren area with a sandy bottom with little of no vegetation.) This is essentially the same application of EPC's wetlands rule, which governs the protection and use of wetlands within Hillsborough County.[30]

The EPC, created by Florida Statute, is independent of the Hillsborough County Board of County Commissioners and the County Administrator, and is not required to abide by or implement the GOPs within the county's comprehensive plan. Accordingly, the county works cooperatively with the EPC to implement and enforce the county's comprehensive plan. The EPC's wetland policies and regulations supersede those in the comprehensive plan, and they also apply to the Cockroach Bay aquatic preserve.[31] Countywide, the EPC's wetlands rule seeks to preserve wetlands, but also offers an alternative of mitigation as a condition of development of such wetlands. In fact, EPC's rule has been overall fairly successful, resulting in a net paper gain of 298 acres of wetlands since 1985 as the result of mitigation.[32]

Hillsborough County has several plan amendments that are of significance to Cockroach Bay. Plan amendment CPA 92-01, proposing a new growth management section to the Future Land Use element, presents a Urban Service Area Map showing an Expansion Area overlapping into a Wellfield Protection Area and the Cockroach Bay Aquatic Preserve. This overlap appears to be inconsistent with Policy 4.3 of the Coastal Management element and Policy 18.3 of the Conservation element. However, this overlap is most likely deliberate, and is part of an ongoing controversy between the county, the state, and SWFWMD over the relationship between building density and the provision and effectiveness of various wastewater treatment facilities within the coastal areas of the county. (The County's strategy in these areas has been to encourage higher building densities so that this will make the provision of centralized wastewater treatment facilities preferable to septic tanks, which has been a major problem within the coastal area, particularly within the watershed of the Manatee River and Cockroach Bay.)

A land use issue in Hillsborough County that was significant several years ago, but is now moot, was the tentative siting of an Tampa Electric Company (TECO) electrical power generating facility on the southern shore of Cockroach Bay. Although the Hillsborough City-County Planning Commission developed an Electrical Power Generating Facility (EPGF) land use category for this purpose, the Cockroach Bay site was environmentally controversial, and several agencies and other groups filed objections to this land use. A citizen's committee was formed to review the issues involved in locating such a facility in this location, and, partly a result of their findings, TECO decided to build this facility in another location inland. Although the proposed site on Cockroach Bay did not end up in the published future land use map as EPGF, this category is still extant within the county's comprehensive plan (albeit with restrictions).

As a result of this threatened designation and other issues affecting Cockroach Bay the citizen's committee brought to light, the Hillsborough City-County Planning Commission, with the assistance with the county's Environmental Protection Commission, was directed to come up with a full set of environmental data for Cockroach Bay for the purpose of creating a protection plan and comprehensive plan amendment (CPA 92-03) for the protection of the bay and its

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[30]Chapter 1-11, Rules of the Environmental Protection Commission of Hillsborough County, Florida.
[31]By an act of the Legislature of Florida, the Tampa Port Authority owns and has jurisdiction over all submerged lands within Hillsborough County (excluding the Cockroach Bay Aquatic Preserve). DNR, although it has jurisdiction over the CBAP, only leases these lands for the preserve. Those who wish to develop submerged lands need permission from both the EPC and the Port Authority (and DNR when developing within the Cockroach Bay Aquatic Preserve).
[32]Courtney, C.M., "The Role of a Local Government in Wetlands Protection" (to be presented to the Society of Wetland Scientists, 14th Annual Meeting, Edmonton, Alberta, May 30-June 3, 1993). Ecosystems Management Division, Environmental Protection Commission, Hillsborough County, Florida.

resources. The coordination of this effort takes place through the Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT), and involves a number of different local, state, and federal agencies and other organizations. (The development of this amendment, the data supporting it, the county's management plan, and the amendment itself, are discussed elsewhere in this report.)

The Manatee County comprehensive plan appears to be less supportive of mitigation, although it is still available as a tool to allow development activities such as dredge and fill in wetlands where deemed necessary or justifiable, or to allow wetland encroachments under the same criterion. Other selected policies include:

- require special approval for projects adjacent to rivers, lakes and streams
- prohibit new development within the floodway of any perennial stream
- maximize the exclusion of all proposed development from the 25-year floodplain
- minimize alteration of any lake or stream by limiting the density credit transferred
- limit the extent and impact of land development in the Coastal Area and CHHA so as to preserve the high value of coastal resources
- prohibit alteration of coastal wetland habitat except in instances of proposed water-dependent uses, overriding public interest, deepwater ports or to avoid a taking. (DNR's comments on the proposed version of this policy state that the county should carefully weigh these exceptions, and that future activities of this type should be sited in areas that have already been disturbed, especially deepwater port facilities.)
- require any encroachments into wetlands be mitigated pursuant to the habitat-specific mitigation ratios described and require monitoring of mitigation success
- require 50 ft. buffer zones for post-development jurisdictional wetlands on development sites within the coastal area contiguous with any special waters
- review all proposed developments for compatibility with and determination of cumulative impacts on adjacent natural resource reservation areas, and
- require all proposed development adjacent to the Terra Ceia Aquatic Preserve ensure that no significant degradation of water quality, shoreline or estuarine habitat occurs.

The above policies appear relatively consistent with the Tampa Bay SWIM plan and the Terra Ceia Aquatic Preserve management plan. However, DNR, in their review of Manatee County's proposed comprehensive plan, urged the county to take a stronger stand on mitigation, that this position should be upfront, and that it should be monitored for the prescribed number of years. Furthermore, DNR thinks that areas used for mitigation should, at the outset of development, become conservation sites belonging to the county and not further developed.

Review comments for both counties' comprehensive plans have urged that their respective objectives and policies concerning mitigation be strengthened by eliminating or restricting mitigation beyond what is presently allowed. This has been a controversial issue for the last decade, in that local governments have been forced to use mitigation as a tool to allow at least the partial development of privately-owned environmentally sensitive lands in order to avoid the taking issue, whereas state natural resource agencies such as DER and DNR have been less supportive of mitigation, and generally discourage it.

The Hillsborough County comprehensive plan has several policies concerning wildlife and wildlife habitat, including protecting significant wildlife habitat and prevent any further net loss of essential wildlife habitat; developing and implementing a comprehensive program to conserve and protect significant wildlife habitat from development activities; restricting development activities which adversely affect areas identified and mapped as essential wildlife habitat; and considering the effects of development on significant wildlife habitat and protect wildlife corridors during the land use planning and development review process. These policies are not inconsistent with both the SWIM plan and the Cockroach Bay aquatic preserve plan.

The Manatee County comprehensive plan has several policies as well that address wildlife habitat. These include protecting and enhancing significant vegetative communities which support wildlife in the Coastal Area; protecting native wildlife and their habitat from development which would significantly alter their function and character; requiring the preservation of native habitat during land development activities; and encouraging the development or preservation of wildlife corridors by intergovernmental coordination and Transfer of Development Rights. These policies are not inconsistent with both the SWIM plan and the Cockroach Bay aquatic preserve plan.

The City of Palmetto comprehensive plan has a number of elements that directly address urbanization/land use/wildlife habitat, and that support many of the initiatives and programs of the Tampa Bay SWIM plan for this issue. However, according to DCA, the City's comprehensive plan lacks objectives and/or policies within its coastal management element that address:

- improving estuarine environmental quality
- the protection, conservation, and restoration of beaches or dunes, and
- coordinating with other local governments to ensure adequate sites for water-dependent uses, prevent estuarine pollution, control surface water runoff, protect living marine resources, reduce exposure to natural hazards, and ensure public access.

The City of Palmetto comprehensive plan, according to DCA, also lacks objectives and/or policies within its conservation element that address:

- the conservation, appropriate use, and protection of native vegetation and fisheries
- the protection and conservation of the natural functions of existing soils, fisheries, rivers, bays, floodplains, and harbors, and
- the protection of existing natural reservations.

The City of Palmetto comprehensive plan, according to DER, also lacks a policy within its coastal element that identifies regulatory or management techniques for the restoration or enhancement of disturbed or degraded natural resources.

Overall, the City's comprehensive plan appears not to give adequate consideration to the Terra Ceia Aquatic Preserve management plan, particularly within the City's land use criteria for water-dependent uses and development within wetlands. The City's comprehensive plan also appears to rely heavily on mitigation of adverse impacts as a planning technique to protect and enhance natural resources such as wetlands and wildlife habitat. According to agency reviews of the draft version of the City's comprehensive plan, the City's use of mitigation as outlined in these policies is not adequate in its definition or specificity for this purpose. This is also true concerning the City's land acquisition program or other activities.

### [5] Agricultural Activities and Effects on Water Quality and Living Resources

The Tampa Bay SWIM plan recognizes agricultural stormwater runoff as a threat to the water quality of Tampa Bay, and incorporates several strategies designed to address this issue. These strategies include:

- encourage the development of soil and water conservation plans employing Best Management Practices (BMPs) for agricultural, aquacultural, and silvicultural operations in the Tampa Bay watershed; identify priority sub-basins; develop conservation plans for landowners in priority sub-basins by the Soil Conservation Service with assistance from the district and local soil and water conservation districts

- ensure compliance with approved conservation plans through establishment of new positions within the district with responsibility for compliance monitoring and enforcement, and

- reduce the levels of nutrients and other contaminants in agricultural stormwater discharges by requiring if feasible, that the quality of stormwater discharges be no worse than the state water quality criteria or the existing quality of the receiving waterbody, whichever is better.

Neither of the two aquatic preserve management plans have policies that address agricultural runoff and its effects. They both require only, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. Regardless, there are several ongoing activities that directly address agricultural and other types of runoff and their effects on Cockroach Bay. These include a combined land acquisition and stormwater treatment project on the northern shore of Cockroach Bay funded by the federal Coastal America program, Hillsborough County, and SWFWMD's SWIM program (for a total contribution of approximately $1 million), and an additional award of a $400,000 U.S. Environmental Protection Agency (EPA) Clean Water Act Section 319(h) Nonpoint Source Pollution Set-Aside grant to fund construction of a stormwater system designed to treat agricultural runoff presently entering the bay. (The latter is specifically designed to address sediment contamination from polluted runoff.) This project is described further within this report

This project, along with the agricultural BMPs called for in both Hillsborough and Manatee County comprehensive plans, are perhaps the most visible manifestation of consistency regarding agricultural runoff for the Cockroach Bay Aquatic Preserve and (excluding the two projects above) the Terra Ceia Aquatic Preserve.

The City of Palmetto comprehensive plan contains no objectives or policies that address this issue.

### [6] Mosquito Control Activities and Effects on Wetlands Habitat, Water Quality, And Living Resources

Mosquito control activities such as diking, ditching, and the application of various biocides have historically had deleterious effects on wetlands habitat, water quality, and living resources in estuaries.

The Tampa Bay SWIM plan does not specifically address mosquito control activities, although Natural Systems Initiative 1 (preserving, enhancing, and/or restoring upland, riverine, intertidal and subtidal habitats) and its strategy of promoting the preservation of relatively pristine or functional habitats could be used to address this issue where necessary.

In contrast, both Terra Ceia and Cockroach Bay aquatic preserve plans prohibit mosquito control practices (i.e., diking, ditching) within the aquatic preserve that require habitat modification or manipulation (unless there are no reasonable alternatives and failure to conduct such practices would result in a threat to public health). Both plans also limit pesticide and biocide use within the aquatic preserve to those that are approved by EPA for wetland and aquatic application.

There are no GOPs in either Hillsborough or Manatee County comprehensive plans that reference mosquito control activities, past or present. However, although both Hillsborough and Manatee Counties have only one mosquito control district each, both Terra Ceia and Cockroach Bay aquatic preserve plans call for preserve managers to become familiar with the policies and activities of each district, and to work with and monitor the activities of these districts.

The City of Palmetto comprehensive plan contains no objectives or policies that address this issue.

Overall, there is no consistency between the three types of plans for this issue.

### [7] Destruction/decline of Seagrasses

This is one of the most important issues affecting the Tampa Bay estuary. Seagrasses, important as nurseries for many species, are affected by increased turbidity, thermal discharges from power plants, dredge and fill, and physical damage from propeller scarring, and have declined to approximately 19 percent of their coverage since 1876.[33]

The Tampa Bay SWIM plan has a number of programs and strategies that directly address the causes of decline of seagrasses that are incorporated under two major initiatives. The plan calls for (1) preserving, enhancing, and/or restoring upland, riverine, intertidal and subtidal habitats (explained in detail above in **Urbanization/Land Use/Wildlife Habitat**), and (2) reducing incidental destruction of environmentally sensitive areas. (The latter includes a program of distributing signs and other markers throughout the bay in seagrass and other environmentally sensitive areas.)

Because they are a key component of the submerged habitat within both Terra Ceia and Cockroach Bay Aquatic Preserves, their management plans contain an extensive variety of policies to protect this resource. These include:

- protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve. Additionally, require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present (additional restrictions may apply)

- prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat (unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist). Additional onsite policies and procedures include:

[33] P. 27, *Tampa Bay SWIM Plan*, 1988.

1. identify and develop guidelines for areas and plant communities in need of restoration.

2. discourage developments within the aquatic preserve that require restoration or mitigation.

3. develop an exotic plant control and removal plan following monitoring.

4. develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.

- prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve

- prohibit non-water dependent uses of submerged lands within the aquatic preserve except in those cases where the Board has determined that the project is overwhelmingly in the public interest and no reasonable alternatives exist, including floating residential units

- limit pesticide and biocide use within the aquatic preserve to those that are approved by the EPA for wetland and aquatic application, and

- prohibit the construction of new deepwater ports within the aquatic preserve boundaries.

One of the most potent activities that can impact seagrasses within aquatic preserves is the emplacement of docks and piers. DNR has permitting authority for docks and piers within aquatic preserves, but they cannot forbid the construction of docks and piers as long as they meet criteria established by law and rule. However, they can influence their placement and design, and do so when necessary.

Overall, the three types of plans within the study area appear to be generally consistent for this issue. Both Hillsborough and Manatee County comprehensive plans address seagrasses by restricting development activities in submerged areas containing "significant seagrass" or "significant seagrass habitat."[34] However, in the case of the Manatee County comprehensive plan, the terms "significant" and "adversely affect," part of a policy prohibiting non-water-dependent development in submerged areas containing significant seagrass, are not defined. Additionally, although Policy 4.1.1.1 (Conservation element) of the Manatee County comprehensive plan prohibits any non-water-dependent development activities in submerged areas containing "significant" seagrass habitats, it qualifies this policy by stating " . . . except as expressly permitted by other policies (e.g., Policy 4.1.2.5) . . . " Policy 4.1.2.5 restricts " . . . dredge and fill operations within the Coastal Area to operations which facilitate the continuing use of existing channels, *operations associated with appropriate water-dependent uses* [italics added], or operations caused by limited tidal circulation or other deficiencies of the environmental system."

This policy is also inconsistent with Policy 2.6 (Coastal Management element) of the Hillsborough County comprehensive plan, which prohibits development activities on submerged lands containing significant seagrass habitat. Policy 4.1.2.5 could also possibly permit development in areas where significant seagrass habitats are present. Furthermore, if development is allowed as such, even if mitigated, and the aquatic preserve management plans call for prohibiting such development within aquatic preserves (in addition to the SWIM plan calling for protecting and restoring seagrass areas), then there is a possible inconsistency (or perhaps a lack of clarification) among these two plans regarding development in areas where seagrasses are present.

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[34]Policy 2.1, Coastal Management element and Policy 3.3, Conservation and Aquifer Recharge element. See matrices for a more detailed listing of policies.

Policy C-37.4 (Future Land Use element), part of the Cockroach Bay plan amendment CPA 92-03, seeks to establish a scientifically-defensible buffer zone between the Cockroach Bay Aquatic Preserve and adjacent upland uses in order to prevent degradation of water quality and aquatic vegetation habitats as part of the Cockroach Bay Overlay Study called for in Policy C-37.13. This policy is not inconsistent with both the SWIM and Cockroach Bay Aquatic Preserve management plans. However, in DNR review comments on the earlier version of this policy (18.3, Conservation and Aquifer Recharge element) in the draft comprehensive plan, the agency suggested that the county needed to readdress its future land use designations if the county wants a buffer around the preserve.

Policy C-37.5, also part of the Cockroach Bay plan amendment CPA 92-03, requires the Board of County Commissioners to establish a Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) by 1992, with members representing the County, the Planning Commission, the Environmental Protection Commission, Hillsborough Community College, state and regional agency staff, concerned citizens and area landowners. One of the tasks for the Management Advisory Team is to document the extent and relative health of seagrasses and identify sources of seagrass damage before recommending actions to ban boating or identify exclusionary areas in the aquatic preserve. (Policy C-37.9, Future Land element, calls for the county to work with the appropriate authorities, including the Environmental Protection Commission and DNR, to implement means of protecting seagrasses from propeller dredging throughout the aquatic preserve.)

Another task is to assist in the development of public education maps and to work with the appropriate authorities in the placement of markers clearly indicating boating channels and potential hazards in appropriate locations throughout the Cockroach Bay Aquatic Preserve. These policies are clearly consistent with both the Tampa Bay SWIM plan and the Cockroach Bay Aquatic Preserve management plan.

The Hillsborough County Environmental Protection Commission recently amended Chapter 1-11 of its rules to include seagrass species as wetland plants and to give these areas special protection when they are sufficiently damaged (e.g., from the impacts of propeller-driven boats). This amendment creates marine recovery areas where this physical damage can be documented, and ameliorated through the implementation of special management plans. With the assistance of DNR, four recovery areas have been established within the Cockroach Bay Aquatic Preserve for an initial period of three years. All of these areas have various restrictions on watercraft as well. Additional activities related to the Cockroach Bay Recovery Areas include informational signage, public educational brochures, marine enforcement by the Hillsborough County Sheriff's Department, and a monitoring and research project to evaluate recovery (also part of Policy 37.5).

The City of Palmetto comprehensive plan has several policies that address seagrasses. These include: (1) review development regulations to ensure no net reduction in native vegetation, marine grass beds, mangrove forests, coastal marshes, and living marine resources; and (2) prohibit dredge and fill of marine grass beds except in instances of overriding public interest (mitigation is required). However, according to review agencies, the City needs to specify how mitigation will be required, and define "instances of overriding public interest." DNR specifically stated in their review that the "loss of further seagrass beds is not in the public interest, as the only seagrasses within the Palmetto are within the Terra Ceia Aquatic Preserve." This latter policy appear inconsistent with the Terra Ceia Aquatic Preserve management plan.

Additionally, according to DCA, the City's comprehensive plan lacks objectives and/or policies within its coastal management element that addresses coordinating with other local governments to ensure adequate sites for water-dependent uses, prevent estuarine pollution, control surface water runoff, protect living marine resources, reduce exposure to natural hazards, and ensure public access. According to DER, this plan also lacks a policy within its coastal element that

identifies regulatory or management techniques for the restoration or enhancement of disturbed or degraded natural resources.

### [8] Dredging and Disposal of Dredge Materials

Dredging and disposal of dredge materials is obviously closely related to the fate of seagrasses, as destruction of submerged bottom and habitat from development activities requiring dredge and fill (e.g., construction of marinas and navigation channels) is one of the reasons for the decline of seagrasses in Tampa Bay.[35] The placement and management of spoil, a byproduct of dredging, and the spoil islands created by this activity is also a major concern within the Tampa Bay estuary.

The Tampa Bay SWIM plan approaches this issue from the perspective of habitat protection and restoration. Several programs under Natural Systems Initiative 1 (preserving, enhancing, and/or restoring upland, riverine, intertidal and subtidal habitats) are designed to preserve existing habitat, restore degraded habitat, evaluate the environmental impacts of marinas and their construction, and promote improved marina designs and facilities.

Since the main objective of the aquatic preserve program is to protect the resources of the aquatic preserves (largely being submerged lands) for the benefit of future generations, most activities that would adversely affect this resource are prohibited. This includes drilling, mining, construction of deepwater ports, bottom-trawling, marina construction in RPAs 1 and 2[36], and all other development activities that would adversely impact saltmarshes and other valuable submerged habitat.[37] In addition, these plans call for managing spoil islands within the aquatic preserve as bird rookeries and wildlife habitat areas.

There is only one policy within the Hillsborough County comprehensive plan that directly addresses dredge and fill. Policy 2.8 (Coastal Management And Port element) calls for the county to initiate an interagency agreement with the Tampa Port Authority[38] to restrict dredge and fill in the coastal area to maintenance dredging of existing channels, activities associated with appropriate water-dependent uses, correction of environmental problems caused by limited tidal circulation, and environmental restoration, all with additional provisions to be included within

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[35]This issue is also closely related to Ports and their impacts; however, because these impacts go beyond dredge and fill, this is its own issue.

[36]As defined in Chapter 18-20.003(31), (32), and (33), F.A.C., an RPA 1 is an area within an aquatic preserve which has resources of the highest quality and condition for that area. These resources may include, but are not limited to, corals; marine grassbeds; mangrove swamps; saltwater marsh; oyster bars; archaeological and historical sites; endangered or threatened species habitat; and, colonial water bird nesting sites. An RPA 2 is an area within an aquatic preserve which is in transition with either declining RPA 1 resources or new pioneering resources within RPA 3. An RPA 3 is an area within an aquatic preserve that is characterized by the absence of any significant natural resource attributes.

[37]Dredge and fill activities within aquatic preserves allowed by law (Ch. 258.42, F.S.), pursuant to a permit, include the minimum dredging and spoiling authorized for public navigation projects, marinas, piers, docks and attendant navigation channels; other alteration of physical resources deemed necessary to enhance the quality or utility of the preserve or public health; maintenance dredging for existing navigation channels; restoration of land; reasonable improvements necessary for public utility installation or expansion; and the installation and maintenance of oil and gas transportation facilities properly marked with marine navigation aids.

[38]The Tampa Port Authority,

the agreement.[39] This policy, while generally consistent with both the SWIM and aquatic preserve plans, does not address submerged lands in terms of habitat and/or water quality protection.

The Manatee County comprehensive plan has several policies dealing with dredge and fill, all of which are consistent with the Terra Ceia Aquatic Preserve management plan and Ch. 258.42, F.S., which addresses dredge and fill activities within aquatic preserves. These policies are similar to those of Hillsborough County, and include:

- prohibit dredging and filling of submerged lands, except for uses classified and prioritized in Policy 4.2.1.1 (Coastal Management element) as water-dependent. All dredge and fill applications within or adjacent to the Terra Ceia Aquatic Preserve shall be submitted to DNR for comments which will be considered by Manatee County during project review, and

- require the management of developments that require dredge and fill to prevent further degradation of adjacent waters and to insure placement of spoil on suitable upland areas.

The City of Palmetto comprehensive plan has two policies that directly address dredging. These policies call for: (1) discouraging the hardening, channelizing, or structural modification of natural drainageways, and (2) prohibiting the dredging and filling of undisturbed bay bottom except in cases of overriding public interest (mitigation is required where appropriate). As referred to earlier, several review agencies have recommended that the City specify how mitigation will be required, and to define "overriding public interest."

With the possible exception of these latter qualifying phrases, there appear to be no obvious inconsistencies for this issue and the policies addressing it within each of the three plans.

### [9] Wetlands

A major issue within the Tampa Bay area is the continued destruction of wetlands. Although the Warren S. Henderson Wetlands Protection Act of 1984[40] has improved the protection of wetlands within Florida, coastal and riverine marshes and swamps within the Tampa Bay watershed face increasing pressure from development.[41] Again, as with the issue of dredging and disposal of dredge materials, the Tampa Bay SWIM program presents wetlands conservation as a habitat issue (in addition to the more traditional water management district concerns for the beneficial effects on ground and surface water that wetlands can have). Correspondingly, the Tampa Bay SWIM plan calls for the preservation, enhancement, and/or restoration of upland, riverine, intertidal and subtidal habitats for biological communities, pollution abatement, and aesthetic and recreational purposes; and the encouragement of appropriate land use at the local, state, and federal level, including appropriate development or agricultural use of land bordering the bay and its tributaries. (The latter includes promotion of limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights, and promoting buffer zones, setback requirements, wildlife corridors, and conservation easements.)

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[39]Ch. 403.021(9), F.S. requires deepwater ports to prepare a master plan which addresses port facilities and expansion plans, environmental impacts, and other elements and impacts of the port. Ch. 163.3178(2)(k), F.S. requires these master plans to be submitted to the local government within whose jurisdiction the port is located and integrated with the coastal element of that government's local comprehensive plan.
[40]Ch. 403.91-403.929, F.S.
[41]P. 27, *Tampa Bay SWIM Plan*, 1988.

Both Terra Ceia and Cockroach Bay aquatic preserve plans have policies that are concerned with protecting wetlands and wetland vegetation (e.g., saltmarsh, mangrove) from adverse impacts by limiting or prohibiting development. Most of these policies apply to wetlands within the jurisdiction of the preserve; however, several have the potential to enhance offsite wetlands. These include:

- prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve, and

- require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.

The first policy has the effect of cutting off a historical source of upland fill, and the second, if successful, would hopefully help protect the water quality of the aquatic preserve by providing an additional layer of protection for those wetlands that drain into the aquatic preserve.

Most policies within the Hillsborough County comprehensive plan appear consistent with wetland-related objectives or policies or their equivalent in the Tampa Bay SWIM plan and both aquatic preserve plans. One of the strongest is Policy 2.1 (Coastal Management element), which continues the county's conservation and protection of tidal wetlands and prohibits unmitigated encroachment into these areas. Additional policies that support both the SWIM and aquatic preserve plans include:

- initiate an interlocal agreement with SWFWMD to ensure that minimum freshwater flows in river and streams needed to support natural optimal diversity and productivity in estuarine areas are scientifically determined and maintained

- amend existing land development regulations (LDRs) to require preservation of native upland plant communities necessary to buffer coastal wetlands

- oppose destruction or degradation of intertidal/subtidal vegetative communities to develop new manmade estuarine beaches

- prohibit channelization or hardening of natural stream courses, except in cases of overriding public interest

- preserve wetlands by discouraging use of mitigation, dredge and fill, and similar development activities by revising LDRs, and

- encourage new development to maintain streams, lakes, wetlands, and estuaries for which stormwater conveyance or attenuation is significant.

However, several policies appear to be inconsistent with the Cockroach Bay aquatic preserve plan. Objective 2 and Objective 3 of the respective coastal management and conservation elements are virtually identical in wording, and both call for the continuance of no net loss of wetlands in the county's coastal and other areas, and a measurable annual increase in restored wetlands. (The latter is consistent with the Tampa Bay SWIM plan.) Both objectives require mitigation and/or restoration to implement. Although Policy 2.1 (Coastal Management element) continues the conservation and protection of tidal wetlands, it does so by prohibiting 'unmitigated encroachment' into these areas, a policy potentially inconsistent with DNR's policy discouraging developments within aquatic preserves that require restoration or mitigation. There

is also no policy that directly addresses encroachment into the Cockroach Bay Aquatic Preserve. However, as discussed within Issue # 4, Urbanization/Land Use/Wildlife Habitat, there is no conflict between the Hillsborough County Environmental Protection Commission's wetlands rule, the county comprehensive plan, and the Cockroach Bay Aquatic Preserve management plan.

Wetland-specific objectives and policies within the Manatee County comprehensive plan are similar to Hillsborough County's, offering limited protection to wetlands within the county, but also relying heavily on mitigation as an incentive for protection. For instance, Policy 4.1.1.2 (Coastal Management element) prohibits alteration of coastal wetland habitat except in instances of proposed water-dependent uses, overriding public interest, deepwater ports, or to avoid a taking. Policy 4.1.1.3 requires any encroachments into wetlands be mitigated pursuant to the habitat-specific mitigation ratios described and the monitoring of mitigation success. However, from their review of the county's draft plan, DNR thinks the exceptions in Policy 4.1.1.2 should be carefully weighed, as alteration of wetlands is rarely in the public interest, and that future activities of this type should be sited in areas that have already been disturbed, especially deepwater port facilities. DNR also thinks the county should take a stronger stand on mitigation in Policy 4.1.1.3, and that such mitigation should be monitored for the prescribed number of years. Both comprehensive plans also have policies that encourage the use of wetlands to treat stormwater runoff, and the creation of buffer zones around wetlands.

The City of Palmetto comprehensive plan has many objectives and policies that address wetlands and wetlands protection. These include:

- protect and enhance the City's natural resources by ensuring mitigation of adverse impacts of pollution and restoration of natural systems disrupted by new development
- protect freshwater wet prairies, marshes, and swamps from development that would significantly alter their natural character (mitigation is required where development intrudes). Require all applicable permits to be obtained before issuing DO.
- not permit development to supplant key wetlands unless overriding public interest is determined and mitigation required.
- consider areas adjacent to wetlands to be important buffer areas for wetland management and to be treated in a manner minimizing adverse environmental impacts on ecologically sensitive wetlands
- require all applicable permits to be obtained before issuing a development order
- review development regulations to ensure no net reduction in native vegetation, marine grass beds, mangrove forests, coastal marshes, and living marine resources
- prohibit future development of mangrove forests and coastal marshes unless mitigation is required
- expand preservation of environmentally sensitive areas indicated on FLU plan, particularly near Terra Ceia Bay, and
- revise land development regulations to specify standards and requirements for open space conservation of private lands with the objective of preservation of Terra Ceia Bay.

However, agency reviews of these objectives and policies questioned what kind of mitigation and to what level is required (e.g., 1:1 basis); the size and location of key wetlands and buffer areas;

and warned against the trimming of mangroves within the Terra Ceia Aquatic Preserve unless for riparian access.

According to DCA, the City of Palmetto comprehensive plan lacks objectives and/or policies within its coastal management element that address:

- improving estuarine environmental quality, and
- coordinating with other local governments to ensure adequate site for water-dependent uses, prevent estuarine pollution, control surface water runoff, protect living marine resources, reduce exposure to natural hazards, and ensure public access.

The City of Palmetto comprehensive plan, according to DCA, also lacks objectives and/or policies within its conservation element that address:

- the conservation, appropriate use, and protection of native vegetation and fisheries
- the protection and conservation of the natural functions of existing soils, fisheries, rivers, bays, floodplains, and harbors, and
- the protection of existing natural reservations.

The City of Palmetto comprehensive plan, according to DER, also lacks a policy within its coastal element that identifies regulatory or management techniques for the restoration or enhancement of disturbed or degraded natural resources.

### [10] Development and Damming of Creeks and Rivers

Freshwater creeks and rivers are an integral part of the Tampa Bay estuary, providing critical habitat, potable water, and increasingly scarce waterfront property. However, this development and damming pressure on these creeks and rivers present a threat to these features and the benefits they bring to the estuary. Consequently, all three types of plans in this study address directly or indirectly creek and river resources.

The Tampa Bay SWIM plan addresses creeks and rivers by calling for the protection, enhancement, and/or restoration of upland, riverine, intertidal, and subtidal habitats by promoting (through funding, technical assistance, or other actions) more stringent local, state, and federal laws, regulations, and development practices; the enforcement existing laws and regulations, including permit stipulations; public education; land acquisition programs; restoration activities (e.g., planting of native plants, eradication of non-native plants, stabilization of beaches and shorelines); mapping; and ecological and other research.

Both Terra Ceia and Cockroach Bay aquatic preserve plans call for the protection of preserve habitat by prohibiting (1) any development within the preserve that adversely impact saltmarshes and other valuable submerged habitat, (2) the drilling of oil and gas wells, mining of materials, and dredging for obtaining upland fill, and (3) the construction of new deepwater ports within the preserve boundaries. The aquatic preserve policy directive that calls for the maintenance and upgrading of the water quality and natural seasonal flow fluctuations of the estuary (including encouraging the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve) has perhaps the largest potential to

affect development and other pressures on at least several of the creeks and rivers flowing into Tampa Bay.

The Hillsborough County comprehensive plan has several policies that address the development and damming of creeks and rivers. These policies include:

- amend floodplain regulations to protect wildlife habitat and natural floodwater assimilation capacity
- continue to prohibit unmitigated encroachment into 100-year floodplains
- continue to enforce the county's mining ordinance to prohibit mining within 25-year river floodplains and restrict mining within 100-year floodplains of rivers and streams
- preserve natural shorelines and reverse the trend towards hardening shores and channelization by prohibit shoreline alteration through hardening
- restore publicly-owned or controlled lands by vegetating riverbanks with native vegetation to prevent erosion
- conserve and preserve natural riverbanks & levees
- initiate an interlocal agreement with SWFWMD to ensure that minimum freshwater flows are scientifically determined and maintained to support natural optimal diversity and productivity in estuarine wetlands
- consider appropriate provisions from the Cockroach Bay Aquatic Preserve plan for incorporation into the Hillsborough County comprehensive plan (
- develop regulations and performance standards to protect water quality and quantity, environmentally sensitive areas, wildlife habitats, and rivers and creeks from degradation by development
- require the location and design of public roads and bridges with riverine corridors to minimize impacts adverse to wildlife habitats and vegetative communities, and
- restrict clearing or filling of natural plant communities within 50' of the EPC jurisdictional line of rivers and creeks designated as River Corridor Overlay Districts or within 100' of the MHW line of such rivers and creeks, with mitigation as necessary.

These policies appear consistent with both the SWIM plan and the Cockroach Bay aquatic preserve plan. The Manatee County comprehensive plan has no policies that address the development and damming of creeks and rivers.

The City of Palmetto comprehensive plan has an objective and several policies that address the development and damming of creeks and rivers. These include:

- ensure no net reduction in surface and subsurface water quality in coastal and inland areas as a result of existing and future development [this objective does not address untreated agricultural runoff]
- discourage hardening, channelizing, or structural modification of natural drainageways; preserving natural landscape barriers to flooding and stormwater as a requirement to obtain a development order, and

- preserve private open space through the use of planned developments in order to conserve environmentally sensitive areas at Terra Ceia Bay and Manatee River.

This objective and these policies do not appear to be inconsistent with the Tampa Bay SWIM plan and the Terra Ceia Aquatic Preserve management plan.

**[11] Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline**

The decline in commercial and recreational finfish and shellfish landings, and the lack of information regarding this decline, is an important issue facing Tampa Bay. The Tampa Bay SWIM plan presents this problem as a result of the degradation of water quality and natural habitat, and so presents its goals, initiatives, programs, and strategies within this context.

Several programs and strategies establishing monitoring and research studies for addressing fisheries decline under Natural Systems Initiative 1 (preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats) are presented within the SWIM plan. Selected programs include:

- evaluate the success of restoration and preservation projects (inclusive of projects begun or completed prior to SWIM endeavors) through aerial habitat mapping and coordinated ground-based studies
- develop additional databases useful for design and implementation of future projects
- promote and/or fund research concerning habitat restoration and functionality (e.g., wildlife utilization of submerged and intertidal habitat for gamefish, commercial species, and other wildlife.

Programs under Natural Systems Initiative 2 (preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles) for addressing fisheries decline include:

- optimize habitats for use by botanical, invertebrate, and vertebrate populations and communities through the above programs of preserving, augmenting, and restoring habitats
- promote and/or fund research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem, and, using the results of this research,
- promote and/or draft wildlife management programs to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen, including local, state, and federal legislation and enforcement necessary to accomplish management goals.

Furthermore, under Bay Management Initiative 2 (promote the adoption and enforcement of laws and regulation necessary to implement the Natural Systems, Water Quality and Land Use Initiative of the plan), programs and strategies designed to implement this initiative include:

- review the adequacy of governmental rules and regulations to carry out the SWIM plan's programs, including reviewing the sufficiency of enforcement programs of pertinent regulatory agencies and all other applicable fish and wildlife laws

- enhance current commercial and sport fishing regulations and fishery productivity by developing and implementing biologically defensible fishing regulations, stocking, and habitat creation/restoration projects

- implement protective regulations and management strategies for fisheries on the decline in Tampa Bay, and

- improve the enforcement of fishing regulations by consolidating and standardizing all special acts and local laws related to fishing activities.

Finally, SWFWMD proposes under its SWIM plan to unify and consolidate all special acts and local laws related to marine resource management and work to ensure adequate funding and staffing levels for increased monitoring and enforcement capabilities for Tampa Bay.

Both Terra Ceia and Cockroach Bay aquatic preserve plans are consistent with the SWIM plan, particularly regarding research and environmental education, but they also seek to protect the preserve from any adverse effects associated with artificial reef construction. Accordingly, both aquatic preserve plans call for:

- provide and actively encourage research and educational opportunities for scientists and other interested researchers within the framework of a planned research program in the aquatic preserve

- prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve

- insure that artificial reef construction does not adversely impact environmentally fragile areas within the aquatic preserve and that the construction will maintain the essentially natural condition while enhancing the quality and utility of the preserve

- require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary, and, in particular, encouraging DER and ERC to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve

- identify and document any problems caused by fishing, shellfishing, and collecting activities and reporting them to the Marine Fisheries Commission, and

- recognize and educate both the public and government that successful shellfish culture and harvesting efforts in the aquatic preserve are dependent upon pollution prevention and abatement and careful comprehensive planning.

Both Hillsborough and Manatee County comprehensive plans at least partially address the decline in commercial and recreational finfish and shellfish landings, and the lack of information regarding this decline. Hillsborough County's plan has an objective calling for maintaining and enhancing the abundance and diversity of living marine resources in Tampa Bay (although this is made conditional by the accompanying qualifier: "... where [environmentally and economically] feasible..."). Accompanying policies call for opposing any proposal to permanently close the Cockroach Bay Aquatic Preserve to public shellfishing, improving water

quality in order to maintain shellfish viability by improving sewage treatment in the vicinity of the Cockroach Bay aquatic preserve, and coordinating with and support appropriate regulatory agencies to ensure that land developments within the coastal area discharging into receiving waters that flow into a "Conditionally Approved" or "Approved" DNR shellfish harvesting area demonstrate nondegradation of water quality for all applicable discharges. Regarding the latter policy, however, any discharges of sewer effluent will prompt DNR to place a protective buffer within the area to protect the shellfish harvesting area impacted by the discharge, and that this discharge would have to be removed in order to upgrade the classification (if warranted).

In spite of the lack of a specific objective to conserve, appropriately use, and protect fisheries and marine habitat (the lack of which constitutes a lack of consistency with the Tampa Bay SWIM plan), Manatee County's comprehensive plan has several other policies that address this issue. These include an objective calling for improving the water quality of coastal resources such that all DNR shellfish harvesting prohibition areas are upgraded to "Approved" by 1993, and that all other coastal area waters meet their applicable standards. Other policies include:

- prohibit development requiring the issuance of a point source discharge permit in a "prohibited" DNR shellfish harvesting area (except in areas where "prohibited shellfish harvesting" is due to the potential for contamination by sewage in areas receiving effluent discharges)

- require land developments within the coastal area which discharge into "Conditionally Approved" or "Approved" DNR shellfish harvesting areas to demonstrate non-degradation of water quality for all applicable parameters (compliance with OFW criteria), and

- coordinate with DER and DNR regarding water quality status, classification of shellfish harvesting areas, pollution sources, and compliance with state water quality parameters.

The City of Palmetto comprehensive plan has an objective and several policies that address fisheries. These include:

- review development regulations to ensure no net reduction in native vegetation, marine grass beds, mangrove forests, coastal marshes, and living marine resources

- protect living marine resources from immediate and future degradation resulting from improper development and/or waste disposal practices. Review and correct or revise appropriate codes and ordinances as necessary to ensure no net loss of living marine resources

- implement upon adoption of comprehensive plan the Terra Ceia Aquatic Preserve management plan to measurably improve water quality and increase productivity of commercially important fisheries and other aquatic resources

- obtain DNR approval for shellfish harvesting in Terra Ceia Bay by 1993.

The first two policies use "no net reduction" as a criterion for development within these areas. The Terra Ceia Aquatic Preserve management plan prohibits any commercial or recreational activities that might impact the integrity of hard bottom communities within the preserve, recognizes that successful shellfish culture and harvesting efforts in the aquatic preserve are dependent upon pollution prevention and abatement and careful comprehensive planning, and prohibits development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats, including discouraging developments within the aquatic preserve that require restoration or mitigation. Consequently,

the "no net reduction" policies and the mitigation required to implement these policies are potentially inconsistent with the Terra Ceia Aquatic Preserve management plan.

It is also the opinion of DER reviewers that this criterion and its implementing activity (mitigation) does not adequately protect coastal wetlands, living marine resources, and wildlife habitat because these policies do not restrict development, but merely requires them to mitigate adverse impacts. DER further thinks that these coastal communities should be mapped and classified as environmentally sensitive areas or preservation lands, and that other protective mechanisms should be utilized as necessary to protect these areas. Additionally, the policy calling for obtaining shellfish harvesting approval in Terra Ceia Bay is hindered by the presence of sewage effluent from the Tropic Isles Mobile Home Park located on the shores of Terra Ceia Bay.

**[12] Replacement of Native Vegetation with Exotic Plants**

Although the Tampa Bay SWIM plan does not have a large number of programs, policies, or strategies designed to address the replacement of native vegetation with exotic plants, a strategy within Natural Systems Initiative 1 (preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats) directly addresses this issue by calling for the eradication of non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and their replacement with appropriate native species. This strategy is already under way at a number of SWFWMD and other sites around the Bay, and is one on which significant resources are currently being expended.

Both Terra Ceia and Cockroach Bay aquatic preserve plans address this issue as a habitat issue, and as such, are generally consistent with the SWIM plan. Both aquatic preserve plans call for:

- protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve
- prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitats, unless of overriding public importance and that no reasonable alternatives exist
- identify and develop guidelines for areas and plant communities in need of restoration; discouraging developments within the aquatic preserve that require restoration or mitigation
- develop an exotic plant control and removal plan following monitoring; developing a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve, and
- limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency for wetland and aquatic application (removal of native vegetation, including seagrasses, can potentially allow exotic vegetation to invade, among other means).

The Hillsborough County comprehensive plan has several policies that address the replacement of native vegetation with exotic plants. These policies are consistent with both the SWIM and aquatic preserve plans, and include:

- continue the county's existing programs to minimize the spread of exotic nuisance species

- incorporate these programs into management plans for newly-acquired preserves
- assist the Florida Department of Agriculture and Consumer Services, SWFWMD, and DNR in eliminating exotic nuisance plant species, and
- request Hillsborough Community College to include the study of land management practices such as exotic plant control and fire management at the Cockroach Bay Environmental Studies Center. The county's ELAP Program can utilize the results of such studies to more effectively manage lands purchased throughout the Area of Concern.

Additionally, CAPMAT, in conjunction with the Southwest Florida Water Management District, DNR, the Tampa Electric Company, and other property owners, is to initiate a program as part of the Cockroach Bay plan amendment to reverse the spread of noxious exotic plant species in the Cockroach Bay Area of Concern with the goal of replacing exotics with viable and desirable native plant communities. This program would include an assessment of the extent of the problem, identification of areas where work would be done, costs, and likely funding sources, an assessment of the potential for a volunteer component, and solicitation of cooperation of affected private property owners, if any.

The Manatee County comprehensive plan has several policies that address the replacement of native vegetation with exotic plants. These policies are consistent with both the SWIM and aquatic preserve plans, and include requiring the preservation of native habitat during development through maintenance or planting of native vegetation such that at least 60% of all post-development vegetation is indigenous (according to the FGFWFC, the second option in this policy does not represent a viable means to preserve the plant communities' habitat values); participating in or encouraging the restoration of natural plant communities on public lands; and removing all exotic plant species from land development sites during construction. However, a policy that would call for coordination and assistance with the appropriate regulatory agencies to eliminate exotic nuisance plant species would help ensure a more complete level of consistency between plans.

The City of Palmetto comprehensive plan contains no objectives or policies that address this issue.

### [13] Shoreline Erosion

Shoreline erosion along Tampa Bay has been identified by SWFWMD as a problem in areas not planned for, but used as public walkways or pathways. Another aspect of this problem is erosion of the shoreline as result of wave action from storms, boat traffic, and longshore currents. Although the latter is not as severe a problem as it could be by the fact that Tampa Bay, being basically a estuary, does not experience oceanic, high-energy waves, shoreline erosion is nonetheless a significant problem, at least in some areas of the Bay.

The Tampa Bay SWIM plan does not directly address shoreline erosion in its goals, initiatives, programs, strategies, or projects. However, there are several initiatives, programs, and strategies that indirectly address this issue. As detailed above, these include Natural Systems Initiative 1 (preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for biological communities, pollution abatement, and aesthetic and recreational purposes, and Development and Public Use Initiative 2 (provide opportunities for the public to utilize Tampa Bay for recreational activities). Under the first initiative, there is a program that directly addresses sediment stabilization and other sedimentological problems in Tampa Bay and another program that establishes monitoring and research studies necessary for implementing all of the preceding

habitat conservation and restoration programs. (Although the emphasis on the sediment stabilization program is on bottom sediments, an evaluation of the sedimentary processes of Tampa Bay, coupled with monitoring and other research studies, will presumably help address the erosion issue.) The second initiative calls for programs to promote and provide public access to Tampa Bay by developing master plans for public access to the bay's features (e.g., beaches, shoreline, open waters) inclusive of boat ramps, boardwalks, pedestrian pathways, etc.), and to promote and provide opportunities for various water-dependent activities such as public fishing piers and a system of passive parks.

Both Terra Ceia and Cockroach Bay aquatic preserve plans do not directly address this issue, as their jurisdiction ends at the MHW mark. However, there are several policies that indirectly address shoreline erosion such as prohibiting development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitats; identifying and developing guidelines for areas and plant communities in need of restoration; developing a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve; and prohibiting the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated.

The Hillsborough County plan directly addresses this issue through policies such as directing the county to stabilize man-made beaches prone to erosional problems, and to support development of man-made estuarine beaches only in environmentally-acceptable locations; assessing the present condition and erosional trends of significant public beaches, and developing an estuarine beach enhancement program; using beach stabilization techniques recommended by DNR; opposing the destruction or degradation of intertidal/subtidal vegetative communities to develop new manmade estuarine beaches; and restoring publicly-owned or controlled lands by vegetating riverbanks w/ native vegetation to prevent erosion. Another indirect policy calls for protecting environmental and natural resources when planning parks and other recreational facilities.

The Manatee County comprehensive plan addresses this issue by requiring all public access to be consistent with appropriate environmental regulations and policies, and by limiting vehicular access to publicly and privately-owned shoreline areas to designated parking areas except for maintenance and natural resource enhancement and restoration. There are no other policies that address beach erosion and/or stabilization.

The City of Palmetto comprehensive plan, according to DCA, lacks an objective and/or policy within its coastal management element that addresses the protection, conservation, and restoration of beaches or dunes. The plan, according to DER, also lacks a policy within its coastal element that identifies regulatory or management techniques for the restoration or enhancement of disturbed or degraded natural resources.

**[14] Marinas**

The impact on the natural resources of Tampa Bay from new marina construction and expansion is a major issue as expressed in the Tampa Bay SWIM plan. These impacts include physical destruction of estuarine habitat, degradation of water quality from dredging and marina operations; and reduction of tidal flushing from dredging and other construction. Regardless, with exceptions, marinas are not generally prohibited in Tampa Bay, but the siting, design, and operation of them are increasingly regulated, particularly within aquatic preserves.

The Tampa Bay SWIM plan has several strategies that address the environmental impacts of marinas. These strategies are found under Development And Public Use Initiative 1 (provide

sound environmental policies governing land use which impact the Tampa Bay ecosystem). They include evaluating the environmental impacts of existing marinas, including impacts on manatees and other protected species; developing a marina siting plan; and evaluating and promoting improved marina designs and facilities, specifically addressing problems of fuel storage, sewage, bilge pumping, solid waste, dredging, and related problems.

Both Terra Ceia and Cockroach Bay aquatic preserve plans do not directly address this issue except within one policy, which calls for prohibiting marinas and associated construction activities in RPAs 1 and 2. However, both plans have policies that address marina impacts, including:

- protect and enhance threatened and endangered species habitat within the aquatic preserve
- require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present (new marinas and multiple slip residential docking facilities shall not be sited within state-designated manatee sanctuaries)[42]
- prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat
- discourage developments within the aquatic preserve that require restoration or mitigation
- develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.
- prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances
- prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve
- prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve, and
- require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary, and in particular encouraging DER and EPC to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.

The last policy would serve to create an additional layer of protection for these wetlands, and an additional criterion for the siting of marinas within these areas. However, all of these policies also coexist with another policy that encourages public utilization of the aquatic preserve, consistent with the continued maintenance of its natural values and functions. This is similar to the U.S. Park Service's mandate to manage national parks for both preservation and recreation, a 'double-pronged' mandate whose two prongs don't always easily coexist.

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[42]A full set of management policies, standards, and criteria for docking facilities within aquatic preserves, including marinas and other multiple slip residential docking facilities, are included in Chapter 18-20.004(5), F.A.C. Additionally, Ch. 258.42, F.S., presents statutory criteria for dredging and erection of structures (e.g., docks and piers), as well as several other marina-related provisions.

On the comprehensive plan level, one of the most important aspects regarding marinas is regulating their siting. However, comprehensive plans also address other aspects such as design, facilities, and their potential impact on natural resources and available infrastructure. Hillsborough County, for instance, has a policy calling for encouraging the expansion of existing marinas prior to siting new ones within the county. The county also requires permit applicants desiring to site a marine in environmentally sensitive areas (e.g., aquatic preserves) to demonstrate that a marina is clearly in the public interest and in accordance with all pertinent regulatory agency rules, in addition to meeting other county marina siting criteria. Other policies call for concentrating marine service land uses around existing marinas, and requiring fueling facilities to be designed to contain land and water fuel spills. These policies are consistent with both the SWIM plan and the Cockroach Bay aquatic preserve management plan.

The Manatee County comprehensive plan requires that any application for the siting of marina-type uses meet a list of criteria (similar to Hillsborough County's) that includes complying with any relevant DNR manatee protection plans, preparing a fuel management and spill contingency plan, and preferably locating outside any Aquatic Preserve and Shellfish Harvesting Area. However, according to DNR in their review of the Manatee County draft comprehensive plan, this policy should also address water circulation, live-aboards, availability of sewage pumpout stations, and a prohibition on siting marinas within any aquatic preserve.

The City of Palmetto comprehensive plan has an objective and several policies that address marinas. These include establishing future land use criteria giving priority to siting and development of water-dependent uses in the coastal area (e.g., marinas), and establishing a marina siting plan with criteria and minimum design specifications for a specific area within Palmetto. However, the future land use criteria objective is considered by DNR to be inadequate because the criteria do not consider the Terra Ceia Aquatic Preserve, which bounds a significant part of Palmetto. The rationale for including the aquatic preserve within the list of criteria is that all development upland of the preserve should receive the highest scrutiny.

### [15] Construction & Operation of Transportation Facilities

The construction and operation of transportation facilities in the Tampa Bay region, both current and planned, threaten to further degrade water quality and natural systems of the Bay. This degradation results from polluted stormwater runoff, dredging, and impedance of natural tidal flushing and other flows from causeways.

Under the Tampa Bay SWIM plan's Development And Public Use Initiative 1 (provide sound environmental policies governing land use which impact the Tampa Bay ecosystem), there are several programs and strategies that are designed to address this issue. These include promoting environmentally sound projects and practices such as using existing natural features and native plant species for landscaping and habitat, with special emphasis on transportation programs and xeriscaping practices, as well as the establishment of wildlife corridors. The plan also calls for evaluating the existing and proposed transportation network around, over, and on the bay and its tributaries, including transportation (inclusive of shipping and boat traffic), roadway problems as related to environmental impacts to the ecosystem, and transportation engineering practices. The latter also includes promoting designs to reduce environmental impacts (e.g., stormwater runoff).

Although both Terra Ceia and Cockroach Bay aquatic preserve plans do not directly address this issue, two policies indirectly address several activities associated with the construction of transportation facilities that could potentially affect the two aquatic preserves. These policies include prohibiting the trimming and/or removal of salt marsh vegetation and other natural

shoreline vegetation within the aquatic preserve (except when necessitated by the pursuit of legally authorized projects and local protection ordinances), and prohibiting the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.

The Hillsborough County comprehensive plan directly addresses the environmental impacts of transportation facilities through policies such as:

- require new roadways, interchanges, or bridge designs to undergo an environmental assessment
- require the location and design of public roads and bridges within riverine corridors to minimize impacts adverse to wildlife habitats and vegetative communities
- ensure that transportation improvements meet all requirements for reducing or mitigating impacts on the natural environment
- avoid routing new roads through publicly-owned natural preserves, parks, recreation areas, and significant or essential wildlife habitat
- require all road construction projects to meet or exceed adopted state or local stormwater retention and treatment requirements, and
- require all transportation improvements to eliminate or mitigate adverse impacts on wetlands and other ESAs.

While not directly comparable to objectives and policies in either the SWIM plan or the aquatic preserve plans, they appear to be consistent in addressing the impacts of proposed transportation improvements. However, there are no objectives or policies that address the environmental impacts of existing transportation facilities, a potential inconsistency.

The Manatee County comprehensive plan has several policies that address the environmental impacts of transportation improvements. In addition, it contains an objective that ensures that all transportation improvements are conducted in a manner which minimizes adverse impact on important natural resources. These policies are mostly directed towards minimizing any adverse impacts to water quality from roadway improvements within the watersheds of the two major sources of potable surface water in the county. The exception is a general policy calling for locating and designing transportation improvements to reduce acreage of adversely altered jurisdictional wetlands, and to minimize direct and indirect impacts on rivers, lakes, streams, endangered and threatened species, and species of special concern. Again, while not directly comparable to objectives and policies in either the SWIM plan or the aquatic preserve plans, these objectives and policies appear to be consistent in addressing the impacts of proposed transportation improvements. However, there are no objectives or policies that address the environmental impacts of existing transportation facilities.

The City of Palmetto comprehensive plan has an objective and several policies that address this issue. These include:

- develop and implement a transportation system which enhances environmental quality by reducing environmental impacts of water, air, and noise pollution
- require paving of parking lots in land development regulations to reduce fugitive dust, but permit the use of other pervious surfaces and techniques to reduce unnecessary impervious surface areas in such areas, and

- require the City and its developers to protect environmentally sensitive areas from future road construction through applicable permitting processes.

The latter policy is potentially deficient because environmentally sensitive areas within the City have not been specifically defined and mapped. However, these policies are consistent with both the Tampa Bay SWIM plan and the Terra Ceia Aquatic Preserve management plan.

### [16] Intergovernmental Coordination and Planning Consistency

As of 1984, there are at least 12 federal agencies, ten state agencies, five regional agencies, and approximately 40 local governments within the Tampa Bay region that regulate, review, or develop policies concerning natural resources affecting Tampa Bay, including at least a dozen local government entities within Hillsborough, Pinellas, and Manatee Counties as well.[43] All of these agencies and other governmental entities either have their own internal plan and associated programs, or are included in some way in another agency's plans or programs. In order to better coordinate these agencies and to maximize planning consistency, the Agency On Bay Management was organized in 1985 by the Tampa Bay Regional Planning Council for the purposes of serving as a public forum for bay management issues and a liaison between governmental agencies and interest groups, and to coordinate the implementation of the Tampa Bay SWIM plan. The efforts of ABM to implement this plan have been hampered by lack of funding and personnel.[44] However, SWFWMD has been working closely with the Tampa Bay National Estuary Program (TBNEP), located under the auspices of the Tampa Bay Regional Planning Council, to secure additional funding and coordination expertise for implementing the Tampa Bay SWIM plan, in addition to the TBNEP's other resource management efforts for Tampa Bay. For instance, TBNEP was instrumental in securing in 1992 over $760,000 in additional federal funds for habitat restoration and water quality improvements in the Tampa Bay region. Over $700,000 of those funds were for the Cockroach Bay restoration project.

In addition to ABM and TBNEP, SWFWMD, as part of its Tampa Bay SWIM plan as well as its review of local comprehensive plans, has been promoting the adoption of sound conservation policies within local comprehensive plans and ensuring consistency of those plans with the Tampa Bay SWIM plan. This involved having SWIM staff coordinate with the district's planning department in order to establish criteria for the district's planning staff to review local government comprehensive plans within the district's jurisdiction.

The review of local comprehensive plans was one of 18 projects to be implemented as part of the original 1988 Tampa Bay SWIM plan, and it has been largely completed. Several other projects related to this were called for the 1988 plan, including developing a set of model environmental and land use ordinances for distribution to local governments within the district, and an assessment of existing environmental and land use regulation. The first project has been completed, and a set of ordinance language, issue papers, a critical analysis of legal and scientific literature, and an assessment of related ordinances within the state has been completed for distribution to local governments for the following issues:

- stormwater management and treatment, including redevelopment
- placement and maintenance of individual septic systems

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[43]P. 29, *Tampa Bay SWIM Plan*, 1988.
[44]Ibid., p. 31.

- vegetative buffer zones, wildlife corridors, erosion control, and shoreline stabilization while maintaining the natural shoreline and associated plant and animal life

- protection of littoral vegetation, and

- regulation of docks and other appurtenant structures.

Initiatives, programs, and strategies within the 1988 SWIM plan addressing intergovernmental coordination and planning consistency that preceded these projects includes the following under Development And Public Use Initiative 1 (provide sound environmental policies governing land use which impact the Tampa Bay ecosystem): (1) encourage appropriate land use at the local, state, and federal level, and encourage appropriate development or agricultural use of land bordering the bay and its tributaries through the following strategies:

- promote limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights. appropriate policies and regulations will be developed by the district for consideration by local governments through the review of comprehensive plans and through preparation of model ordinances

- promote designations of increased buffer zones, setback requirements, wildlife corridors, and conservation easements; review local governments comprehensive plans and ordinances; and recommend appropriate amendments to accomplish the above objectives, and

- promote environmentally sound local and state comprehensive plans, inclusive of land use plans for preservation of habitats and land tracts.

Another program under this initiative includes evaluating the adequacy of existing zoning laws, environmental laws, and permitting processes as related to land use and environmental resources through the following strategies:

- evaluate existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses)

- promote and/or draft revisions of existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses). This will be accomplished through the development of model ordinances in addition to specific proposed amendments, and

- evaluate, promote, and/or draft improved laws for mitigation policies and practices, specifically addressing action to be followed if unanticipated impacts are detected after the fact; mitigation banking should be evaluated as should criteria for monitoring and determining the success of the project.

Both Terra Ceia and Cockroach Bay aquatic preserve plans have several policies that address intergovernmental coordination and planning consistency. These policies include developing a well-coordinated aquatic preserve management mechanism that recognizes and utilizes local government programs and authorities; encouraging the assistance of federal, state, and local government agencies in implementing the aquatic preserve management plans, especially in areas of protection of natural and cultural resources and the enforcement of applicable resource laws and ordinances; and ensuring that the aquatic preserve management plans are consistent with all other state and local planning processes and completed plans that may impact aquatic preserves. Although these policies are not inconsistent with the SWIM plan programs and strategies, they appear rather general, and depend on field personnel to implement these policies.

The Hillsborough County comprehensive plan has a number of policies that directly address intergovernmental coordination and planning consistency, particularly concerning both the ABM and Cockroach Bay Aquatic Preserve.[45] These policies, consistent with both the SWIM plan and the Cockroach Bay Aquatic Preserve management plan, include:

- cooperate with the appropriate regulatory and management agencies to implement comprehensive & coordinated management plans for Tampa Bay (DCA, in their review of the draft comprehensive plan, faulted this policy for lacking a specific result to achieve and a standard by which to measure the accomplishment of this policy)

- request regulatory agencies to develop a unified and coordinated wetland mitigation and restoration program; providing county cooperation, representation, and assistance to both ABM and SWFWMD regarding the Tampa Bay SWIM plan

- provide county participation with DNR to fully implement the Cockroach Bay Aquatic Preserve management plan (DNR's review comment regarding an earlier version of this policy was that the county should formally adopt (incorporate) the Cockroach Bay Aquatic Preserve management plan & Chapter 18-20, F.A.C., which governs the use and management of aquatic preserves)

- initiate a Memorandum of Agreement with the Tampa Port Authority to address coordination and conflict resolution of issues in order to ensure orderly development of the Port, and

- assemble representatives of state & local governments having jurisdiction over the natural resources of Hillsborough County and Tampa Bay in order to coordinate policies, data, and research, and to eliminate duplicative reviews and contradictory standards through an environmental issues forum.

These policies are consistent with the Tampa Bay SWIM plan and the Cockroach Bay Aquatic Preserve plan, although several need to state specific actions or programs undertaken to achieve their objective. However, CAPMAT, as part of the Cockroach Bay plan amendment, is designed to:

- assist the County with implementation of the Goal, Objectives and Policies that affect the Cockroach Bay Aquatic Preserve area

- identify an implementation procedure, thresholds and a timeline for review of applications for development approval within the defined Area of Concern to ensure compatibility with the intent of the Preserve, and

- review proposed comprehensive plan and land development code revisions that may impact the Area of Concern and recommend appropriate changes and other measures to further these Goals, Objectives and Policies.

The Manatee County comprehensive plan has a number of policies that address intergovernmental coordination and planning consistency, particularly within the plan's Intergovernmental Coordination element. Selected policies relevant to this study include:

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[45]Although several policies addressing coordination with port authorities in Tampa Bay have been included in the intergovernmental coordination and planning consistency matrices, these policies and others related to ports are addressed here in the *Ports* issue discussion.

- require consistency between the comprehensive plan and plans of other units of local and state government

- establish coordinating mechanisms with other local and regional planning entities to ensure their activities are consistent with the comprehensive plan (one of the implementing mechanisms for this policy requires the county to coordinate with DNR in obtaining their reviews of proposed developments located adjacent to the Cockroach Bay Aquatic Preserve in order to assess and address potential natural resource impacts)

- require the county to identify a specific procedure for advising adjacent local governments and appropriate state agencies of proposed developments impacting their area of jurisdiction, and provide for their review and comment on these proposed developments

- require the county to avoid inconsistency between the comprehensive plan, regional CRPP, and state comprehensive plan (DCA faulted this policy in their review of the plan for not including a policy or other implementing mechanism for analyzing and resolving specific problems and needs throughout each element of the comprehensive plan), and

- require the county to coordinate where necessary with other local governments to improve the management of Tampa Bay, Terra Ceia Bay, and the Braden and Manatee rivers (DCA faulted this policy in their review of the plan for not including a policy or other implementing mechanism that addresses the consistent and coordinated management of certain bays, estuaries and harbors that fall under the jurisdiction of more than one local government).

The Manatee County comprehensive plan appears to lack policies that expressly encourage or require intergovernmental coordination with SWFWMD, and that address the consistent and coordinated management of bays, estuaries, and harbors that fall under the jurisdiction of more than one local government. Overall, the policies listed above are generally consistent with both the SWIM plan and the Cockroach Bay Aquatic Preserve management plan.

The City of Palmetto comprehensive plan has several objectives and policies that address this issue. These concentrate on stormwater drainage and proposed land use and other plan amendments, and are consistent with both the Tampa Bay SWIM plan and the Terra Ceia Aquatic Preserve management plan. Perhaps the most direct within this study is a policy within the Intergovernmental Coordination element that calls for consistent and coordinated management of Terra Ceia Bay and the Manatee River. However, this policy does not specifically reference the SWIM program, and there is no reference to the Terra Ceia Aquatic Preserve management plan either within this element.

The City of Palmetto comprehensive plan, according to DCA, lacks an objective or a policy within its coastal management element that addresses coordinating with other local governments to ensure adequate site for water-dependent uses, prevent estuarine pollution, control surface water runoff, protect living marine resources, reduce exposure to natural hazards, and ensure public access.

Additionally, the City of Palmetto comprehensive plan, according to DCA, lacks objectives and/or policies within its Intergovernmental Coordination element that require ensuring that the impacts of development proposed i n the City's comprehensive plan upon development within the county and the state be addressed through coordination mechanisms, and reviewing the relationship of proposed development in the City's comprehensive plan to the existing comprehensive plans of adjacent local governments.

### [17] Enforcement of Laws and Regulations

As outlined in the Tampa Bay SWIM plan, the effective enforcement of laws and regulations intended to protect the natural resources of Tampa Bay is hobbled by conflicting, redundant, and inconsistent local laws, ordinances, regulations, and special acts among local governments, and inadequate funding and staffing of compliance monitoring and enforcement sections of these and other local governments within the Tampa Bay region. Both the Tampa Bay SWIM program and the Tampa Bay National Estuary Program recognize this situation. Working with the Tampa Bay Regional Planning Council and their Agency on Bay Management, they are attempting to bring needed order and consistency to this situation through their respective plans and organizations.

The Tampa Bay SWIM plan has several specific initiatives, programs, and strategies that address enforcement of laws and regulations. The most pertinent of these are located under two initiatives, Development And Public Use Initiative 1 (provide sound environmental policies governing land use which impact the Tampa Bay ecosystem) and Bay Management Initiative 2 (promote the adoption and enforcement of laws and regulation necessary to implement the Natural Systems, Water Quality and Land Use Initiatives of the SWIM plan).

The former initiative calls for promoting the enforcement of existing zoning laws, environmental laws and permit stipulations inclusive of compliance monitoring; additional funding and staffing (inclusive of legal staff) for enforcement and compliance monitoring (through offering funding incentives for qualifying local governmental environmental protection programs); and fines or penalties commensurate with the infraction.

The latter initiative calls for promoting the adoption and enforcement of laws and regulation necessary to implement the Natural Systems, Water Quality and Land Use Initiatives of the SWIM plan. This includes:

- review the adequacy of rules and regulations of those governmental jurisdictions that are to carry out the SWIM plan's programs, including a review of the sufficiency of enforcement programs of pertinent regulatory agencies, inclusive of all applicable fish and wildlife laws
- develop and implement biologically defensible fishing regulations, stocking, and habitat creation/restoration projects
- implement protective regulations and management strategies for fisheries on the decline in Tampa Bay
- improve the enforcement of fishing regulations by consolidating and standardizing all special acts and local laws related to fishing activities
- unify and consolidate all special acts and local laws related to marine resource management, as well as ensuring adequate funding and staffing levels for increased monitoring and enforcement capabilities for Tampa Bay, and
- ensure that the necessary state legislation and agency rules are in place to carry out the plan.

Both Terra Ceia and Cockroach Bay aquatic preserve plans have several policies that address enforcement of laws and regulations. These include developing a well-coordinated aquatic preserve management mechanism that recognizes and utilizes local government programs and authorities; and encourages the assistance of federal, state, and local government agencies in implementing the aquatic preserve management plans, especially in areas of protection of natural and cultural resources and the enforcement of applicable resource laws and ordinances.

The Hillsborough County comprehensive plan has a policy that calls for providing adequate personnel to enforce rules and regulations on waterbodies throughout the county, and a policy that calls for improving enforcement of marine conservation laws in the Cockroach Bay area, such as the dedication of an environmental deputy to the area. The primary purpose of such a deputy would be to educate boaters and fishermen about boating and safety laws, and secondarily to issue warnings and citations. The Hillsborough County Sheriff's Office is currently training and outfitting the preserve manager for the Cockroach Bay Aquatic Preserve in order to provide additional law enforcement powers and protection.

The Manatee County comprehensive plan has no policies that directly addresses this issue.

The City of Palmetto comprehensive plan has one policy that directly addresses this issue. This policy calls for the City to assist the enforcement of federal, state, and federal mitigation policies by withholding building permits until all necessary environmental permits are received. Although this policy is not inconsistent with both the Tampa Bay SWIM plan and the Terra Ceia Aquatic Preserve management plan, there are no other policies that directly address this issue.

**[18] Ports**

Tampa Bay has several seaports (e.g., Port of Tampa, Port Manatee) that are administered by port authorities created by the Florida Legislature. The authorities are required by statute to create master plans to guide the development and operation of these ports, and to prevent or mitigate any environmental impacts associated with port construction and operations. Port master plans are required by the 1985 growth management act to be integrated into the coastal management element of the comprehensive plan of the appropriate local government within whose jurisdiction the port is located.[46] Accordingly, the Port of Tampa's master plan is supposed to have been integrated into Hillsborough County's comprehensive plan, and Port Manatee's master plan integrated into Manatee County's comprehensive plan.

Although ports are included here as an separate issue, in reality, they represent a number of issues, most of which are included within this study under other issues. However, it is only Port Manatee that appears to presents a potential, direct impact on one of the aquatic preserves within this study area (Terra Ceia Aquatic Preserve). Therefore, only the consistency between Port Manatee's master plan and the SWIM and aquatic preserve plans is particularly relevant to this study at this time (assuming the Port of Tampa does not wish to develop Cockroach Bay after the Port's lease with DNR expires). Nevertheless, all relevant objectives and policies for the Port of Tampa and Port Manatee within their respective comprehensive plans are presented here that address the issues in this study.

The Tampa Bay SWIM plan has no initiatives, programs, or strategies that directly address the development and operation of ports. However, there are many initiatives, programs, and strategies that address the prevention or mitigation of environmental impacts associated with port construction and operations. These are not described here, as they have been covered sufficiently elsewhere within this report.

Both Terra Ceia and Cockroach Bay aquatic preserve plans have only one policy that directly addresses ports. It calls for prohibiting the construction of new deepwater ports within the aquatic preserve boundaries.

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[46]Ch. 163.3178(2)(k), F.S.

Both Hillsborough and Manatee County comprehensive plans, as described above, have integrated port master plans within their coastal management elements. Hillsborough County's plan calls for:

- ensure that the expansion of existing or the siting of new port or related facilities is coordinated with the future land use, coastal management, and conservation elements of the comprehensive plan
- assure the coordination of submerged land management & permitting programs with the county's land use regulations
- maintain an active membership with the Agency on Bay Management, and coordinate with the Tampa Bay SWIM plan
- continue support of estuarine resource restoration management programs in Hillsborough County, and
- continue to develop mitigation projects minimizing adverse port development on natural resources.

The Florida Department of Community Affairs, in their review of the Port element of Hillsborough County's draft comprehensive plan, stated that the county needed to include an objective to protect, conserve, or enhance remaining coastal wetlands, living marine resources, coastal barriers, and wildlife habitats. DCA also noted that there were no policies within the port element addressing cumulative impacts of activities on natural resources (Policy 19.5, Conservation and Aquifer Recharge element, addresses this for the county); support of estuarine research programs; or multijurisdictional estuaries and their management.

In the view of DER, the port element of the Manatee County comprehensive plan was simply a continuation of outdated plans and programs which disregard the environmental protection and restoration needs of Tampa Bay in favor of development. DER also stated that the GOPs within the port element would result in the continued incremental loss of valuable estuarine resources; *were not consistent* [italics added] with the coastal management and conservation elements; did not meet the requirements of Chapter 9J-5 regarding protection of natural resources; and appeared to be inconsistent with the initiatives and strategies in the Tampa Bay SWIM plan.[47] Additionally, according to DER, port expansion plans would result in loss of approximately 100 acres of shoreline and bottom; the objectives in this element are ambiguous; the policies in this element are not clear and are based on "encouraging" the Manatee Count Port Authority, which is objectionable because the county is the Port Authority; and that the GOPs within the element are not derived from the facilities data & analysis. There are also no policies within the element that address the quantity and character of dredged material, the environmental impacts associated with proposed dredge methods, and the impacts associated with the placement of dredge material at disposal sites.

However, there are additional port element objectives and policies within the Manatee County comprehensive plan that are not inconsistent with either the SWIM plan or the Terra Ceia Aquatic Preserve management plan. These objectives and policies call for:

- minimize the environmental impact caused by Port operations, tenants, or expansion; protecting and supporting existing and restored natural habitat

[47]P. 5, Department of Environmental Regulation comments on the proposed Manatee County Comprehensive Plan transmitted to the Department of Community Affairs, January 27, 1989.

- cooperate with local, regional, and other governmental agencies to ensure all environmental planning activities are coordinated
- maintain a current inventory of unique habitats near the Port that could be affected by Port activities
- encourage contracts and Memorandums of Understanding between the Port and state agencies for restoration and/or mitigation projects, and
- adopt an overall environmental plan that includes clear GOPs.

The City of Palmetto comprehensive plan contains no objectives or policies that address this issue.

[19] Identification of Areas, Land Use, Etc.

Identification of existing land uses, habitats, wetlands, uplands, and other environmentally sensitive areas within a planning jurisdiction is essential for proper natural resource planning and management. This has been done in a basic sense for all comprehensive plans, and the water management districts and regional planning councils have been doing this by aggregation for several years. However, the detailed identification and mapping of both these areas and their attributes, along with analysis of this information by geographic information systems (GIS), is still being done and is not yet fully operational in many areas.

SWFWMD and DNR both have GIS-based mapping and analysis capabilities, and each has created (or are currently creating) spatial databases for these purposes. Several local governments within the Tampa Bay area are creating the same, and are using data from SWFWMD and other organizations, as well as using their own planning data acquired during the comprehensive planning process.[48]

Under the Tampa Bay SWIM plan's Natural Systems Initiative 1 (preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats), there is a program to establish monitoring/research studies that includes strategies such as evaluating the success of restoration and preservation projects (including projects begun or completed prior to the SWIM program) through aerial habitat mapping and coordinated ground-based studies; and developing additional databases useful for the design and implementation of future projects. Furthermore, a program under Initiative 2 (preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles) calls for promoting and/or funding research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem. Under this program, strategies include establishing a wildlife inventory for subtidal, intertidal and nearby upland communities (including the distribution and abundance of species throughout ecosystem); and biennial, quantitative aerial mapping of subtidal, intertidal, and nearby upland habitats.

Both Terra Ceia and Cockroach Bay aquatic preserve management plans have only one policy that directly addresses the identification of existing land uses, habitats, wetlands, uplands, and other environmentally sensitive areas. It calls for the development of a resource inventory and

[48]Chapter 9J-5, F.A.C., Minimum Criteria for Review of Local Government Comprehensive Plans and Determination of Compliance, outlines data and analysis requirements for each element of a local comprehensive plan (e.g., maps, statistics, tables, etc.).

map of natural habitat types within the aquatic preserve, with an emphasis on those habitat types utilized by threatened and/or endangered species. However, DNR's Florida Marine Research Institute in St. Petersburg has developed a marine resources GIS as a tool for watershed-oriented resource management and to help evaluate related policies and data collection efforts across various federal, state, and local agencies. Although this GIS has been used mostly for analyzing fisheries habitat within the Little Manatee River watershed and seagrasses within the Weedon Island State Preserve, information collected for this GIS is being gathered by the Hillsborough County Planning Commission for the development of a comprehensive resource management plan for the Cockroach Bay area (as part of the Cockroach Bay plan amendment CPA 92-03). This resource management plan will be developed with GIS data and analysis techniques gathered from many government agencies with coordination assistance from the TBRPC's Agency on Bay Management. It will be designed to assist in the implementation of the Cockroach Bay Aquatic Preserve plan, as well as analyze areas and causes of water quality degradation and other environmental issues and impacts outside of the Preserve. This planning activity is coincident with another policy within the Cockroach Bay plan amendment that calls for the Planning Commission to develop a Cockroach Bay Aquatic Preserve Overlay District that addresses such issues as land use, densities, setbacks, etc.

The Hillsborough County comprehensive plan also has several other policies that address the identification of existing land uses, habitats, wetlands, uplands, and other environmentally sensitive areas within the county. These include having the county monitor trends in wetland losses and gains within the county with their GIS; identify and map natural plant communities providing significant wildlife habitat as environmentally sensitive areas on the county's future land use map; identify and map essential wildlife habitat; and incorporate and build upon the LandSat digital database utilized by FGFWFC to develop a county database and GIS for monitoring changes in land cover and essential wildlife habitat.

The Manatee County comprehensive plan has one policy, narrow in scope, that specifically addresses the identification of existing land uses, habitats, wetlands, uplands, and other environmentally sensitive areas. This policy requires land developments within the coastal area to identify and preserve representative tracts of native upland communities before development begins. However, another policy requires the county to review proposed developments for threatened and endangered species by using inventories and assessments developed by several state and federal agencies, and by requiring developers to choose between conducting their own on-site inventory, including detailed mapping, or having the county do the same. Additionally, since the county is developing a parcel-based GIS, it will be within their capability to better identify, map, and analyze existing land uses, habitats, wetlands, uplands, and other environmentally sensitive areas.

The City of Palmetto comprehensive plan contains no objectives or policies that address this issue.

**[20] Threatened and Endangered Species; Manatee Protection; Hazardous Waste Disposal; Boundary Expansion and Other Acquisitions**

***Threatened and Endangered Species***

The Tampa Bay SWIM plan, under Natural Systems Initiative 2 (preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles), calls for promoting and/or drafting wildlife management programs (including local, state, and federal legislation and enforcement necessary to accomplish

management goals) to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen.

Management policy directives within both Terra Ceia and Cockroach Bay aquatic preserve management plans simply call for managing spoil islands within the aquatic preserve as bird rookeries and wildlife habitat areas. However, management policies in both management plans require preserve managers to become familiar with, document, and monitor any occurrences of threatened and endangered species within the preserves, and to develop management guidelines for the preservation of these species and their habitat. Additional emphasis is placed on manatee protection measures and preservation and restoration of mangrove vegetation.

The Hillsborough County comprehensive plan has many policies that address threatened and endangered species or species of special concern, such as:

- assist DNR and the U.S. Fish and Wildlife Service in recovery programs for the West Indian Manatee and other threatened or endangered species
- consult with the FGFWFC when determining whether to issue land development approvals and conditions in coastal areas on sites containing listed species
- amend county LDRs and zoning ordinance to restrict development in essential wildlife habitat
- implement a public education program on the need to protect and manage the habitat of threatened and endangered species, and species of special concern.
- maintain populations of threatened and endangered species and species of special concern, and increase abundance and distribution of populations where feasible and appropriate.
- consult with and consider the recommendations of the FGFWFC in determining the issuance and conditions upon land development approvals which would impact upon threatened and endangered species or species of special concern (conditions of approval shall ensure the maintenance and, where environmentally and economically feasible, increase the abundance and distribution of populations of such species)
- recommend to landowners specific management and recovery strategies for key listed species, as developed by FGFWFC and the U.S. Fish and Wildlife Service (USFWS), and incorporate the same into county land management plans
- assist USFWS, FGFWFC, and DNR in implementing recovery programs for threatened and endangered species or species of special concern, and
- request the assistance of FGFWFC to conduct inventories of threatened and endangered species and species of special concern.

The Manatee County comprehensive plan calls for requiring the evaluation and proper management of endangered and threatened species by requiring that each proposed development site be examined for location of listed species. It also calls for permitting the transfer of density/intensity credits from wetlands, required buffers, and endangered species habitats to upland areas on the same development site within the coastal area of the county.

The City of Palmetto comprehensive plan has two policies that directly reference threatened or endangered species and/or their habitat. The plan calls for the City to restrict development that would result in a net reduction in fish and wildlife habitat for rare, threatened, and endangered

species (the City is to coordinate with the FWFGC to implement this policy); and to identify and adopt appropriate measures and management plans to protect threatened or endangered species known to inhabit the Palmetto area. As discussed above, it is the opinion of DER that the former policy's criterion of "no net reduction" will not offer the necessary protection for fish and wildlife habitat for rare, threatened, and endangered species.

With the possible exception of the City of Palmetto comprehensive plan, all three types of plans are consistent with each other concerning this issue, although the Manatee County comprehensive plan has few policies compared to Hillsborough County's comprehensive plan.

*Manatee Protection*

The Tampa Bay SWIM plan, under Development And Public Use Initiative 1 (provide sound environmental policies governing land use which impact the Tampa Bay ecosystem), calls for a program to evaluate the environmental impacts of existing marinas within Tampa Bay and its tributaries, including impacts on manatees and other protected species.

Both Terra Ceia and Cockroach Bay aquatic preserve management plans have a policy that requires field personnel to notify the State Manatee Coordinator when an application for use of submerged lands within the aquatic preserve or adjacent upland activities will affect a manatee sanctuary, critical manatee habitat, or manatees known to use an area. (These applications or activities will require the coordinator's authorization and approval before further approval.) Additional policy requirements include monitoring and mapping of manatees and manatee habitat, including marking such habitats; review of applications for use of submerged lands within the aquatic preserve; restricting new marinas and associated construction within manatee habitat areas; coordinating with local governments concerning comprehensive plan objectives and policies; and assisting in public awareness and education efforts.

The Hillsborough County comprehensive plan has a policy that requires the county to assist DNR and USFWS in recovery programs for the West Indian Manatee and other threatened or endangered species, in addition to policies addressing the latter. CAPMAT, as part of the Cockroach Bay plan amendment, is required direct the county to initiate a request to the DNR, the Governor and Cabinet, and the Legislature to expand the boundaries of the Cockroach Bay Aquatic Preserve, if deemed ecologically appropriate and beneficial, in order to promote more effective management of the natural system and its biological resources. CAPMAT is also required to assist in the development of public education maps and work with the appropriate authorities in the placement of markers clearly indicating boating channels and potential hazards in appropriate locations throughout the Cockroach Bay Aquatic Preserve. In addition, they are to work to post manatee educational information and warning signs as needed throughout the Preserve.

The Manatee County comprehensive plan has several policies that address manatee protection. These include requiring all development within the range of manatees to adhere to DNR guidelines; and developing "slow speed zones" for boaters. However, DNR's comments on the county's proposed comprehensive plan suggested that the county develop a manatee protection plan that expands on these two policies.

Neither Hillsborough County nor Manatee County's comprehensive plan are not fully consistent as of yet with each other's respective aquatic preserve plan concerning manatee protection measures. The Tampa Bay SWIM plan is only marginally consistent with both aquatic preserve management plans when specifically applied to manatees.

The City of Palmetto comprehensive plan has no policies that address manatee protection.

*Hazardous Waste Disposal*

The Tampa Bay SWIM plan, under Water Quality Initiative 1 (reduce point and non-point source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification), outlines a program for hazardous waste disposal and management in the Tampa Bay area with the following policies:

- implement the requirements of the state water quality assurance act for a comprehensive statewide hazardous waste management program, including the location of temporary storage/transfer facilities for hazardous wastes
- provide needed surface water, groundwater and leachate characterization in and adjacent to potentially dangerous dump sites for application in state and local regulatory responsibilities (delegated to the water management districts), and
- initiate the eventual rehabilitation of dump sites through restorative actions.

Both Terra Ceia and Cockroach Bay aquatic preserve management plans call for prohibiting the storage of toxic, radioactive, or other hazardous materials within the aquatic preserve, as well as closing and eliminating any hazardous waste dumps now located within the aquatic preserve.

Both Hillsborough and Manatee County comprehensive plans address hazardous waste management. Hillsborough County's plan calls for:

- develop comprehensive hazardous waste management and emergency response programs, including source reduction and the proper transfer, storage, disposal, and recycling of hazardous wastes
- further federal and state regulatory agencies' objectives regarding the enforcement of hazardous waste laws and regulations, and
- provide technical assistance to DER and EPA for inventorying, ranking, and increasing the utilization and direction of federal and state funds for investigations and cleanup of SuperFund and other hazardous chemical contamination sites within county.

The Manatee County comprehensive plan has several policies addressing hazardous waste management, including:

- require the county to conduct proper management and disposal of all hazardous materials as required by state law
- develop and implement a hazardous materials management plan, and
- provide for the safe elimination of abandoned dump sites.

The City of Palmetto comprehensive plan has several policies that address hazardous waste and its disposal, and appear consistent with policies within the other plans within this study area. These policies call for the City to:

- assess the City's hazardous waste handling program, and coordinate with the Manatee County Public Works Department to ensure the implementation of appropriate collection, storage, and transfer programs

- enter into an interagency agreement with the Manatee County Public Works Department to develop a hazardous waste transfer/temporary storage facility to serve the City. All hazardous waste shall be collected, stored and disposed consistent with applicable laws. Assess the effects of such wastes on City's natural resources if applicable, and

- coordinate with the Manatee County Public Works Department toward developing a hazardous waste transfer/ temporary storage facility to serve the City. Siting and design of such a facility shall be consistent with adopted regional and state hazardous waste management programs.

All three types of plans appear to be consistent with each other concerning this issue.

*Boundary Expansion and Other Acquisitions*

Acquisition of environmentally sensitive land is being conducted at virtually every level of government in Florida, especially within the coastal area, for reasons such as flood control, habitat preservation and restoration, recreation, mitigation, and others. These activities are coordination between as many programs as possible in order to maximize acquisition funds and other resources. All three types of plans address acquisition of environmentally sensitive land in some way.

For instance, the Tampa Bay SWIM plan, under Natural Systems Initiative 1 (preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats), has several strategies under a program promoting the preservation of relatively pristine or functional habitats already in existence. These policies include:

- support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL)

- when appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase, and

- encourage and support private donations of funds and land parcels, parks, etc., as well as the passing of local taxing initiatives.

Both Terra Ceia and Cockroach Bay aquatic preserve management plans call for acquiring, where feasible, privately owned submerged lands and adjacent lands and islands located within the boundaries of the aquatic preserve, as well as areas upstream of the present boundary of streams flowing into the preserves, and previously conveyed sovereign lands. The Cockroach Bay aquatic preserve management plan specifically targets the barrier islands at the mouth of the Little Manatee River and those along the coast of Cockroach Bay. The Terra Ceia aquatic preserve management plan specifically targets the barrier islands that are located along the coastline and the low-lying areas of Terra Ceia Island adjacent to Bishop Harbor and Frog Creek. Both plans also call for the application of management criteria contained within the plans to all subsequent legislative additions of land.

The Hillsborough County comprehensive plan addresses acquisition of environmentally sensitive lands. The county's comprehensive plan calls for increasing the acreage of publicly-owned or otherwise protected natural preserve land in the county; using the county's natural systems and land use cover inventory to help identify lands suitable for acquisition by the county's Environmental Lands Acquisition Program (ELAPP). The plans also calls for using and promoting alternatives for acquiring and protecting environmental lands, including easements, transfer of development rights, and long-term leases; and continuing to request assistance in

public acquisition of natural preserves under federal, state, and regional programs, including the state's Conservation And Recreation Lands and Save Our Rivers programs.

Following the adoption of the recent Cockroach Bay plan amendment (CPA 92-03), the county has a policy which seeks to expand the boundaries of the Cockroach Bay Aquatic Preserve where ecologically appropriate and beneficial (Policy C-37.5, Future Land Use element). This is part of the county's CAPMAT organization.

The Manatee County comprehensive plan permits and encourages the designation of environmentally sensitive areas as "Conservation Lands" on the Future Land Use Map (as long as this does not constitute a taking without compensation). The county also has a land acquisition program that is similar to Hillsborough County's ELAPP program.

The City of Palmetto comprehensive plan has no policies that address this issue.

## CONSISTENCY OF DATA COLLECTION, ANALYSIS, AND STANDARDIZATION

This information is discussed within Appendix A, which is entitled *Cockroach Bay Case Study.*

## INDIAN RIVER LAGOON STUDY AREA CONSISTENCY ANALYSIS

Consistency in planning and programs was identified as a critical need in the Indian River Lagoon prior to the passage of the Local Government Comprehensive Planning and Land Development Regulation Act, the passage of the SWIM Act, and the revision of the state's aquatic preserve management plans. Years of research, civic involvement, and political action regarding the restoration and protection needs of the lagoon system led to its designation as a "priority waterbody" in the original version of the SWIM Act and its inclusion into the National Estuary Program, a federal resource planning and management program administered by the U. S. Environmental Protection Agency, in 1990. With the SWIM plan undergoing its mandatory three-year revision, local comprehensive plans undergoing the statutory five-year evaluation and review, and the management plans for the three aquatic preserves within the lagoon undergoing revision, a sufficient base is available for evaluating the consistency of these three programs as they apply to the resource management needs of the system.

### Description of Indian River Lagoon Study Area

The Indian River Lagoon extends along Florida's eastern coast from Ponce de Leon Inlet in Volusia County south to Jupiter Inlet in Palm Beach County. The area of the Indian River Lagoon addressed within this study includes the southernmost of the state's three aquatic preserves located in the lagoon, which extends from Jensen Beach south to Jupiter Inlet. The boundaries of the preserve are shown in Figure 3. Three counties (Palm Beach, Martin, and St. Lucie) and eight municipalities (Jupiter, Tequesta, Jupiter Inlet Colony, Jupiter Island, Ocean Breeze Park, Sewall's Point, Fort Pierce and Stuart) surround the Jensen Beach to Jupiter Inlet Aquatic Preserve and constitute the study area for the portion of this research addressing the Indian River Lagoon.

The Indian River Lagoon is a long and wide estuarine body situated between the Florida mainland and a chain of barrier islands. The lagoon is shallow primarily, with an average depth of five feet.[49] However, the Atlantic Intracoastal Waterway, a federal navigation channel, has been dredged through the lagoon with a depth of 10 to 12 feet. The lagoon has the highest species diversity of any estuary in North America[50] and supports over thirty endangered or threatened species.[51] It provides prime habitat for fisheries and a suitable location for the commercial and recreational fishing industries. Within the state's Treasure Coast and East Central regions, the lagoon itself is surrounded by both urban and agricultural development. The National Oceanic and Atmospheric Administration estimates that over 30 percent of the land within the estuary's drainage basin is classified as agricultural and 17 percent as urban.[52]

The economic and recreational value of the lagoon's resources and the land uses of the surrounding region have jeopardized the environmental quality of the waterbody. Authors of the *Indian River Lagoon Joint Reconnaissance Report*, published in 1987, attributed "the intensity of human use of the regional resources and associated activities over the last 80 years"[53] to the system's dynamic behavior. More specifically, human-related impacts on the lagoon's hydrology,

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[49]Department of Natural Resources. (1990). *Aquatic Preserve Management Plan, Jensen Beach to Jupiter Inlet* (Phase 1), p. 17.
[50]SJRWMD and SFWMD. (September, 1989). *SWIM Plan for Indian River Lagoon.*
[51]Palm Beach Post. (July 30, 1992). "Hope for the lagoon." (Editorial).
[52]NOAA (U.S. Department of Commerce). (October, 1990). *Estuaries of the United States: Vital Statistics of a National Resource Base*, pp. 31-32.
[53]SJRWMD and SFWMD, p. V-1.

circulation and flushing, biological habitats, and trophic/community structures have contributed to a decline in water and sediment quality and the habitat and species diversity of the lagoon.

A number of factors upset the ecological balance of the entire lagoon system, but the focus of this chapter is on those factors affecting the southernmost portion of the lagoon, from Jensen Beach to Jupiter Inlet. The entire lagoon system is experiencing a decline in water and sediment quality and a loss and alteration of habitat due primarily to two factors. First, pollution from human-related point and nonpoint sources threaten to convert gradually the lagoon from a macrophyte-based to a phytoplankton-based system and damage the estuarine resources.[54] Second, alterations in the lagoon's natural circulation patterns and inflow of freshwater affect salinity, create turbidity problems, and inhibit growth of seagrasses, a habitat and species vital to the lagoon's ecosystem. Environmental problems more specific to the portion of the lagoon addressed in this study include the following:

- unregulated freshwater inflows;
- wastewater effluents;
- leachates from septic tanks systems;
- turbidity problems due to dredging and upland uses;
- shoreline development and alteration;
- alteration of seagrass beds due to increasing boat and jet ski traffic; and
- impoundment of estuarine marshes and wetlands.

Major system-wide issues of the Indian River Lagoon were identified in 1981 during the Future of the Indian River System Symposium. This event precipitated a series of efforts during the 1980s that further defined these major issues and resource protection and management needs for the system. A primary concern of the Symposium's broad cross-section of scientists, government officials, and concerned citizens was the absence of a planning and regulatory framework to integrate the many related but discrete efforts to restore and manage the lagoon. More than 40 separate government entities at the local, regional, state, and federal levels play a role in the management of the resources within or surrounding the lagoon and create a complicated milieu of overlapping, uneven, and potentially conflicting authorities. Participants in American Assembly consensus-building processes conducted in 1985 and 1986 concluded that three major problems besieged the managers of the lagoon: (1) no central control of management; (2) unregulated freshwater inflows and introduction of materials into the lagoon; and (3) decline of seagrass beds vital to overall lagoon productivity.[55]

Efforts are underway to sort out this management milieu and create a coordinated, system-wide approach to managing and protecting the resources of the lagoon. In 1986, the Indian River Lagoon Field Committee of the state's Interagency Management Committee forwarded to the governor recommendations for the improved management of the system's resources.[56] They

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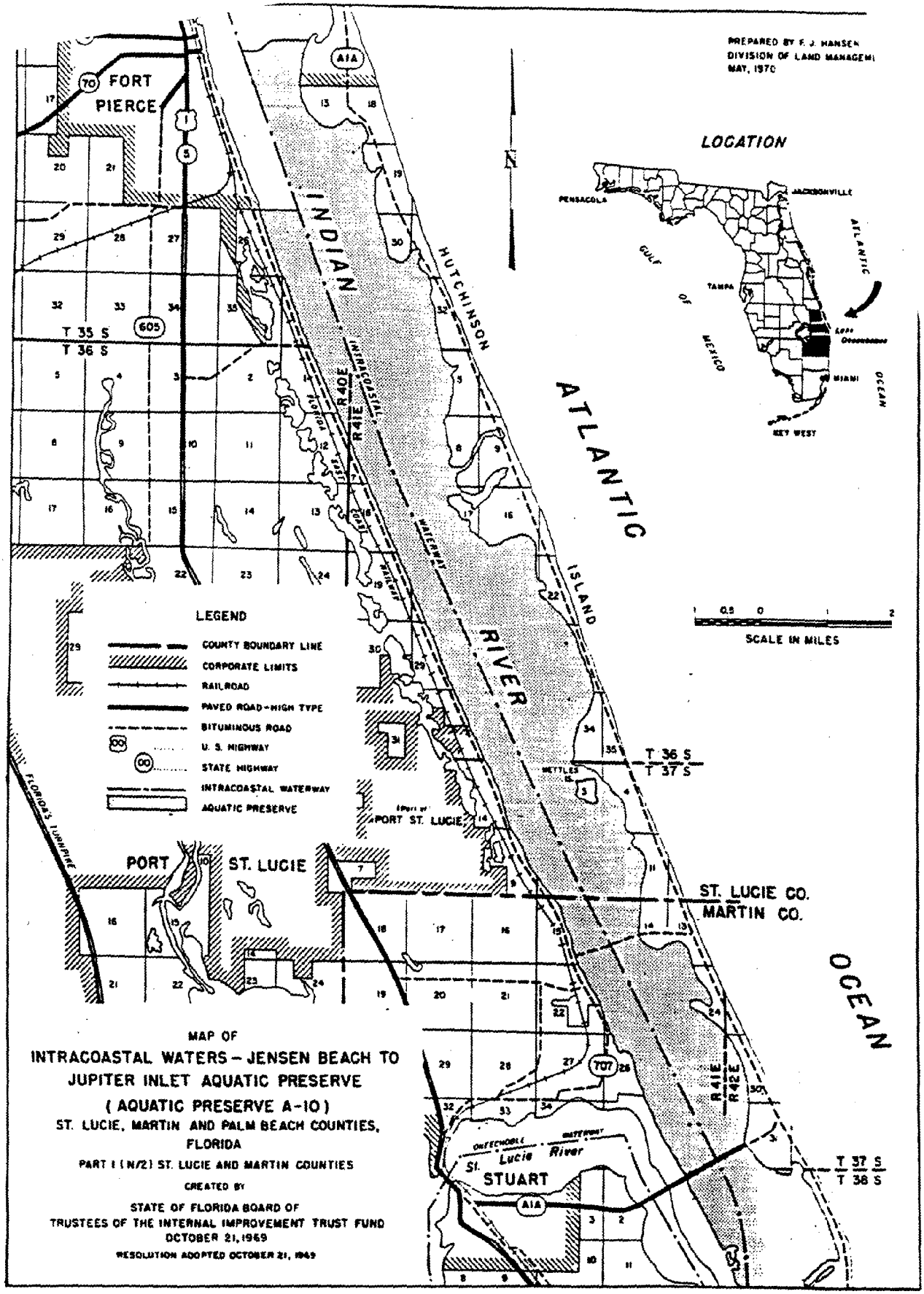
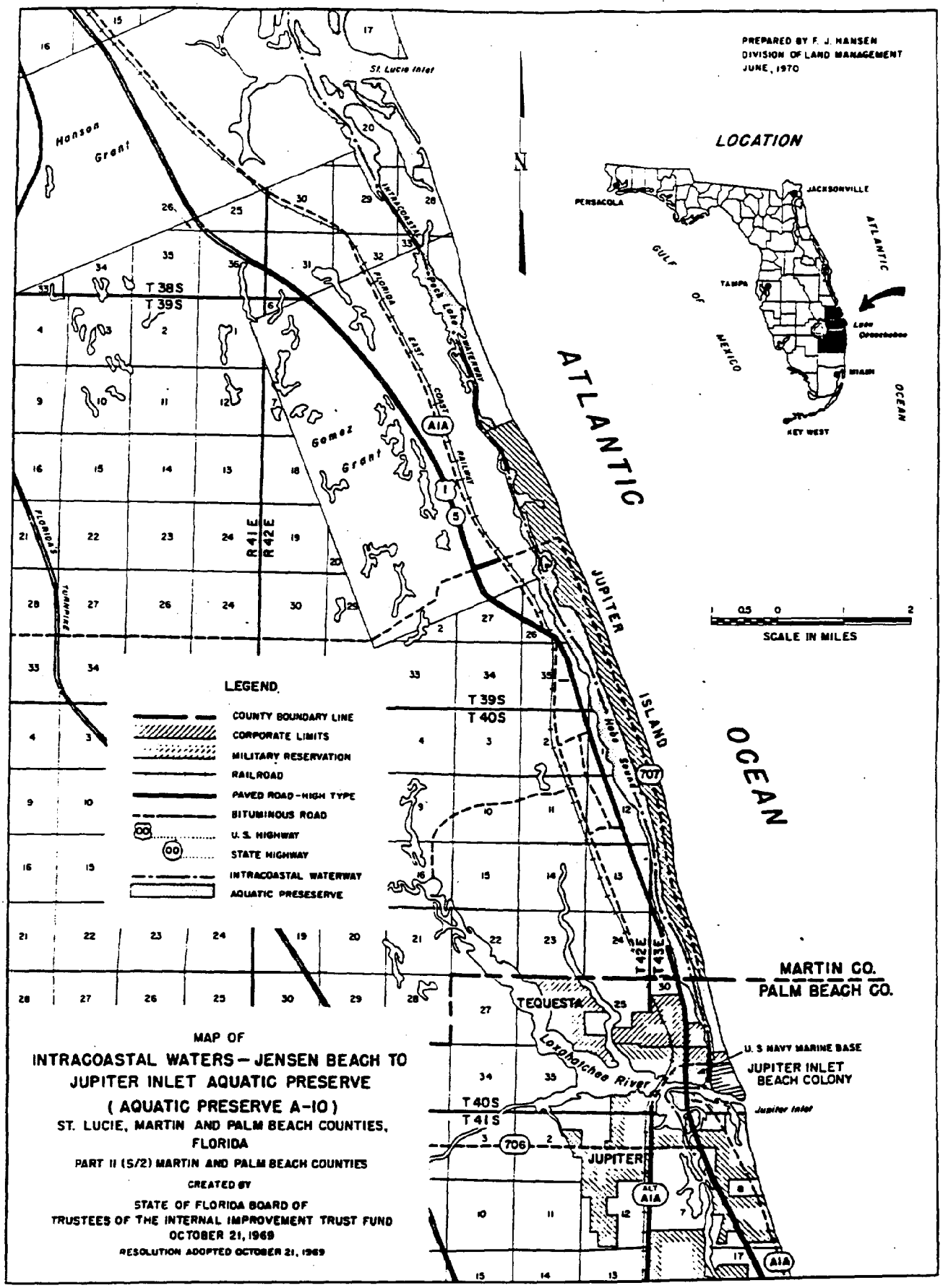
[54]SWIM Plan (1989), p. 9.

[55]Barile, Diane D., et al. (1987). Estuarine management - the Indian River Lagoon. In *Coastal Zone '87* (Proceedings of the Fifth Symposium on Coastal and Ocean Management), Volume 1, pp. 237-250. (New York: American Society of Civil Engineers).

[56]Indian River Lagoon Field Committee of the Interagency Management Committee. (May 1986). *Report to the Governor with Recommendations for Resource Management in the Indian River Lagoons System.*


PREPARED BY F. J. HANSEN
DIVISION OF LAND MANAGEMENT
MAY, 1970
LOCATION
PENSACOLA
JACKSONVILLE
TAMPA
MIAMI
KEY WEST
GULF OF MEXICO
ATLANTIC OCEAN
FORT PIERCE
INDIAN
HUTCHINSON ISLAND
ATLANTIC
OCEAN
RIVER
INTRACOASTAL WATERWAY
FLORIDA TURNPIKE
PORT ST. LUCIE
STUART
St. Lucie River
OKEECHOBEE WATERWAY
T 35 S
T 36 S
T 37 S
T 38 S
R41E
R42E
ST. LUCIE CO.
MARTIN CO.
LEGEND
COUNTY BOUNDARY LINE
CORPORATE LIMITS
RAILROAD
PAVED ROAD-HIGH TYPE
BITUMINOUS ROAD
U. S. HIGHWAY
STATE HIGHWAY
INTRACOASTAL WATERWAY
AQUATIC PRESERVE
SCALE IN MILES
MAP OF
INTRACOASTAL WATERS - JENSEN BEACH TO JUPITER INLET AQUATIC PRESERVE
( AQUATIC PRESERVE A-10 )
ST. LUCIE, MARTIN AND PALM BEACH COUNTIES, FLORIDA
PART I ( N/2) ST. LUCIE AND MARTIN COUNTIES
CREATED BY
STATE OF FLORIDA BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND
OCTOBER 21, 1969
RESOLUTION ADOPTED OCTOBER 21, 1969


PREPARED BY F. J. HANSEN
DIVISION OF LAND MANAGEMENT
JUNE, 1970
LOCATION
JACKSONVILLE
PENSACOLA
TAMPA
MIAMI
KEY WEST
GULF OF MEXICO
ATLANTIC OCEAN
N
SCALE IN MILES
LEGEND
COUNTY BOUNDARY LINE
CORPORATE LIMITS
MILITARY RESERVATION
RAILROAD
PAVED ROAD-HIGH TYPE
BITUMINOUS ROAD
U. S. HIGHWAY
STATE HIGHWAY
INTRACOASTAL WATERWAY
AQUATIC PRESESERVE
ATLANTIC OCEAN
JUPITER ISLAND
Hobe Sound
TEQUESTA
Loxahatchee River
U. S NAVY MARINE BASE
JUPITER INLET BEACH COLONY
Jupiter Inlet
JUPITER
MARTIN CO.
PALM BEACH CO.
T38S
T39S
T40S
T41S
R41E
R42E
T42E
T43E
St. Lucie Inlet
Hanson Grant
Gomez Grant
FLORIDA'S TURNPIKE
FLORIDA EAST COAST RAILWAY
INTRACOASTAL WATERWAY
Lake Worth
A1A
ALT A1A
707
706
MAP OF
INTRACOASTAL WATERS – JENSEN BEACH TO JUPITER INLET AQUATIC PRESERVE
( AQUATIC PRESERVE A-10 )
ST. LUCIE, MARTIN AND PALM BEACH COUNTIES, FLORIDA
PART II (5/2) MARTIN AND PALM BEACH COUNTIES
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recommended the creation of an "interagency task force charged with developing and implementing an Ecosystem Management Plan." The St. Johns River Water Management District, serving as the host agency for the National Estuary Program for Indian River Lagoon, began to develop in early 1991 a comprehensive conservation and management plan (CCMP) for the lagoon. Also, the NEP established a Management Conference which includes representatives of SJRWMD, SFWMD, and state, local, and federal agencies. These Conferences are established for each NEP waterbody and are designed to to get financial and other commitments from the various actors to develop and implement the CCMP for a waterbody. In addition to this, the Indian River Lagoon Conference adopted the three goals of the SWIM plan for the Indian River Lagoon to guide their actions and the development of the CCMP.

In 1992, the NEP took an important step toward ensuring consistency among resource planning and management efforts in the lagoon and adopted the goals of the SWIM plan. According to the draft revised SWIM plan (September 1992), " . . . the goals of NEP and SWIM, being virtually identical, are intended to emphasize the mutual purposes of the two major programs, reflect the similar and complementary functions of both, and create the philosophical basis for the merging of both programs as a unified local, State, and Federal initiative for the Indian River Lagoon system" (p. 4). Authors of the draft revision indicate that this action would " . . . help ensure consistency among other local, state, and federal plans that affect resources" of the lagoon and lead to the adoption of a joint plan, or single management plan, by 1996. However, this single management plan will not render obsolete the SWIM plan for the lagoon and the management plan for the aquatic preserve extending from Jensen Beach to Jupiter Inlet. These plans still serve specific state policy purposes and they differ in scope of issue, jurisdiction, and geography, as discussed above. Both address, in general, issues relating to water and sediment quality, habitat, and Interagency management.

The designation of the Indian River Lagoon as a National Estuary adds another government agency to the multiplicity of agencies with some degree of responsibility in managing the resources of the lagoon. However, the designation also introduces an additional source of funding for restoration, management, and research but perhaps more important, provides a program that focuses on the system-wide resource management needs for the waterbody and for staff that can focus completely on the resource. Representatives of the South Florida Water Management District indicated that the SWIM program for the lagoon has benefited from the NEP, particularly since funding of the state's SWIM trust fund has diminished. However, the NEP also has caused the district to rearrange its program priorities and, as a result, other equally important waterbodies within the district receive less attention. Nevertheless, the SWIM, aquatic preserve, and local government comprehensive planning programs will figure largely in developing a coordinated and consistent regulatory and management framework for the Indian River Lagoon. A review of the three types of plans as they relate to protection and management of the southern portion of the lagoon is an important step in determining how they will fit within a comprehensive planning framework for the entire lagoon.

### Indian River Lagoon SWIM Plan Description

The original version of the SWIM Act designated the Indian River Lagoon system as a "priority waterbody" and directed the adoption of a plan to restore and protect the lagoon. The lagoon lies mostly within the jurisdiction of St. Johns River Water Management District (SJRWMD) but its southernmost portion, which includes the Jensen Beach to Jupiter Inlet Aquatic Preserve, is within the jurisdiction of South Florida Water Management District (SFWMD). The two districts entered into a Memorandum of Understanding in 1987 and jointly undertook drafting and adopting the SWIM plan for the lagoon, with SJRWMD taking the lead. The governing boards of

each district were responsible for conducting public workshops to obtain input before formally adopting the plan.

The SWIM plan sets forth three broad goals in order to address the water and sediment quality, habitat alteration and loss, and interagency management of the lagoon system. These goals include the following:

- attain and maintain water and sediment of sufficient quality
- attain and maintain a functioning macrophyte-based ecosystem, and
- heighten public awareness and coordinate agency management of the Indian River Lagoon ecosystem.

In order to accomplish these goals, the plan sets forth five separate programs: (1) water and sediment quality; (2) habitat preservation and restoration; (3) regulation and enforcement; (4) public awareness; and (5) administration, planning, and coordination. The SWIM plan also identifies twelve geographic target areas for various research, restoration, and conservation projects undertaken as part of the SWIM program. Only one of these target areas, Manatee Pocket, lies within the study area for this research. Another, the St. Lucie Estuary vicinity, was added in the 1992 draft of the SWIM plan.

As required by statute and agency rules of DER, the SWIM plan for the Indian River Lagoon contains a description of the lagoon system and its current conditions and uses; identification of government entities with management responsibilities of the lagoon system; a description of point and nonpoint pollution sources, permitted discharges, and surrounding land uses; and descriptions of current and needed strategies, studies, and measures to restore and maintain the waterbody. These elements of the lagoon's SWIM plan are not complete and are emerging through the different research and inventorying tasks specified in the plan's five programs. Since the plan indicates the need for further research, its goals are fairly broad and general and the means, or objectives, for accomplishing these goals are not defined clearly.

The two districts have updated annually the plan and recently published a draft revision of the entire SWIM plan (September, 1992) in accordance with statutes which require revision every three years. The 1992 draft is undergoing review by staff of DER, DNR, Florida Game and Freshwater Fish Commission, DCA, DACS, Treasure Coast Regional Planning Council (TCRPC), and local governments within the lagoon basin. The 1989 version of the SWIM plan was reviewed for this study since the 1992 draft was not available until after the study team conducted its review of plans.

### State and Local Review of SWIM Plans

Interagency review of SWIM plans, required by statute, is designed to facilitate coordination among agencies involved in the management of the lagoon's resources but more importantly, serves as a checkpoint for consistency among plans. Interviews with state and local agency staff from the Indian River Lagoon study area revealed varying levels of participation in the SWIM plan review process. DNR staff managing the Jensen Beach to Jupiter Inlet aquatic preserve indicated active involvement in the development of the initial version of the SWIM plan for the lagoon and on-going involvement in reviewing revisions of the plan. DNR field staff did not review the SWIM plan to the degree they reviewed proposed local comprehensive plans since they participated on the committee that developed the SWIM plan and were deeply familiar with the contents of the plan before its release as an official draft.

SFWMD staff commented that DNR's participation was critical to development of the SWIM plan due to the district's then lack of expertise with problems related to estuarine areas. Previously, the district only managed freshwaterbodies. The district relies on DNR to manage the portions of the lagoon under DNR's jurisdiction and to ensure protection of water and habitat quality consistent with SWIM objectives. Many of the goals and policies of the aquatic preserve management plan are consistent with the SWIM plan, but the district does not have the authority, like DNR, to regulate specific activities that may conflict with SWIM goals and objectives, such as construction of docks and dredging within the preserve. This interdependence underscores the importance of close coordination between agencies in achieving mutual objectives for the preserve.

Similarly, the district must rely on the authority of local governments to regulate land use activities in accomplishing SWIM plan goals and objectives. However, in the Indian River Lagoon study area, local governments as a whole do not review the SWIM plan as closely as the district reviews local plans. Some local government staff indicated that they have "never even seen a SWIM plan" and other staff commented that they depend on the state (i.e., DCA, SFWMD, and DER) to ensure consistency of SWIM plans with local plans. Overwhelmingly, local government staff commented that due to fiscal constraints, they do not have the staff to regularly monitor impacts of SWIM projects on local plans and activities, or vice versa. In fact, several of the municipalities within the study area do not employ staff to manage implementation of the comprehensive plan or environmental resource programs. Furthermore, these municipalities retained private contractors to develop initially the comprehensive plan and to prepare any amendments.[57] The local governments contacted seemed to display more concern regarding consistency with neighboring local plans and the Treasure Coast Regional Policy Plan, and compliance with Rule 9J-5, F.A.C., a logical conclusion given the state's mandates for local plan consistency and the penalties for non-compliance with these mandates.

Local involvement or familiarity with the Indian River Lagoon SWIM plan also seemed to relate to proximity of the local government to the lagoon. St. Lucie and Martin Counties indicated greater awareness of the Indian River Lagoon SWIM plan than Palm Beach, which is situated at the very southern end of the lagoon. Rather, Palm Beach County staff were more familiar with the SWIM program for Lake Okeechobee. In addition, the cities of Tequesta and Jupiter indicated greater interest in the Loxahatchee River SWIM plan and the city of Stuart in the St. Lucie River Estuary since these waterbodies figure more prominently than Indian River Lagoon within their corporate limits.

The local governments and TCRPC did not participate actively in the development and revision of the SWIM plan and nearly all staff indicated that they will review the draft revision once the district forwards it to them. None responded that he/she reviews SWIM Plans according to in-house criteria or guidelines. Instead, the local governments and TCRPC review SWIM plans for general consistency with local plans and the comprehensive regional plan, respectively, and for potential impacts to local resources and activities, as directed by statute.

### Indian River Lagoon, Jensen Beach to Jupiter Inlet Aquatic Preserve Plan Description

Two versions of the plan for the Jensen Beach to Jupiter Inlet Aquatic Preserve plan were considered in this research. The first, the 1985 version, addresses the management of this preserve as well as the Vero Beach to Fort Pierce Aquatic Preserve, situated directly north of the Jensen Beach area. The second, the 1990 revised version, represents the first phase in the development of a complete resource management plan for the Jensen Beach to Jupiter Inlet preserve. However,

[57]Due to the lack of staff to comment constructively on issues relevant to this research, several municipalities were not included in the interviews of agencies.

this 1990 plan only encompasses the submerged lands from Hobe Sound to Jupiter Inlet, or approximately half of the lands within the entire preserve. DNR field staff indicated that the resource inventory is completed in order to develop the second phase of the aquatic preserve plan, but funding was still not available for the drafting of the plan. Thus, the 1985 and 1990 versions of the management plans for the Jensen Beach to Jupiter Inlet preserve were considered in this review since the 1990 version only addresses the management needs of the southern half of the preserve.

The geographic and jurisdictional scope of the aquatic preserve plan is less comprehensive than the SWIM Plan's, which encompasses the entire basin of the Indian River Lagoon. The aquatic preserve plan focuses on activities within the jurisdiction of the preserve and land uses directly adjacent to it while the SWIM plan addresses land uses and human-related activities as they impact water and habitat quality of the whole waterbody. For example, the aquatic preserve plan concentrates on points of discharge of the drainage systems into the preserve but the SWIM plan addresses entire drainage systems within the basin of the lagoon.

The stated purpose of the 1990 plan for the Jensen Beach to Jupiter Inlet preserve is " . . . to serve as a useful guide to the aquatic preserve field staff and others in maintaining the integrity of the preserves."[58] The 1990 plan provides a more specific basis for the identified management and protection needs of the preserve than the previous plan. Furthermore, it tailors the directives of the statutes governing the management of all the state's aquatic preserves to serve more appropriately the specific management needs of the Jensen Beach to Jupiter Inlet preserve. The revised management plan designates primary and secondary resource areas and identifies compatible uses within each area. Scientific thresholds were developed for distinguishing between these two types of areas. Preserve staff indicated that criticism of the 1985 plan centered on the generality of its management policies and that in response, more specific policies were developed based on the particular resources and management needs of the preserve.

DNR staff attempt to ensure consistency between the objectives for the preserve and locally approved actions through review of local comprehensive plans, amendments to the comprehensive plans, proposed land development regulations, proposed site plans, and permits for activities and uses under both state and local jurisdiction. They recognized that the implementation of the aquatic preserve plan depends on complementary actions of local governments and SFWMD, a point also emphasized throughout the revised plan's goals and objectives. Although staff must coordinate the management and protection of the preserve with local governments and the district, they also indicated that coordination efforts vary from agency to agency, depending on the presence of staff and resources to complement their functions. In general, staff found coordination with the county governments more consistent than with the municipalities since the counties in this study area tend to perform more functions related to land use planning and environmental management.

Preserve management staff reviewed local comprehensive plans as they were submitted to DCA for compliance certification and conducted their review according to DCA's prescribed review and comment procedures for state agencies. They reviewed local plans for policies and planned actions relating to surface water runoff, permitting of docks, and protection and establishment of wetland buffers. DNR provided preserve staff with guidelines for their review. Staff felt that their comments to DCA regarding local plans were effective because they noticed an overall change in address of local policies affecting the preserve. In fact, one local government recently proposed plans for a marina based on policies of the aquatic preserve plan.

Preserve staff indicated that their involvement in the development of the SWIM plan influenced their subsequent revision of the aquatic preserve plan, but they did not indicate active

[58]DNR. (1990). *Jensen Beach to Jupiter Inlet Aquatic Preserve Management Plan* (Phase 1), pp. 1-2.

participation on behalf of SFWMD or the local governments in revision of the aquatic preserve plan. However, the limits of DNR's jurisdiction within the mean high water line preclude the preserve staff's complete management of all human activities impacting the preserve's resources and requires that they depend on the SWIM plan and local plans to address activities outside the preserve. The revised plan describes its relationship to other applicable plans, namely the State Comprehensive Plan, the Conceptual State Lands Management Plan, and the comprehensive plans of Martin and St. Lucie counties. The plan was developed to be consistent with the State Comprehensive Plan, but the intent of the aquatic preserve program is to guide county governments " . . . during their planning processes towards developing local planning criteria and standards that will be consistent with the objectives of the program."[59]

### Local Government Comprehensive Plans

In accordance with the state's minimum criteria, the local government comprehensive plans reviewed for the Indian River Lagoon study area address a broad range of issues, much broader than those issues of the SWIM and aquatic preserve plans. Each element of the eleven local plans relevant to the study area was reviewed for goals, objectives, and policies potentially consistent or inconsistent with issues relevant to the protection and management of the Jensen Beach to Jupiter Inlet portion of the lagoon. These issues are outlined below.

Development of the SWIM plan for the Indian River Lagoon coincided generally with the development of comprehensive plans for the local governments in this study area. SFWMD staff reviewed local plans as submitted to DCA for compliance certification. Interviews with district staff disclosed that the agency's scope of review of local plans evolved throughout the process. At first, the district had no specific plans or criteria on which to base reviews of local plans for relevance to the lagoon system. However, the goals and objectives of the SWIM plan, once developed, guided partly their review. The district's two primary concerns were consistency of policies within local plans and compatibility of local plans with SWIM goals and objectives. The district staff described a voluntary approach to ensuring consistency between the SWIM plan and local plans. In effect, the district filled a void for local governments and provided assistance necessary to develop local plans in compliance with state requirements. However, this assistance was uneven, depending on the technical capacity and resources of the local government. For example, the larger county governments tend to employ staff to administer programs focused on environmental resources protection and management. In fact, the district often contracts with the counties to conduct projects as part of the SWIM program.

Furthermore, interviews indicated that district staff worked closely with local governments in preparing relevant elements of their comprehensive plans, namely conservation and drainage/aquifer recharge elements. The district essentially provided technical assistance to the local governments but perceived this role as vital to establishing consistency with SWIM goals and objectives. For example, the district provided data in order to assist local governments in meeting minimum data requirements for local plans, assisted in development of policies and objectives, and provided model ordinances for drainage and stormwater regulation.

## CONSISTENCY BY ISSUE

Since its geographic scope is the broadest of the three types of plans reviewed, the SWIM plan for the Indian River Lagoon served as the primary basis for identifying the major issues relevant to

[59]DNR, p. 16.

the lagoon. The research team also used the *Indian River Lagoon Joint Reconnaissance Report* as a source for determining issues relevant to the southern portion of the lagoon. The plan for the Jensen Beach to Jupiter Inlet preserve of the Indian River Lagoon was then reviewed to identify issues common with those of the SWIM plan and issues relevant to the resource management and protection of this portion of the SWIM body. The following list of issues functioned as the basis of review of the comprehensive plans of local governments bordering the aquatic preserve for consistency with the goals and objectives of the SWIM and aquatic preserve plans:

A. Water and Sediment Quality

1. Unregulated freshwater inflows and excessive stormwater discharges due to extensive drainage networks, artificially lowered water tables, and loss of wetlands
2. Excessive nutrient loadings from point and nonpoint sources, particularly canals draining agricultural and urban areas
3. Releases of artificial substances from urban, marina, and agricultural activities
4. Wastewater and sewage effluents and leachates from septic tanks, treatment plants, and agricultural activities
5. Dredge and fill activities/shoreline alteration

B. Habitat

1. Loss and alteration of seagrass beds due to shoreline development, mosquito impoundments, and increased boat/jet ski traffic
2. Loss of wetlands and mangroves
3. Protection of manatee and bird rookery habitat

C. Interagency Management

1. Inadequate permit enforcement, environmental protection rules and ordinances
2. Lack of technical knowledge, research, and awareness
3. Inconsistent resource management among regulatory agencies and need for improved coordination among DER, DNR, WMDs, and local governments regarding water quality and land use planning

The degree of consistency for each issue is summarized below, starting with major areas of consistency or inconsistency.

**Water and Sediment Quality Issues**

The characteristics of the water that drains or discharges into the Indian River Lagoon affect most directly the estuary's "habitability and healthiness."[60] The protection, restoration, and management of water and sediment quality is extremely vital to the habitat and species diversity of the lagoon.[61] The SWIM plan in particular emphasizes water and sediment quality issues, particularly through the management of the release of artificial substances and nutrient loadings and of the discharge of stormwater and freshwater into the lagoon system. The SWIM plan also identifies two major types of impacts contributing to a decline in water and sediment quality: (1)

[60]DNR. (1985). *Indian River Lagoon Aquatic Preserves Management Plan* (Vero Beach to Fort Pierce and Jensen Beach to Jupiter Inlet), p. 49.
[61]SJRWMD and SFWMD. (September, 1989). *Indian River Lagoon SWIM Plan*, p. 7.

" . . . pollution from anthropogenic point and nonpoint sources" and (2) " . . . alterations in the natural patterns of circulation in the lagoons and freshwater flow into the lagoons."[62]

The aquatic preserve plan is not as comprehensive in its address of water and sediment quality. The 1985 plan for the entire preserve recognizes that " . . . management of water resources for the protection of human health and recreational enjoyment of aquatic preserve water, as well as for the protection and enhancement of the preserves' plant and animal communities is . . . the most critical aspect of aquatic preserve management."[63] However, the plan then indicates that this objective depends greatly on DER and water management districts, the agencies charged with regulating water quality and quantity. The revised plan (1990) for the preserve includes " . . . cooperating with other agencies in water quality improvement"[64] as one of the four primary goals of resource management within the state's aquatic preserves. Specifically, Goal A.4 of the revised plan is to "improve water quality" through coordination with DER, the water management districts, and local governments.

According to the *Joint Reconnaissance Report*, water and sediment quality does not appear to be poor in the Jensen Beach to Jupiter Inlet segment of the lagoon. This might account partly for the de-emphasis of water and sediment quality issues in the aquatic preserve plan for this segment, relative to the SWIM plan for the entire waterbody. Furthermore, the SWIM plan identifies twelve "problem areas" in which water quality conditions are poor relative to the entire lagoon. Only two of these problem areas, Manatee Pocket and the St. Lucie Estuary vicinity, lie within or adjacent to the area considered in this research. The remainder of the problem areas are located within the central and northern portions of the lagoon system. Thus, it appears that the primary geographic focus of water and sediment quality issues for the lagoon is on areas north of the Jensen Beach to Jupiter Inlet aquatic preserve.

The local government comprehensive plans in this study area address water and sediment quality issues to varying degrees. Interviews with staff of DNR, SFWMD, and the local governments indicated that this variation is likely due to the breadth of water quality problems within each local jurisdiction and the technical capacity of the local government to manage complex problems which are not understood completely by any agency. Both the Indian River Lagoon SWIM plan and aquatic preserve plan acknowledge the need for further research to detect sources of pollution in the lagoon, to determine the ultimate impacts of human-related activities on the lagoon, and to develop appropriate strategies for mitigating or eliminating these impacts. The Jupiter Inlet, one of two natural inlets along the east coast of Florida, contributes greatly toward the presence of good water quality in this portion of the preserve. The aquatic preserve plan states that the area adjacent to the Jupiter Inlet " . . . is noted for its high water clarity and rich, tropical marine life."

**Issue: Unregulated freshwater inflows and excessive stormwater discharges due to extensive drainage networks, artificially lowered water tables, and loss of wetlands**

The Indian River Lagoon receives substantial discharges of freshwater from natural streams and canals draining agricultural areas and developed lowlands to the west of the lagoon.[65] Runoff also enters the lagoon from the barrier islands to the east and as overland flow. The Jensen Beach to Jupiter Inlet segment of the lagoon is affected greatly by inflows from the St. Lucie River and the five sub-basins that drain into the estuary, including discharges from Lake Okeechobee.

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[62]Id.

[63]p. 69.

[64]DNR. (1990). *Jensen Beach to Jupiter Inlet Aquatic Preserve Management Plan, Phase I*, p. 55.

[65]SJRWMD and SFWMD. (November, 1987). *Indian River Lagoon Joint Reconnaissance Report*.

Overall, these inflows impact circulation and tidal flushing in the lagoon and influence ultimately water and sediment quality. The SWIM plan indicates that unregulated freshwater inflows and excessive stormwater discharges create salinity fluctuations and impair the functioning of the lagoon as estuarine habitat.

Of the three types of plans reviewed, the SWIM plan places the most emphasis on the regulation and management of freshwater inflows and stormwater discharges into the lagoon. The aquatic preserve plan addresses surface water runoff from a coordination standpoint since their jurisdiction does not extend beyond the mean high water line of the preserve and these problems originate landward. Thus, the scope of the plan is limited in its capacity to address the management of stormwater and freshwater inflows. DNR staff managing the aquatic preserve indicated that they reviewed local government plans and provided comments to DCA regarding the plans' treatment of surface water runoff issues.

The SWIM Plan's address of this issue is much more systemic since it relates directly to the mission of the plan. Its objective is to manage inflows from both point and non-point sources to minimize salinity fluctuations. Several sub-basin projects are described, but none for the study area. However, the plan states that local governments must manage, "to the greatest extent feasible," stormwater.[66] Projects to develop a model stormwater ordinance and an inventory of stormwater outfalls are specified as measures to assist local governments in implementing stormwater management programs. In addition, the SWIM plan commits SJRWMD and SFWMD to provide SWIM funding to support local stormwater management projects of St. Lucie County and Martin County.

Local governments primarily address, either directly or indirectly, freshwater inflows within the Infrastructure and Drainage elements of the comprehensive plans. Most of the local plans provide for both adoption of stormwater management plans and regulations, consistent with state regulations and criteria, and for protection of floodplains and natural drainage features. Nearly all of the municipal comprehensive plans propose to manage stormwater discharges and sheetflow through land use designations, land development regulations, and preservation and protection of wetlands. Some even specify the planned adoption of a stormwater management ordinance and retrofit of existing drainage systems.

However, most of the municipalities indicated a need for further analysis and study of the issue before implementation of stormwater management actions. In addition, most of the municipal comprehensive plans addressed stormwater management as a general need, not as an action to specifically protect the water and sediment quality of Indian River Lagoon and/or the aquatic preserve. In their comments regarding draft local plans, the state agencies were concerned with a lack of documentation and analysis of stormwater quality problems and with the levels of service set for stormwater. DCA in particular demonstrated concern with the lack of specific and measurable policies addressing stormwater runoff and drainage. DER's comments centered on the absence of policies to adopt master plans for watershed and stormwater management.

Interviews with SFWMD staff revealed that the district recognizes a general lack of technical capacity and funding at the local level to implement stormwater management programs. The district intends to provide to local governments on-going technical assistance and funding support from the SWIM Trust Fund.

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[66]SJRWMD and SFWMD, p. 38.

**Issue: Excessive nutrient loadings from point and nonpoint sources, particularly canals draining agricultural and urban areas**

According to the *Joint Reconnaissance Report*, nutrient over-enrichment contributes to the transition of the lagoon from a macrophyte-based system to a phytoplankton-based system. The SWIM plan identifies several point and nonpoint sources increasing the loading of nutrients into the lagoon system, including tributaries and canals draining agricultural, residential and commercial land uses, groundwater, and wastewater treatment plants. These sources are largely external to the waterbody. The SWIM plan also recognizes that no significant agricultural pumped discharges are present within the southern portion of the lagoon under SFWMD jurisdiction.[67] (However, there are many existing gravity flow stormwater discharges that affect the Lagoon.)[68] The aquatic preserve plan addresses the impacts of agricultural and urban drainage, particularly the impacts of the nutrients carried from these areas, but also indicates that the Jupiter Inlet facilitates the tidal flushing necessary to maintain a healthy balance in the estuary.

The primary objective of the SWIM plan in addressing this issue is to further identify and inventory point and nonpoint sources contributing to the loading of nutrients into the lagoon. These results will lead to recommendations by the two water management districts to reduce nutrient loadings into the lagoon system. Furthermore, the aquatic preserve plan does not include specific goals or objectives to reduce overloading of nutrients but does commit to adopt agreements with DER to conduct demonstration projects for improving water quality, in general.

In general, the local plans appear to indicate reliance on DER and the water management districts to assist in identifying nonpoint sources of nutrient loadings, to set precedents and standards for reducing nonpoint loadings, and to help develop master drainage plans. Some of the local plans commit to enforcing regulations of SFWMD, DER, DNR, and HRS in protecting water quality. The objective of local governments is to manage the loading of nutrients into water resources through plans and regulations. Comments of the water management districts and DER demonstrated concern with a lack of specificity or methodology regarding implementation of policies to reduce nonpoint loadings. Other state agency concerns also included inconsistencies within local plans, particularly between allowable future land uses and policies regarding pollutant reductions.

Ft. Pierce's policy is perhaps the strongest by prohibiting nonpoint loadings into drainage systems and the Indian River Lagoon. St. Lucie County's plan includes a policy to begin wastewater reuse in order to improve water quality and reduce discharge of treated wastewater into waterbodies. The comprehensive plan for Jupiter Inlet Colony proposes to use "best management practices" to reduce nonpoint pollutant loadings, but does not specify the lagoon as the receiving body. On the other hand, Ocean Breeze Park's comprehensive plan proposes to review by 1991 the town's nonpoint discharge into the lagoon and its impact on water quality. The other local governments indicate plans to adopt drainage ordinances and/or drainage master plans by 1992 or 1993.

**Issue: Releases of artificial substances from urban, marina, and agricultural activities**

According to the SWIM plan, the operation of marinas and boatyards can introduce toxic substances, such as heavy metals, to the lagoon system.[69] The SWIM plan also attributes the

[67] p. 60
[68] DER.
[69] p. 9

release of artificial substances to more extensive and remote activities, such as agricultural, industrial, and residential construction activities occurring outside the waterbody itself. An objective of the SWIM plan in addressing water and sediment quality issues is to "eliminate or reduce the releases of toxic substances from point and nonpoint sources." In order to achieve this objective, the plan proposes two programs to identify the sources of toxic substances, establish a data base, and create a network to monitor real and potential problems. In particular, the Toxic Substance Monitoring Network is underway to " . . . establish a baseline for levels of toxic organic compounds and metals in the lagoon system . . . against which future measurements can be compared."[70] The creation of this network represents an attempt to ensure consistency among agencies in regulating and managing the release of toxic substances into the lagoon.

The revised plan for the Jensen Beach to Jupiter Inlet Aquatic Preserve recognizes the potentially deleterious impacts of marina activities but includes no specific goals or objectives for addressing this particular issue. Aquatic preserve management staff indicated that they review local government comprehensive plans and amendments for policies and planned actions relating to marina activities and provide active technical support to local governments in developing marina siting criteria.[71] Likewise, staff of one county government commented that they worked with DNR staff when developing their "strict" marina siting criteria.

The local comprehensive plans address this issue to a limited degree. They do not include any policies that conflict directly with SWIM and aquatic preserve objectives but, on the other hand, they do not directly address releases of toxic substances. Their policies tended to be more general and related to identification of point and nonpoint pollution sources and regulation of surface water runoff and marina activities. The comprehensive plans for the City of Tequesta and St. Lucie Village include policies to reduce nonpoint source pollution into the aquatic preserve. Palm Beach County proposes to expand its program to identify all point and nonpoint sources of pollution. Ocean Breeze Park's plan includes policies to not permit multi-slip marinas and to restrict marina construction. Other plans propose to modify existing land development regulations to incorporate SWIM-based district regulations. For the most part, it appears that the consistency of local plans with the SWIM plan in particular could be improved once the SWIM program to identify sources of toxic substances is completed and more specific programs and objectives are implemented.

**Issue: Wastewater and sewage effluents and leachates from septic tanks, treatment plants, and agricultural areas**

Domestic wastewater treatment facilities and septic tank systems represent two major human-related sources of pollution affecting the water quality of Indian River Lagoon.[72] Since discharges from wastewater treatment plants are easily identifiable, these sources appear to pose fewer concerns in the lagoon than septic tank systems. The *Joint Reconnaissance Report* depicts 14 domestic and four industrial wastewater treatment plants that discharge to surface waters around the Fort Pierce and St. Lucie Inlets and states that many of these sources are now better controlled and regulated.[73] The revised plan for the aquatic preserve indicates that wastewater treatment facilities and package plants are not present, and therefore are not a concern in the Hobe Sound to Jupiter Inlet segment of the preserve.

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[70]p. 27

[71]In fact, DNR recommended the adoption of a local "marine sanitation ordinance" in its review of Martin County and St. Lucie County's comprehensive plans.

[72]SJRWMD and SFWMD, *Indian River Lagoon SWIM Plan*, p. 35.

[73]SJRWMD and SFWMD, p. 5-47.

On the other hand, both the aquatic preserve and SWIM plans indicate concern with the impacts of septic tank systems on the lagoon. But neither plan includes specific policies requiring the elimination or regulation of septic tank systems in order to protect surface water quality. Rather, these plans indicate the need for further analysis and coordination in order to better address this issue. A water quality objective of the SWIM plan is to reduce "anthropogenic loadings of fecal and coliform bacteria" but the plan also reveals that the impacts of on-site sewage disposal systems (OSDS) on the lagoon are currently under investigation by the Department of Health and Rehabilitative Services (HRS). The district will work with HRS and the counties to designate "OSDS problem areas." The aquatic preserve plan commits DNR to " . . . coordinate with SJRWMD and SFWMD and local governments toward improving the management of surface water" and suggests that DNR will simply assist in the enforcement of another agency's efforts to improve water quality in the lagoon. The generality and uncertainty of the SWIM and aquatic preserve plans regarding septic tank systems results in an overall lack of consistency of local plans regarding this issue. These findings indicate that a high level of coordination and technical assistance must occur between DER, SFWMD, and the affected local governments in order to ensure consistent management of sewage treatment systems as they affect the water quality of the lagoon.

However, a local act was passed in 1990 requiring SJRWMD and SFWMD by July 1993 to identify areas where improper septic tank use poses a threat to the water quality of the Indian River Lagoon. As indicated above, these efforts are underway as part of the SWIM Plan. Then, by July 1994, the law requires that each county and municipality within the Lagoon basin shall develop and begin implementing programs to provide centralized sewage collection and treatment facilitie[74] for the problem areas identified by the districts. At the time the plan review was conducted for this research, the SWIM Plan did not indicate that the identification of problem areas had been completed. However, a number of local plans did include policies committing to initiating plans for centralized septic systems.

Local government comprehensive plans within the Indian River Lagoon study area vary widely in their address of wastewater and sewage treatment issues. First, the county plans address wastewater system issues while the municipal plans do not. Wastewater treatment and disposal appears to be an emerging policy area for county governments as the three county plans commit to developing and adopting master wastewater plans. These policies are generally consistent with the SWIM and aquatic preserve plans in that the local policies recognize the need to comprehensively plan for and manage wastewater treatment and disposal. The county plans also contain policies addressing the siting and operation of wastewater treatment facilities consistent with state standards. However, DER commented on the draft Martin County plan that it needed a policy to reduce the number of package plants discharging into the Indian River Lagoon.

On the other hand, local policies regarding septic tank use are generally not consistent with concerns raised in the SWIM and aquatic preserve plans. Some of the local governments have proactive policies in which they commit to centralizing existing septic tank systems and eventually eliminating septic tank use; prohibiting septic tank use in coastal areas; and conducting environmental impact assessments of septic tanks. Other local governments (i.e., Ocean Breeze and Jupiter Inlet Colony) have policies indicating that they will apply and enforce standards and regulations of the state, particularly HRS, governing septic tank use. At the other end of the spectrum, though, some of the local governments within the study area either do not address the issue, or include policies permitting the conditional use of septic tank systems. For example, Jupiter Island's comprehensive plan contains a policy that maintains permitting wastewater effluent disposal through septic tanks while also protecting water quality, which DCA found inconsistent with other policies in the plan. St. Lucie Village's plan includes a policy restricting septic use in order to protect the water quality of the lagoon, but other agencies,

[74]Chapter 90-262, Laws of Florida.

namely SFWMD and DER, commented that septic tanks should not be permitted at all due to soil limitations.

**Issue: Dredge and fill activities/shoreline alteration**

Both the SWIM and aquatic preserve plans identified dredge and fill activities and shoreline alteration (e.g., removal of mangroves) as potential sources for soil erosion and ultimately, degradation of water quality in the lagoon. The revised plan for the aquatic preserve attributes the reduced flushing capacity and altered circulation patterns of the lagoon to, among other activities, dredging and filling. The SWIM plan cites dredge and fill as a suspected upland source of suspended matter that increases turbidity in the lagoon, disrupts habitat, and potentially releases toxic substances and nutrients, thereby degrading water quality.[75]

The revised plan for the aquatic preserve focuses on dredging activities for navigational and mooring purposes and the impacts of dredging on the seagrasses within the preserve. Florida Statutes limit the circumstances under which dredging and filling of submerged lands may occur within aquatic preserves. The aquatic preserve plan commits DNR to "ensure that human use of the preserve does not create turbidity levels that adversely affect submerged vegetation" (Obj. B.1.4) and to "[r]equire that all dredge and fill projects use effective turbidity control practices" (Task B.1.4.2). A major directive of the plan is to "[p]rohibit . . . dredging (within the preserve) for the primary purpose of obtaining upland fill."[76] However, concern still remains regarding allowable dredging for boating and navigational purposes. The revised plan also indicates that few sites suitable for dredging exist within the Juno Beach to Jupiter Inlet segment of the lagoon and the authors of the plan anticipate that " . . . increasing boat use in this area will result in an increase in dredging applications."[77]

On the other hand, the SWIM plan proposes to further research the impacts of dredging and other activities contributing toward soil erosion on the water, sediment, and habitat quality of the lagoon. The plan includes programs to " . . . decrease inputs of suspended materials from point and non-point sources"[78] and to map the distribution of sediments and develop recommendations for its control or removal. Likewise, the *Joint Reconnaissance Report* indicated that the extent of inorganic-rich "muck" deposits is unknown outside of the north central segment of the lagoon, thereby underlining the need to locate the sources of these deposits and assess their impacts on water quality. However, the report also suggests that areas of the lagoon near intensely developed land likely contain substantial deposits. The SWIM plan indicates that recommendations will be made to local governments to control the sources of suspended matter into the lagoon.

In general, most of the local comprehensive plans establish policies to mitigate the impacts of development on water quality through regulation of development practices, particularly the construction of seawalls, construction along the waterline, and the alteration of shoreline. These policies require the implementation of soil erosion reduction practices, shoreline performance standards, native shoreline vegetation and landscaping, and conditional permitting of seawall construction. Although seawall construction was not addressed directly in either the SWIM or aquatic preserve plans, both DER and DNR recommended to the local governments in their review of draft comprehensive plans that the local plans encourage removal of seawalls, that

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[75] p. 20
[76] p. 22
[77] p. 52
[78] p. 24

seawall construction be permitted after exhausting other alternatives, or that seawalls be replaced with slopes or riprap.

Dredging presents the greatest potential for inconsistency between local plans and the SWIM and aquatic preserve plans. Most of the local plans commit to uphold state regulations as they pertain to dredge and fill activities. The comprehensive plan for St. Lucie Village specifies compliance of local dredge and fill activities with the aquatic preserve management plan. However, some of the plans also appear to permit dredging and filling under certain circumstances. For example, the Town of Jupiter's plan permits dredging of submerged and wetland areas if mitigated according to state and federal guidelines. The City of Tequesta's plan supports the dredging of the Jupiter Inlet. In effect, the generality of the SWIM and aquatic preserve plans regarding dredging corresponds to general local policies that appear to permit dredging for purposes not excluded by state and federal agencies.

The local governments primarily address the control and management of construction activities disruptive to the lagoon through the coastal management and conservation elements of their comprehensive plans. These elements demonstrate varying degrees of consistency with the SWIM and aquatic preserve plan regarding this issue, possibly due to lack of certainty regarding the direct impacts of construction activities, particularly dredge and fill, on the water and sediment quality of the lagoon. (Impacts of such activities on habitat quality are addressed below.) Nearly all of the local plans include a policy to require turbidity control practices for development activities in and around the lagoon. Some of these local policies directly address the Indian River Lagoon, such as required shoreline vegetative buffers along the lagoon (Fort Pierce); limited or prohibited development on the submerged lands or along the western border of the lagoon (Ocean Breeze Park); and regulations to prohibit structures constricting circulation with the lagoon (Jupiter Island). Other plans more generally propose to protect coastal resources, such as the City of Stuart's, which proposes to prohibit the construction of future canals.

**Habitat Quality Issues**

The protection and management of habitat in the Indian River Lagoon depends on the maintenance of the lagoon's water quality. Just as upland uses impact water and sediment quality, water and sediment conditions affect habitat viability in the lagoon system. Both the SWIM and aquatic preserve plans recognize the critical link between water and habitat quality. However, like the water quality issues described above, the two plans differ in their treatment of habitat quality issues with the SWIM plan being more holistic and addressing habitat in context of the entire lagoon system, and the aquatic preserve plan focused more specifically on activities within the preserve. The SWIM plan attributes much of the habitat loss in the Indian River Lagoon system to coastal development and shoreline alteration, navigational improvements, and marsh management practices.[79] On the other hand, the aquatic preserve plan attributes habitat loss and alteration within the preserve to human-related activities occurring within the jurisdiction of the preserve, particularly boat and jet ski traffic and dredging.

A primary goal of the SWIM plan is to "... attain and maintain a functioning macrophyte-based ecosystem which supports endangered and threatened species, fisheries and recreation."[80] The two main habitat concerns expressed in the SWIM plan are the loss of seagrass beds and the loss of emergent wetlands. Similarly, the aquatic preserve plan concentrates on the loss and alteration of seagrass beds and emergent vegetation, but also on protection of bird rookery and estuarine habitat in general.

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[79] p. 7
[80] p. 45

According to the revised plan for the aquatic preserve, residential and commercial development is altering gradually the vegetated shoreline, namely the mangrove fringes, throughout the preserve. For the area covered in the first phase of the revised plan, Hobe Sound to Jupiter Inlet, most of the naturally vegetated shoreline of the lagoon enjoys the protection of a nationally designated wildlife refuge and the Nature Conservancy's Blowing Rocks Preserve. However, the revised plan still includes a management policy guideline to "[p]romote the revegetation of shorelines by stipulating in the permit review process that native wetland vegetation be used for shoreline stabilization either alone or in conjunction with riprap."[81] The SWIM plan focuses on restoring and preserving these habitat resources while the aquatic preserve plan focuses on managing activities within the preserve that could disrupt habitat and on researching factors that affect the integrity of estuarine habitats. For example, a primary objective of the revised plan for the aquatic preserve is to " . . . ensure that human use of the preserve does not create turdibity levels that adversely affect submerged vegetation." (Obj. B.1.4).

The local government plans vary in their address of habitat issues, but all propose to protect and conserve habitat in general. Some plans specify protection of habitat within the Indian River Lagoon and cooperation with DNR and other agencies in implementing management policies for the aquatic preserve. The overall emphasis of local objectives and policies is on minimizing impacts of land uses and development on identified habitat. All of the local plans reviewed include a policy to ensure that land development regulations serve to mitigate the impacts of development on habitat.

**Issue: Loss and alteration of seagrass beds due to shoreline development, including marinas and docks, general construction practices, dredging, and increased boat/jet ski traffic**

The foremost habitat issue for the Indian River Lagoon is the rapid decline of seagrass beds which are vital to the fisheries and the overall productivity of the system.[82] The SWIM plan acknowledges that decreased water quality in the lagoon, due to the effects of nutrient and chemical loading from agricultural and other upland uses, significantly impacts the survival of seagrass beds. The objective of the SWIM plan is to first, preserve healthy seagrass beds through acquisition of adjacent wetlands and uplands in order to minimize the impacts of human-related uses on seagrasses. Second, the plan encourages enforcement of existing regulations and improvement of regulations that control dredge and fill and construction of docks, and location of marinas outside of seagrass beds, and diversion of boat traffic from seagrass beds. The SWIM plan also includes research and pilot projects to support its objective to restore lost seagrass beds. Research is underway to identify the impacts of excessive nutrients, freshwater inflows, and turbidity on seagrasses. Based on the results of this research, the water management districts hope to develop a turbidity target specific to the lagoon.

More specifically, the aquatic preserve plan proposes to minimize potential damage to seagrass beds, and other submerged vegetation, through " . . . the review of applications for use of state-owned land in the aquatic preserve" (Obj. B.1.1). This review is to be based on a scientific method (to be developed) to inventory submerged resources at each site under review. Interviews with preserve staff indicated that mapping of seagrass beds is underway, in conjunction with the water management district, and that scientific standards for review will be developed after mapping is complete. Joint mapping efforts, resource inventories, and development of standards will likely contribute toward the consistency of management and protection of seagrass beds by creating a uniform base of knowledge among all responsible agencies. In addition, the

[81]Policy Guideline 7, p. 53.

[82]Barile, Diane, et al. (1987). Estuarine Management - The Indian River Lagoon. In *Coastal Zone 1987* (Seattle, WA).

development of a detailed data base and resource inventory for the preserve can lead to the adoption of more specific policies within the preserve management plan, and then to more specific parallel policies within the local plans.

Although the aquatic preserve plan recognizes increasing boat and jet ski traffic as disruptive to seagrass beds, it also indicates that such issues are not addressed by statutes or rules governing DNR's jurisdiction to protect the preserve. To provide direction for managing these issues, the plan puts forth "policy guidelines" for review of planned activities within the preserve. These include prohibiting jet ski traffic in particular areas, seeking to designate idle-speed zones in certain parts of the Atlantic Intracoastal Waterway, prohibiting new dredging to only accommodate boats with greater drafts, and designating unvegetated areas for open mooring sites.

Nearly all of the local government comprehensive plans reviewed include policies regarding the protection of seagrasses within the coastal and conservation elements. These policies range from **prohibitive measures**, such as prohibiting modification of seagrass beds and prohibiting alterations of tidal circulation; to **protective measures**, such as providing protection of seagrass beds; to **restoration measures**, such as replanting seagrass beds and implementing aquatic planting programs; to **mitigative measures**, such as restricting marina development, regulating dock construction, establishing boat speed limits, and adopting turbidity control procedures for shoreline construction. In addition, the majority of local plans indicated that land development regulations either were adopted or would be adopted by a certain date to support policies addressing seagrass beds.

Two aspects of the local policies, in general, diminish their apparent consistency with the SWIM and aquatic preserve plans. First, the local plans tend to include policies to mitigate, rather than to eliminate, impacts of development and boating activities to seagrass beds. Second, most of the local plans do not specify measures or methods for implementing policies relating to protection of seagrasses. In some cases, DNR's comments on local plans demonstrated concern with a lack of assessment of the cumulative impacts of shoreline uses, even with local measures in place to mitigate impacts on seagrasses.

**Issue: Loss of wetlands, mangroves, and vegetation due to mosquito impoundments and shoreline development**

A primary objective of the SWIM plan's Habitat Protection and Restoration Program is to restore marshes and mangrove communities impounded to provide mosquito control. According to the plan, the majority of emergent saltwater wetlands, including mangrove forests, surrounding the lagoon are impounded, inhibiting their function as habitat and as a filter and buffer between uplands and the lagoon. The lagoon's marshes and mangrove swamps serve as breeding grounds for many species of aquatic animals within the lagoon system.[83] The SWIM plan proposes to restore, where feasible, the functions of impounded marshes and to preserve existing marshes. However, the plan also indicates that the first step is to inventory existing impoundments and map wetlands and vegetated communities surrounding the lagoon, and the next step is to identify options for restoration and areas for preservation. The draft of the revised SWIM plan mentions that 715 acres of salt marsh in the southern portion of the lagoon are already reconnected.[84]

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[83]SJRWMD. (1991). Reconnecting lagoon with marshes benefits fish. *SWIM Update*, p. 7.
[84]SJRWMD and SFWMD. (September, 1992). *Indian River Lagoon SWIM Plan* (Draft), p. 79.

Another objective of the SWIM plan is to acquire existing marshes, in conjunction with state, local, and private acquisition efforts. Both Palm Beach and Martin counties have implemented countywide programs to acquire environmentally sensitive and recreation lands. However, neither has proposed to acquire lands within the study area. These local land acquisition programs can serve as an effective tool for ensuring consistency between the SWIM and local plans, provided that the local programs prioritize lands consistent with the SWIM program.

The goals and objectives of the aquatic preserve plan seem to indicate the limited capacity of DNR and aquatic preserve staff to effectively and completely address the loss of wetlands and mangroves within the preserve. In support of its overall goal to "restore estuarine habitat" (Goal A.3), the aquatic preserve plan proposes to revegetate "suitable" shoreline areas with mangrove and marsh plantings, to coordinate with DER and the water management districts in restoring habitat through mutual agreements, and to reconnect impounded marshes through coordination with local mosquito control districts. Furthermore, the plan includes a goal to study factors affecting estuarine habitat, specifically mangrove and marsh plant species. Permit review is probably the most effective mechanism, albeit limited, that preserve staff possess to ensure consistency between the management plan and local plans and activities. Policy Guideline 7 of the preserve plan stipulates that the permit review process should require that native wetland vegetation be used for shoreline stabilization.

The local government comprehensive plans propose primarily to protect wetlands and mangroves, either in general or specifically within the lagoon system, through mitigation or restriction of land use and development. These policies include retention of vegetative buffers between the lagoon and shoreline development, adoption of performance criteria for coastal area development, and re-planting of vegetation. Most of the local objectives and policies for wetlands protection, however, do not outline clearly the local government's method for implementing these policies. This lack of specific measures is a concern frequently expressed in the formal comments of DER, DNR, and SFWMD of the local plans, as submitted to DCA. Some of the local plans do indicate the existence or future adoption of ordinances consistent with objectives of the SWIM and aquatic preserve plans, such as mangrove protection ordinances (Martin and Palm Beach counties, Jupiter Inlet Colony, and Tequesta) and wetlands protection ordinances (Palm Beach County). Only one of the local plans contains policies addressing restoration of wetlands and prohibition of development in "designated" wetlands areas. Depending on the local government's definition of wetlands, this policy may or may not be consistent with similar policies of the SWIM and aquatic preserve plans.

Most of the local plans relevant to the study area include objectives and policies regarding mosquito impoundments and control practices. For a few of the local plans, DNR commented on the insufficiency of policies in addressing the restoration of impoundments to their natural state. Discussions with aquatic preserve management staff indicated that local governments and local mosquito control districts are restoring gradually estuarine marshes impounded for mosquito control and that DNR's concern with impounded marshes is diminishing.

**Issue: Protection of manatee and bird rookery habitat**

A primary difference between the Indian River Lagoon SWIM plan and aquatic preserve plan is their treatment of habitat issues. The SWIM plan emphasizes more the restoration and protection of habitat in light of its function within the lagoon's ecosystem. On the other hand, the management plan for the aquatic preserve focuses on the protection of habitat in terms of species protection, mainly the West Indian Manatee and several species of birds. However, the goals and objectives of the management plan propose further study of factors that affect the survival of

habitat and designated species, and identification of portions of the preserve that serve as habitat for designated species.

Three of the local plans reviewed specify protection of bird rookery habitat, in particular retaining the spoil islands within the aquatic preserve in public ownership for bird rookery. For the most part, the local plans contain objectives and policies to protect habitat in general or to provide measures to minimize threats to survival of manatees, mainly the designation of idle-speed zones. For example, the City of Tequesta proposed to adopt a Manatee Protection Ordinance which designates idle-speed zones in waterways. Another municipality, Jupiter Inlet Colony, commits to posting signs in the Atlantic Intracoastal Waterway in order to mark the area as a "manatee protection area." The local plans primarily include habitat protection and mitigation policies within the coastal management and conservation elements.

### Interagency Management Issues

As discussed throughout this chapter, the protection and management of the Indian River Lagoon depend greatly on cooperation and mutual objectives among all agencies governing the resource and governing land uses that might impact the resource. Both the SWIM plan and the aquatic preserve plan incorporate objectives to ensure the coordinated management of the respective responsibilities encompassed in each plan. More important, both plans recognize the critical role that local governments serve in implementing completely these objectives. However, these objectives require direction from DER, DNR, and the water management districts to local governments in order to ensure consistent implementation at the local level of state objectives for resource protection and management.

The need for coordinated and consistent management of the Indian River Lagoon was identified prior to the adoption of either the SWIM plan or the revision of the plan for the Jensen Beach to Jupiter Inlet preserve. Participants in an American Assembly in 1985 identified the lack of coordinated management of the lagoon's resources as a primary issue affecting the future of the estuary.[85] The designation of the lagoon as a National Estuary in 1990 has provided funding for the development of a Comprehensive Conservation and Management Plan (CCMP) for the lagoon to resolve the problems associated with the milieu of agencies and plans managing the system. The goals of the National Estuary Program and the SWIM plan for the lagoon are nearly identical and are intended to serve as the "philosophical basis" for a unified approach to protecting and managing the resources of the lagoon system.[86] The revised SWIM plan indicates that the adoption of a joint SWIM and NEP plan, or even a single management plan, would "... help ensure consistency among other local, state, and federal plans that affect resources of the Indian River Lagoon system."[87]

The third primary goal of the SWIM plan is to promote coordination among responsible regulatory entities and consistent regulation and enforcement of relevant rules and ordinances. The preserve management plan reiterates the same objective throughout its four major goals. Furthermore, the local plans are replete with policies addressing coordination with other agencies to ensure effective resource protection and management. Either broadly through the intergovernmental coordination elements or specifically through the coastal management elements, the local plans commit to coordinating with the district and DNR in order to accomplish the following:

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[85]VanArman, Joel, and Steward, Joel. (1987). Intergovernmental Management. In SJRWMD and SFWMD, *Indian River Lagoon Joint Reconnaissance Report*, p. 10-1.
[86]SJRWMD and SFWMD. (September, 1992). *Indian River Lagoon SWIM Plan* (Draft), p. 4.
[87]Id.

- enforcement of state regulations related to surface water and habitat protection
- protection of surface water, habitat quality, and estuarine resources
- development of master plans for drainage and stormwater management
- protection of wetlands, and
- consistent implementation of SWIM and aquatic preserve plans.

However, the local plans generally do not specify methods or processes for guaranteeing that this coordination takes place. It seems that the most frequent comments of state agencies in reviewing these local plans are "What is the method?" and "Too vague." The most direct way in which the local plans propose to ensure implementation consistent with SWIM and aquatic preserve goals is through the review of applications for development. Ultimately, the consistency of these three types of plans hinges on the coordinated implementation of all their water quality, habitat, and land development goals and policies.

Both the Indian River Lagoon SWIM plan and the aquatic preserve plan indicate the need for further research, data collection, and resource inventorying to determine sources of water and habitat quality degradation, to pinpoint locations of sources, and to develop feasible solutions and standards. Nearly all of the local government plans indicate need for direction from the state agencies, particularly the water management district, in how to implement actions consistent with water and habitat quality objectives, such as the development of stormwater management ordinances, best management practices for drainage, implementation for turbidity control standards, and siting and construction of docks and marinas. Consistency of local plans with the SWIM and aquatic preserve plans will likely improve once both are more resource-specific and technically specific.

## CONSISTENCY OF DATA COLLECTION, ANALYSIS, AND STANDARDIZATION

Consistent implementation of resource management and protection plans for the Indian River Lagoon depends upon the degree of consistency among the efforts of SFWMD, SJRWMD, DER, DNR, and other agencies in collecting and analyzing data, particularly water quality samples.[88] These agencies are responsible for monitoring the quality of water and habitat within the lagoon system. SJRWMD staff initiated the Indian River Lagoon Water Quality Monitoring Network in 1989 to resolve problems associated with collection and analysis of physical and chemical data specific to the lagoon. Members of the network have established a forum to standardize water quality data. The participants of the network strive to resolve not only data sharing and collection problems but problems arising from comparison of results from different laboratories. Participants agree that the resources and efforts of the agencies involved in data collection and sampling are better expended under one set of guidelines to ensure consistency.

The network oversees the quarterly testing of "split samples" among the several laboratories that conduct water quality sampling and analysis for the agencies. Split samples are several samples taken from the same location at the same time and distributed among the labs for comparison of results. Members of the network also meet quarterly to discuss the results of split samples and methods to improve collecting, storing, and testing in the labs. The difficulty of rectifying

[88]Kenworthy, W. Judson, and Haunert, Dan. (1991). *Results and Recommendations of a Workshop Convened to Examine the Capability of Water Quality Criteria.* (Submitted to NOAA, Coastal Ocean Program, Estuarine Habitat Studies).

statistically the differences among lab results remains unresolved as no parameters are set for assessing these variances.

SJRWMD has compiled the *Quality Assurance, Quality Control* manual for the network. The manual serves as a composite of the manuals from each laboratory involved in testing water quality samples and defines a mutually agreeable methodology for collecting and storing water quality samples. Perhaps another accomplishment of the network is their communication of remaining unstandardized quality control procedures among the labs.

# Chapter IV

## Conclusions & Recommendations

This chapter presents the conclusions and recommendations of this study in three parts: key findings for the Tampa Bay study area, key findings for the Indian River Lagoon study area, and overall recommendations.

### KEY FINDINGS: TAMPA BAY

#### General Consistency

The Tampa Bay SWIM Plan, Terra Ceia and Cockroach Bay Aquatic Preserve Management Plans, and relevant local government comprehensive plans are all generally consistent with each other, albeit with qualifications, within the overall categories of water and habitat quality protection and management. There are also many policies that, while not reflected or addressed in all three types of plans, are nonetheless "not inconsistent" with the other plans.

All of the plans contain goals and policies that call for increasing coordination and consistency with state and local agencies, including local governments, SWFWMD, DNR, and the TBRPC, in order to ensure the protection of estuarine and other surface water resources. However, several local comprehensive plan policies do not indicate exactly how coordination will be ensured and or which agency will serve as the lead agency for conducting a coordinated effort. Agency comments on the draft local comprehensive plans tended to be concerned about definitions of terms, lack of specific policies or other implementing measures, and the methods of implementation for policies relating to water and habitat quality protection.

Although both Hillsborough and Manatee County local comprehensive plans are generally consistent with the SWIM and aquatic preserve management plans, the Cockroach Bay Plan Amendment (CPA 92-03) to the Hillsborough County comprehensive plan significantly increases the degree of consistency among the Cockroach Bay Aquatic Preserve Management Plan, the Hillsborough County comprehensive plan, and the Tampa Bay SWIM plan. The county created this plan amendment to address several resource management issues that DNR presently cannot because of funding difficulties. Although the county stopped short of adopting the Cockroach Bay plan and DNR's aquatic preserve rule Chapter 18.20 (as recommended by DNR in their review of the draft Hillsborough County comprehensive plan), CPA 92-03 will address several important issues that are also addressed within the aquatic preserve management plan.

Both the SWIM and aquatic preserve management plans call for further research, data collection, and inventorying and mapping of resources. However, SWFWMD has already conducted a significant amount of mapping, and is concentrating on physical restoration activities within its SWIM plan for Tampa Bay, and the integration of Chapter 17-40.420, F.A.C. requirements to identify and establish Pollutant Load Reduction Goals and Watershed Management Goals for Tampa Bay. Additionally, both Manatee and Hillsborough Counties have their own independent environmental commissions and land acquisition programs, and both are conducting significant mapping programs for environmentally sensitive areas and other natural features and resources.

In contrast, the City of Palmetto comprehensive plan, while generally consistent in several significant areas, can be characterized more for what it does **not** address than whether its existing objectives and policies are adequate and/or consistent with the Tampa Bay SWIM plan and the Terra Ceia Bay Aquatic Preserve management plan. For instance, the City's comprehensive plan does not, as commented on by DNR, adequately consider the Aquatic Preserve regarding future land use criteria, point source permitting, and development of environmentally sensitive areas. Furthermore, the City's use of mitigation as a condition of development in environmentally sensitive areas is regarded by several state agencies as not adequate for protecting these areas and their features.

Local comprehensive plans within the lower Tampa Bay study area include **strongly consistent** objectives and policies as they relate to the following areas:

1. regulation of point source discharges into Tampa Bay, including wastewater treatment
2. regulation and treatment of nonpoint source discharges (stormwater) into Tampa Bay
3. regulation of phosphate mining activities and effects
4. establishment of vegetative buffers between new developments and aquatic preserves
5. prohibition of future construction of seawalls and other major shoreline alterations bordering aquatic preserves
6. regulation of agricultural runoff through use of BMPs and other techniques
7. protection of mangroves, seagrasses, and other wetlands and wetland vegetation
8. regulation of dredge and fill in coastal areas
9. regulation and protection of shellfish harvesting areas
10. control and/or eradication of exotic nuisance vegetation
11. regulation of environmental impacts of construction and operation of transportation facilities
12. intergovernmental coordination and consistency of resource management efforts with similar efforts of state agencies
13. identification and mapping of land use, environmentally sensitive areas
14. protection of threatened and endangered species, including manatees
15. regulation of hazardous waste disposal, and
16. land acquisition and boundary expansion.

Local comprehensive plans within the lower Tampa Bay study area include **marginally consistent** (or a lack of) objectives and policies within the following areas:

1. restriction and regulation of septic tanks in environmentally sensitive areas
2. mosquito control activities

3. development and damming of creeks and rivers

4. shoreline erosion

5. enforcement of state laws and regulations for habitats, permit conditions and stipulations, fish and other wildlife (including threatened or endangered species), zoning, compliance and other monitoring, other environmental programs, and

6. manatee protection.

Included below are several issue areas that merit additional explanation.

*Mitigation*

Wetlands mitigation and restoration is controversial. From the federal to state to local governments, there has been much discussion over the delineation and fate of wetlands, and whether mitigation and restoration of wetlands is truly feasible. Most local governments see mitigation as a useful and necessary tool that allows the regulation of wetlands and other environmentally sensitive features, and it provides these governments the ability to avoid the taking issue. However, there is little doubt that the science of recreating wetlands is still imperfect. Local governments often do not have the resources to conduct long-term monitoring of such sites, which is necessary for mitigation/restoration to succeed. State and regional agencies do not presently support mitigation to the same degree as local governments, desiring instead for developers and others to avoid the need to mitigate altogether.

The Hillsborough County Environmental Protection Commission, the local environmental regulatory agency for Hillsborough County, supports and encourages wetlands mitigation as part of their wetlands rule. The rule seeks to preserve wetlands, but it offers an alternative of mitigation as a condition of development of such wetlands, requiring strict restoration ratios and follow-up monitoring. This rule has been successful, resulting in a net (paper) gain of 298 acres of wetlands since 1985 as the result of mitigation. Regardless, according to both the Terra Ceia and Cockroach Bay Aquatic Preserve Management Plans, mitigation and/or restoration projects are discouraged within most of the area of both Terra Ceia and Cockroach Bay aquatic preserves, and is discouraged at the agency level by both DNR and DER. Overall, there appears to be a lack of clarification and/or consistency between the state agency and local governments concerning wetlands mitigation and its effectiveness and use.

*Ports*

Ports—their charters, privileges, constraints, planning requirements, and other factors—are potentially problematic in terms of planning consistency. This is because ports have broad powers within which they operate under Florida law, and their environmental impacts, especially within sensitive coastal environments, are both significant and economically necessary (e.g., maintenance dredging).

This issue is even more complex within Hillsborough County because the Tampa Port Authority has title to the submerged lands within the county, and DNR only leases the submerged lands within the two aquatic preserves within the Tampa Bay portion of Hillsborough County. Additionally, although the EPC and the Port Authority work closely together on environmental issues, permits from both organizations are necessary to develop or impact submerged lands. However, there appears to be no direct threat from the Port of Tampa itself to the Cockroach Bay Aquatic Preserve.

Although Port Manatee, located within Manatee County, is not within the jurisdiction of Cockroach Bay or Terra Ceia aquatic preserve, it nevertheless bisects the two preserves, and potentially impacts both. DER, in their review of Manatee County's draft comprehensive plan, severely faulted the adequacy and consistency of the port element of the plan. There is no evidence that Manatee County has addressed all of the issues, comments, and recommendations of DER concerning this element. However, there are several policies that call for expansion of the port only where consistent with other portions of the comprehensive plan not contained within the Port Master plan.

*Land Use Planning*

Of the three planning programs studied here, only the local comprehensive planning program can directly influence and regulate land use. However, SWIM program staff have generally made a great effort to provide land use planning technical assistance and guidance to the local comprehensive planning process.

In contrast, aquatic preserves are often directly impacted by the consequences of upland land use, but DNR does not have any authority to regulate this land use. The aquatic preserve program can only work through the review portion of the local comprehensive planning process, and even this is subject to the availability of DNR personnel to comment on plans and plan amendments, go to public meetings, and conduct other coordination activities. However, all aquatic preserve management plans, original and revised, call for increased coordination, especially in the area of land use planning and regulation.

**Processes to Ensure Consistency among SWIM, Aquatic Preserve, and Local Comprehensive Plans**

Water management district and aquatic preserve staff make concerted efforts to ensure consistency of local plans with SWIM and aquatic preserve plans, primarily through review of proposed comprehensive plans and amendments and technical assistance. Their level of coordination varies among local governments depending on the availability of local staff. However, they do not review local plans according to any established statewide criteria.

Local governments within the Tampa Bay study areas, for the most part, indicate less concern regarding consistency with SWIM and Aquatic Preserve plans. Their approach is more reactive than proactive and they rely on the state agencies, primarily DCA, to alert them to inconsistencies. However, both Hillsborough and Manatee Counties have policies that call for coordination with the water management district and the aquatic preserves within the counties' jurisdiction.

## KEY FINDINGS: INDIAN RIVER LAGOON

### General Consistency

The Indian River Lagoon SWIM Plan, Aquatic Preserve Plan, and local government comprehensive plans are consistent, generally, with each other in terms of water and habitat quality protection and management.

All of the plans include goals and policies committing to continued and improved coordination with relevant state and local agencies, namely local governments, the water management district,

DNR, DER, and the Treasure Coast Regional Planning Council, to ensure the protection of water, coastal, and estuarine resources in general or the Indian River Lagoon specifically. However, most do not indicate how coordination will be ensured and do not indicate which agency will serve as the lead agency for conducting a coordinated effort. State agency comments on local plans, as submitted to DCA, demonstrate concern regarding lack of analysis and methods of implementation for policies relating to water and habitat quality protection and to intergovernmental coordination. Frequent comments include "What is the method?" and "Too vague."

Both the Indian River Lagoon SWIM Plan and the Aquatic Preserve Plan indicate the need for further research, data collection, and resource inventorying to determine sources of water and habitat quality degradation, to pinpoint locations of sources, and to develop feasible solutions and standards. Nearly all of the local government plans indicate need for direction from the state agencies, particularly the water management district, in how to implement actions consistent with water and habitat quality objectives, such as the development of stormwater management ordinances, best management practices for drainage, implementation for turbidity control standards, and siting and construction of docks and marinas. Consistency of local plans with the SWIM and Aquatic Preserve Plans will likely improve once both are more resource and technically specific.

**Consistency of Local Policies with SWIM and Aquatic Preserve Plans**

In general, the local plans include strongly consistent policies as they relate to the following areas:

1. elimination or restriction of point-source discharges into lagoon
2. enforcement and monitoring of state regulations for stormwater, septic tanks, species protection, water quality protection, dock and marina construction, and wetlands protection
3. establishment of vegetative buffers between development and lagoon
4. minimization of future construction of seawalls and other major shoreline alteration techniques
5. resource management consistent with similar efforts of state agencies
6. protection of seagrasses through turbidity controls
7. adoption and/or enforcement of boat speed limits to protect manatees and seagrass beds
8. retention of spoil islands for bird rookery habitat
9. protection of mangroves and adoption/enforcement of related ordinances, and
10. modification of mosquito impoundments

In general, the local plans include marginally consistent polices regarding the following areas:

1. allowable uses and sites for septic tanks and package plants

2. disposal of treated wastewater
3. conversion from septic tanks to centralized sewer systems
4. preservation of wetlands (nearly all allow mitigation)
5. land acquisition, and
6. monitoring of substances entering lagoon via marinas and urban and agricultural drainage

**Processes to Ensure Consistency among SWIM, Aquatic Preserve, and Local Comprehensive Plans**

The water management district and aquatic preserve staff make concerted efforts to ensure consistency of local plans with SWIM and aquatic preserve plans, primarily through review of proposed comprehensive plans and amendments and technical assistance. Their level of coordination varies among local governments depending on the availability of local staff. However, they do not review local plans according to any established criteria.

Local governments, overall, indicate less concern regarding consistency with SWIM and Aquatic Preserve plans. Their approach is more reactive than proactive and they rely on the state agencies, primarily DCA, to alert them to inconsistencies.

## CONCLUSIONS AND RECOMMENDATIONS—OVERALL

All recommendations presented herein are made in light of the fact that the SWIM and local government comprehensive planning programs are relatively new and in a state of evolution. Additionally, many local government plans in both study areas were prepared prior to or coincidentally with SWIM plans and aquatic preserve management plans, therefore precluding or inhibiting any meaningful attempts to develop local plans consistent with SWIM or aquatic preserve management plans. Also, local comprehensive plans are *local* in nature, and although they may reflect the general goals and objectives of other plans, their policies reflect local conditions and needs, as they should. Therefore, it is not always feasible to expect 100% consistency, or to necessarily require it.

The third Environmental Land Management Study Committee's (ELMS III) final report[1] has many recommendations in the subject areas of local planning and intergovernmental coordination, the use of Evaluation and Appraisal Reports, and coastal management that are consistent with several of the recommendations in this report. For instance, Recommendation 142 states that a Strategic Growth and Development Plan should be developed as a companion to the State Comprehensive Plan, and that it should "... include a comprehensive watershed management guideline to coordinate stormwater management programs for coastal jurisdictions with certain priority waters of habitat." This is necessitated by the need for a "... multidisciplinary and coordinated management program involving intergovernmental coordination ... to address the relationship between nonpoint sources of water pollution and land use. This is to be implemented by "[s]tronger and clearer statutory language... to link the

[1] *Building Successful Communities.* Final Report of the Environmental Land Management Study Committee. December 1992, Tallahassee, Florida.

local planning and growth management programs with the SWIM program and environmental regulatory programs . . . [and that] . . . this linkage would result in a comprehensive stormwater management program that *coordinates programs of local governments with SWIM priority watersheds, Outstanding Florida Waters, aquatic preserves, Class I and Class II waters, marine or estuarine sanctuaries, and critical habitat for endangered or threatened species* [italics added]." Furthermore, Recommendation 143 states that the "[t]he Legislature should authorize [DER] to develop a pilot coastal water quality improvement program integrated with SWIM and district water management plans . . . [and that this] . . . program should be based on a comprehensive watershed management approach which integrates preventive and nonstructural solutions with structural solutions."

The achievement within Florida's comprehensive planning framework of the consistent application of state policies from state to regional to local levels requires constant and proactive direction from the state, as well as technical and funding assistance. Uniform guidelines for the adoption of plans from the state, including clearly enunciated expectations for inter-plan consistency, would assist this goal. Many state and regional agencies, particularly the water management districts, have recognized the opportunities that local comprehensive plans offer in the way of improving the protection and management of the state's natural resources, and are working through the state and local comprehensive planning processes to encourage and advance such goals and objectives. However, much can be done to formalize and encourage this complementary implementation process. The following recommendations are presented in furtherance of that objective.

Recommendation #1

***The research team does not recommend statutory revisions to mandate consistency among the three types of plans.***

Overall, the review and consistency analysis of the SWIM, aquatic preserve, and local government comprehensive plans within the two study areas of Florida revealed general consistency among these three types of plans. At a minimum, all local government comprehensive plans have policies that call for coordinating with the agencies responsible for writing and implementing the aquatic preserve and SWIM plans within their jurisdiction, and most local government comprehensive plans within both study areas directly acknowledge the existence of aquatic preserve and SWIM plans within their jurisdiction. Furthermore, the review and analysis of the statutes and administrative rules enabling the three programs revealed no obvious inconsistencies among them. However, although each program calls for consistency with other existing plans and programs, there is no clear, direct mandate for consistency among these three plans and planning programs. It is therefore essential that the water management districts, DNR, and local governments make proactive attempts to maintain effective coordination processes in order to ensure an adequate level of consistency among these three programs. Consistency can be achieved through intergovernmental coordination conducted for mutual benefit instead of simply being mandated, but effective coordination nonetheless depends greatly on sufficient and available staff and resources.

Recommendation #2

***The research team recommends that the state adequately fund the SWIM, aquatic preserve, and local government comprehensive planning programs in order to ensure the intergovernmental***

*coordination necessary for the success of each and the resultant protection and conservation of coastal resources.*

As recommended by the 1992 ELMS III Committee's final report and many other study reports, sufficient funding for these programs is essential for intergovernmental coordination, which is a vital part of these individual programs and necessary for consistency and coordination among them, if they are to function correctly and sufficiently. Although local governments have mostly funded the development of their comprehensive plans (along with grants from the state), and several water management districts are trying to cover their share of the SWIM program with internal funding, the aquatic preserve program has the most urgent need of these three programs at this time for adequate funds to conduct intergovernmental coordination as a part of its planning activities. In the near future, all three planning programs will require adequate funds in order to implement each of their respective plans. However, better intergovernmental coordination should increase the consistency of design and implementation among these plans, and will most likely increase the cost-effectiveness of and reduce the total funding amount necessary to implement these plans.

Recommendation #3

*The research team recommends that DCA's local plan review process should be amended to ensure notification of reviewing state agencies of the outcome of their agency comments and the outcome of compliance negotiations between DCA and local governments.*

Draft SWIM plans are reviewed both by state and regional agencies and affected local governments. At the very least, prior review of draft plans provides state agencies and local governments with the opportunity to address and hopefully resolve conflicts between the proposed SWIM plan and state and local plans.

The formal review and comment process accompanying the adoption and revision of management plans for aquatic preserves has evolved and greatly improved within the last few years. This improved process allows revisions of existing plans to be more specific within their statutory limits, and more consistent with local comprehensive plans. However, it appears that DNR makes a more conscientious attempt to ensure consistency with local comprehensive plans than the reverse.

The external review and comment process for local government comprehensive plans and amendments provides an effective means for water management districts and DNR to evaluate the degree of consistency of local plans with SWIM plans and aquatic preserve plans. However, the actual revision of proposed plans and amendments according to agency comments and the determination of compliance of local comprehensive plans with Chapter 163 and Rule 9J-5 is up to the discretion of DCA and the local government. Furthermore, there is no formal mechanism or requirement to bring this process to closure if a state agency has serious objections to the local plan. State agencies contributing review comments to DCA are often unaware of the fate of their objections, comments, and/or recommendations concerning comprehensive plans.

The research team also recommends that state review agencies receive a copy of final adopted comprehensive plans and plan amendments.

Recommendation #4

*The research team recommends that the EAR process for local government comprehensive plans should be used to promote consistency of local plans with SWIM plans and aquatic preserve plans.*

As noted earlier, there is no clear, direct mandate for consistency among these three plans and planning programs. Although increasing the degree of consistency among these plans and planning programs is clearly advantageous towards meeting common goals and objectives, mandating consistency is potentially problematic in several areas. For instance, a direct mandate would create more process for state agencies and local governments to follow, increasing the cost and time needed to fulfill such a mandate. It would also probably be difficult to define, thereby increasing the need for interpretation, as well as the chance for error or disagreement. Furthermore, DCA revealed in interviews that their authority and capability to serve as an agent for consistency on behalf of other state agencies is limited due to budgetary constraints and the limitations of 9J-5. DCA also questions whether local government comprehensive plans are the appropriate tool for implementing other state programs. Given these caveats, the Evaluation and Appraisal Report (EAR) requirements in Chapter 163 for local comprehensive plans nevertheless appears to offer an opportunity, without creating an additional mandate, to enhance the degree of consistency among the three types of plans in this study. This opportunity, if it truly exists, should not be missed.

Recommendation #5

*The research team recommends that DNR be encouraged to coordinate further with other planning programs (i.e., SWIM and local comprehensive plans) and that the agency be included in other planning activities and efforts (local, state, federal, and other) where necessary.*

The role of DNR in the development and implementation of SWIM and other plans is important because of DNR's regulatory authority over specific activities within aquatic preserves, such as dredge and fill. This is particularly true in Tampa Bay and the Indian River Lagoon SWIM bodies, both of which encompass areas designated as aquatic preserves. DNR has been criticized in the past for limiting its perspective of resource management in aquatic preserves to the jurisdictional limits of the preserve, i.e. the mean high water line. However, it is necessary to recognize that DNR particularly lacks the resources and staff to adequately revise, refine, and coordinate all aquatic preserve management plans with all other relevant plans and programs. It is also vital to recognize that DNR's jurisdiction within aquatic preserves is delimited; however, this jurisdiction and the accompanying regulatory powers are important to SWIM planning. Additionally, DNR's revised plan format for aquatic preserves requires cooperation and coordination beyond the mean high water line for the success of these plans to protect aquatic preserve resources.

Recommendation #6

*The research team recommends that both the water management districts and DNR should coordinate more actively with regional planning councils on a policy level to ensure consistency of local plans and amendments with SWIM and aquatic preserve plans.*

The role of regional planning councils should not be overlooked by either the water management districts or DNR in the pursuit of improved planning coordination and consistency with local governments. Regional planning councils offer a way to reach a large number of local governments through their Comprehensive Regional Policy Plans, with which local comprehensive plans are required to be consistent. Additionally, some RPCs offer other services;

an example of this is the role of Tampa Bay Regional Planning Council in both serving as a host agency for the Tampa Bay National Estuary Program and sponsoring the Agency on Bay Management. These organizations were created in order to encourage and assist the coordinated management of the natural resources of Tampa Bay. The Agency on Bay Management serves as an advocate for the better management of bay issues, and conducts activities such as locating funding sources for local and regional governments and governmental entities; advising and providing information and data to local and regional governments and governmental entities; and serving as a watchdog and troubleshooter for public issues that have regional impacts (e.g., power plant sitings).

The water management districts and DNR should work more closely with the regional planning councils to identify policy similarities and differences among the planning councils' Comprehensive Regional Policy Plans, the water management districts' SWIM plans, and DNR's aquatic preserve management plans. Water management districts and DNR should also continue to work with local governments on a technical assistance level, particularly with counties (since many municipalities do not have adequate planning staff and resources), to ensure that the implementation of policies through ordinances, regulations, and capital improvements is consistent with SWIM and aquatic preserve plans.

Recommendation #7

***The research team recommends that DNR's aquatic preserve management plan development and revision process be continued and funded as necessary.***

DNR is revising and updating many of the original aquatic preserve management plans. In this process, greater attention is given to the resources of the site and surrounding land uses, which increases the capacity of DNR to make more plan-based decisions regarding activities within the preserves, as well as the opportunity for increased consistency with other plans. In addition, the revised review and comment process has been strengthened as well. However, this revision process relies on increased staff time and more detailed and specific data.

Recommendation #8

***The research team recommends that the federal National Estuary Program process as planned should be encouraged and supported where feasible.***

Perhaps the most potentially significant development within both the Tampa Bay and Indian River Lagoon areas is their designation as National Estuaries, which qualifies them for funding through the National Estuary Program. The NEP offers an opportunity for encouraging and enhancing regional consistency among resource management plans and activities by providing a program under which all governments with jurisdiction over major estuarine water resources can coordinate plans, data collection and analysis, and other activities and processes as they relate to the estuary. Although Coastal Conservation Management Plans (CCMPs) are to be written for each of the three program areas in Florida (Tampa Bay, Sarasota Bay, Indian River Lagoon), the NEP authorities for both study areas will eventually "mold" their plan around each estuary's SWIM plan, allowing the CCMPs to function as master plans, built upon the basic framework of SWIM plans. (In addition, the Tampa Bay NEP office will take over the data modeling and management functions presently performed by SWFWMD for Tampa Bay.) The implementation of CCMPs will be conducted mostly by the water management districts and local governments, but NEP will help fund these efforts as resources are available. Other planned actions to be taken

by the NEP towards implementing CCMPs consistent with other plans (including SWIM plans) include:

- working with the WMDs and DER to develop pollution load reduction goals for managing stormwater and other nonpoint source runoff
- developing and providing tools such as data and models to assist local governments with stormwater management plans and related comprehensive planning language
- coordinating the National Pollution Discharge Elimination System permitting program with DER and the WMDS, and
- working with the water management districts and local governments in the development and distribution of land development regulations and model ordinances.

## EPILOGUE

Overall, these programs are evolving towards more consistency. Although the process is not yet perfect, state and regional agencies have mostly come to recognize the value and potential of local comprehensive plans, and are writing their plans with these in mind. DNR is writing their revised aquatic preserve plans to recognize and take advantage of local programs, concerns, and funding opportunities, as well as create linkages to local comprehensive plans. The water management districts are also now writing district water management plans that will be coordinated with state water policy and the state water management plan. These plans will, through the EPA's NPDES program, be linked to local water use and management at both the point and nonpoint source levels. And finally, the federal NEP program presents a good opportunity to both coordinate *all* plans within an estuarine waterbody and to provide the necessary funding to allow this. Although much necessary work and changes to the process remain to be conducted, there is much that has been accomplished, especially within the last five years.

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# Appendix 1

## Cockroach Bay Case Study

# Cockroach Bay Case Study

## INTRODUCTION

The Homer Hoyt Center at Florida State University, as part of its research contract with the Florida Department of Community Affairs entitled *Coordination Of SWIM, Aquatic Preserve, And Local Government Comprehensive Plans*, planned to conduct an in-kind case study examining plan consistency in regard to technical data and information transfer. The following sub-tasks were to be conducted with the computer resources of the Florida Resources and Environmental Analysis Center's (FREAC) Local Government Assistance program:

1. analyze common data requirements for the three different types of plans in digital format to satisfy these requirements and identify available datasets

2. create a common database that agencies working in all three of these planning areas can have access to as well as share their data and work products

3. develop computerized analysis techniques that support plan development and implementation

4. develop common data and information outputs for final production and presentation purposes (e.g. formats for digital data, customized maps, color slides, desktop computer presentations, etc.).

However, a change in the scope of these tasks was made necessary after discovering during the early phases of the project that the Hillsborough County Environmental Protection Commission was also beginning to conduct the first two tasks. They initiated this work as part of a local comprehensive plan amendment concerning Cockroach Bay, which ultimately will include the two remaining tasks. Consequently, in order to avoid redundancy, the Homer Hoyt Center suggested instead to the Florida Department of Community Affairs (DCA) that it study and document for inclusion into the final report the Environmental Protection Commission's efforts to develop a GIS database using methodology developed by the Florida Growth Management Data Network Coordinating Council. In addition, FREAC, in coordination with the Homer Hoyt Center, offered technical assistance to the Hillsborough County Environmental Protection Commission and the Tampa Bay Regional Planning Council in their efforts to acquire, process, analyze, and distribute GIS data pertinent to the Cockroach Bay Aquatic Preserve. This suggestion was accepted by DCA, and the Homer Hoyt Center's report is presented herein.

The Environmental Protection Commission's efforts are also being documented as part of a study funded by the Tampa Bay office of the federal National Estuary Program to develop a data management strategy for the Tampa Bay National Estuary Program. The purpose of this study is to see how well the GMDNCC's method of data sharing and acquisition would work for developing and implementing the Tampa Bay National Estuary Program. The Homer Hoyt Center, therefore, has documented this effort within the larger scope of its original proposal.

Activities conducted by the Homer Hoyt Center in support of documenting the County's efforts in acquiring and using data for the Cockroach Bay area include interviewing personnel involved in conducting data selection and acquisition, including those planning the eventual use of this data, and being listed as a participant in the Cockroach Bay Data Consolidation Working Group (described below) to receive all mailings generated by the Working Group. In addition, the FSU

Florida Resources and Environmental Analysis Center has offered their data holdings and technical expertise to the Working Group as needed.

## COCKROACH BAY STRATEGY

The Hillsborough County Environmental Protection Commission, under direction from the Hillsborough County Commission, and using methodology developed by the Growth Management Data Network Coordinating Council (GMDNCC), is currently working closely with the Tampa Bay Regional Planning Council to inventory and acquire natural resource and other data for the purpose of developing a resource management strategy for the Cockroach Bay Aquatic Preserve. Many federal, state, and local organizations having jurisdictional authority within Tampa Bay are contributing data to this effort. The data will be eventually transferred to the Hillsborough County GIS Department for analysis by the Hillsborough County City/County Planning Commission, the Environmental Protection Commission, and other agencies and offices. Project benefits include the development of a database accessible to other county agencies and offices, as well as other counties or other governmental entities, since the portion of the county being studied lies in the watersheds of both Terra Ceia and Cockroach Bay Aquatic Preserves.

The Cockroach Bay Aquatic Preserve is located entirely within Hillsborough County, Florida. Regarded as the most pristine natural area left in Tampa Bay, Cockroach Bay is experiencing environmental degradation from human-related activities and effects. These effects include:

- damage to seagrasses from boat propeller scarring
- deterioration of water quality from stormwater runoff (contamination from pesticides, excess nutrients, heavy metals, and pathogenic bacteria and viruses
- encroachment of exotic plants, including submerged plants
- habitat modification and destruction.[1]

The Florida Department of Natural Resources published a management plan in 1987 to protect the environmental integrity and biota of the Cockroach Bay Aquatic Preserve. However, the implementation of this plan has not been fully funded, with the exception of providing a aquatic preserve manager. the manager patrols and conducts site inspections of the preserve, reviews all applications for permits within the preserve, and attends public and other meetings.

### County Response

Following a controversial attempt by the Tampa Electric Company to locate a new electric generating facility adjacent to Cockroach Bay, and in response to other environmental issues affecting the Bay, an overlay study of this area was requested by the Hillsborough County Board of County Commissioners (HCBCC) for the purpose of preparing a comprehensive plan amendment recognizing the Bay and its resources as a special area, and to protect it from further deterioration. However, one of the initial findings of this study, conducted by the Hillsborough

[1]*Cockroach Bay Draft Issue Statement*, June 29, 1992, Hillsborough County Environmental Protection Commission.

County City-County Planning Commission, is that there was a lack of planning data for this geographic area.

As a result of this attempt, and in response to other pressures to address the environmental issues affecting the Bay, the HCBCC requested the City-County Planning Commission to devise a tentative strategy to address the problems of Cockroach Bay through a comprehensive plan amendment. In addition to this, Hillsborough County Commissioner Ed Turanchik formed a task force in January 1992 to coordinate the county's response to the environmental issues affecting the Bay. Created by the HCBCC under Policy C-37.5 of the proposed amendment, the Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) consists of staff and a set of appointees (to be appointed by the Hillsborough County Environmental Protection Commission) representing local, regional, state, and federal government agencies and other groups. With the assistance of the Environmental Protection Commission and the City-County Planning Commission, CAPMAT is to develop a management strategy for Cockroach Bay. This strategy is intended not to replace but to enhance and assist the implementation of the Cockroach Bay Aquatic Preserve Management Plan.

The first component of this strategy was to draft an amendment to the Hillsborough County comprehensive plan. This amendment, adopted in October 1992 by the HCBCC, creates the Cockroach Bay Aquatic Preserve Planning Area, consolidates several existing policies, and adds several new policies referencing Cockroach Bay. The amendment specifically removes all existing policies dealing with Cockroach Bay in the Coastal Management and Conservation and Aquifer Recharge elements of the comprehensive plan and transfers them to the Future Land Use Element under an existing area of the element called Section C- Special Areas of Concern, creating a new section entitled "The Cockroach Bay Aquatic Preserve Planning Area." This focuses all of the pertinent policies in one place for ease of reference. In addition, the Future Land Use Element is the primary element of the plan, the focus of the most public attention, and the most widely distributed.[2]

## DATA ACQUISITION

The second component of the Cockroach Bay management strategy was to acquire sufficient planning data necessary to implement this strategy. CAPMAT organized a subcommittee, coordinated by the Hillsborough County Environmental Protection Commission, to analyze data needs, and to determine how to best acquire it. Once acquired, this data is to reside within the county's GIS under the guidance of Bob Keim, Hillsborough County's GIS coordinator.

A committee called the Consensus Group used several administrative tools developed by GMDNCC staff from a pilot study conducted in the Tampa Bay. The GMDNCC is housed within the Office of the Governor and is composed of state agency heads and staff that generate or use digitized spatial data. It was created to help develop ways that these and other agencies and local governments could share data statewide and thereby avoid the high costs of developing the data themselves, as well as data redundancy.[3] The GMDNCC is an excellent example of a state-led initiative to address the problem of sharing planning and resource management data at the local

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[2]CPA 92-03, Future of Hillsborough Comprehensive Plan (Unincorporated Hillsborough County), 1992.

[3]Stage, David, and Riney, Cori. 1990. *A Model Geographic Information System for Coastal Zone Management: Final Report*. Office of Planning and Budgeting, Executive Office of the Governor. Tallahassee, Florida. 59 pp. w/ appendices.

level without imposing a top-down solution using a centralized database. It has been successful to date in developing workable methodologies for accomplishing this goal.

Documents and methodologies developed by the GMDNCC as a part of the Tampa Bay pilot study include a consensus group methodology for determining what data are relevant and needed, quality and accuracy report templates, data descriptive summaries, and a centralized Florida Spatial Data Directory or "card catalogue." A Regional Advisory Committee was also formed as an outgrowth of the GMDNCC Tampa Bay pilot study. It is composed of lead GIS and other staff in various governmental agencies in the Tampa Bay area (e.g., county administrators, EPC, FDOT, FDER, SWFWMD) who have signed a Memorandum of Understanding to cooperate in interagency data sharing within the Bay area. The Regional Advisory Committee has a Facilitator from the Tampa Bay Regional Planning Council who is also the GMDNCC liaison. A subcommittee of CAPMAT, composed of Environmental Protection Commission, City-County Planning Commission, and other county staff, devised a matrix of natural resource data types useful to CAPMAT. This subcommittee, with the assistance of the Facilitator, then used the GMDNCC's consensus group methodology, data descriptive summaries, and quality and accuracy templates to inventory and catalogue data available from the members of the Regional Advisory Committee and others in the Tampa Bay area. After this was completed, the list of available data was transferred to the GMDNCC in Tallahassee for review and input to the Florida Spatial Data Directory (the "card catalogue"). This card catalogue, located in Tallahassee and accessible by modem, describes the data and its attributes (e.g., scale, quality, and accuracy) and its place of residence.

**Actors**

Below is a list of participants in the Cockroach Bay consensus group organized by the TBRPC and the Hillsborough County Environmental Protection Commission:

| | |
|---|---|
| Elle Araj | Hillsborough County Stormwater Utility |
| Arnold Banner | U.S. Fish & Wildlife Service |
| Gene Boles | Hillsborough County Planning & Development Management Dept. |
| Peter Clark | Tampa Bay Regional Planning Council |
| Steve Dicks | Mapping & GIS Manager, SWFWMD |
| Dale Friedley | Manatee County Property Appraiser's Office |
| Dave Gowen | DER/STORET, Tallahassee |
| Holly Greening | Tampa Bay National Estuary Program |
| Kurt Grimley | Hillsborough County Endangered Lands Acquisition Prog |
| Carl Harker | National Weather Service (SW Agricultural Center) |
| Rob Heath | Hillsborough County Parks Department |
| Steve Hodges | Homer Hoyt Center, FSU |

| | |
|---|---|
| Mike Holcamp | SWIM/SWFWMD |
| Walid Houtom | Hillsborough County Stormwater Utility |
| Bob Keim | Hillsborough County GIS Manager |
| David Kriz | U.S. Soil Conservation Service |
| Jordan Lewis | Environmental Health, Florida HRS |
| Robin Lewis | Lewis Environmental Services, Inc. |
| Bill Lofgren | Staff Director, TBRPC |
| Gail MacAulay | Marine Research Institute, DNR |
| Susan Mariner | Hillsborough County Planning & Development Management Dept. |
| Yvonne Stoker | USGS |
| Nick Toth | Cockroach Bay Aquatic Preserve Manager, DNR |

The above list includes local, regional, state, and federal representatives, all of which have data that are potentially useful to the Regional Advisory Committee and the Hillsborough County City-County Planning Commission. Again, as stated above, the State of Florida is interested in seeing this process replicated across the state in those areas where data is locally needed but not centrally located. The federal Tampa Bay National Estuary Program is interested in transposing this process to the entire Tampa Bay area.

At this time, data descriptive summaries from most of the participants in the Consensus Group have been received and transmitted to the Florida Spatial Data Directory (Card Catalogue). These sources and data descriptions include:

- **EPC:** non-GIS data inclusive of water quality monitoring, old and active sanitary landfills, small quantity generators of hazardous waste, wetland delineations, stationary storage tank facilities, wastewater/sludge application sites, wastewater treatment plants, industrial treatment facilities, air monitoring ambient data, and major air pollution sources

- **FDNR Marine Research Institute:** results of the Little Manatee River Study inclusive of Florida shoreline, roads, boat ramps, detailed soil maps, artificial reef sites, digitized NOAA nautical chart bathymetry, plant communities, 1990 and 1988 seagrass mappings, 1950 and 1982 land cover, and aids to navigation

- **NEP:** benthic sampling locations 1961 to 1989, SWFWMD/SWIM bibliographic database

- **USFWS:** Land use and biological coverage of eagle's nests, woodstork and wading bird colonies, breeding bird survey, bird nesting and feeding areas, and information on 50 priority species

- **TBRPC:** water quality database

- **Hillsborough County:** phosphate mining map, NPDES map, county parcel map, water quality map, SLOSH grid map, census tracts map, significant wildlife habitat map, zoning map, existing land use map, base map containing physical and major road/ railroad

infrastructure elements, SWFWMD 5-foot contour map, commission district map, primary care facilities map, and impervious areas map

- **USGS**: water resources databases
- **FGFWFC**: habitat cover and wildlife occurrence records
- **National Weather Service**: meteorological data
- **Lewis Environmental Services, Inc.**: seagrass aerial cover trend maps for 1938, 1957, 1991, and FLUCCS coded Maps
- **SWFWMD**: Section, Township and Ranges, stormwater management permit points, stormwater management permit boundaries, seagrass mappings of Tampa Bay for 1988, and 1990, USDA/SCS detailed soil maps from county soil atlas, FEMA flood insurance rates 1970-1980s, drainage basin boundaries of SWFWMD, Land Use/Cover based on FDOT scheme Level II, five-foot contours, two-foot contours and spot elevations; and
- **Florida Natural Areas Inventory**: rare/endangered species.

The above data is being transferred to the Hillsborough County GIS Department as of this writing. This process should be completed in early 1993.

**Future Use of Data**

The primary end user of the data is to going to be CAPMAT. There are presently no firm plans on how this data is specifically going to be used, due to the fact that CAPMAT is not yet formally organized. However, it can be safely assumed that the data will be used to help implement the policies present in the Cockroach Bay comprehensive plan amendment through the development of a management strategy for the Bay. This strategy will include the computerized mapping of natural resources and resource protection areas within the Bay area, such as pollution sources (e.g., permitted NPDES outfalls, land uses, conservation or restoration projects, and other objects or processes within the watershed of Cockroach Bay.

This spatial and tabular database is also going to be available to DNR, including the Aquatic Preserve manager for Cockroach Bay. It is also likely that other agencies will be able to utilize this data as well in developing rules, ordinances, and other means to further the management strategy for Cockroach Bay. These agencies will likely include the county's Environmental Protection Commission, Planning and Zoning, Stormwater Utility, and ELAPP; and other regional agencies such as SWFWMD. Manatee County could also benefit from having access to such a database since portions of the watershed are within Manatee County's jurisdiction. Finally, federal and other interests within the watershed will be able to benefit from this database. These interests include the federal Coastal America program's $300,000 grant toward an estuarine restoration project on the north shore of Cockroach Bay, and a $400,000 Set-Aside grant to fund construction of a stormwater system designed to treat agricultural and other runoff in the Bay. Both of these projects are part of a SWFWMD SWIM project for the same area, which also encompasses the ELAPP Endangered Lands site recently acquired by Hillsborough County.

# Appendix 2

## List of Agencies Interviewed

# List of Agencies Interviewed

Counties
Hillsborough
    Environmental Protection Commission
    City/County Planning Commission
Manatee
Martin
Palm Beach
St. Lucie

Municipalities
Fort Pierce
Jupiter
Jupiter Inlet Colony
Jupiter Island
Ocean Breeze Park
Palmetto
Sewall's Point
Stuart
Tequesta

Regional Agencies
South Florida Water Management District
Southwest Florida Water Management District
St. Johns River Water Management District
Tampa Bay Regional Planning Council
Treasure Coast Regional Planning Council

State Agencies
Department of Community Affairs
Department of Environmental Regulation
Department of Natural Resources
Executive Office of the Governor

Federal Agencies
Indian River Lagoon National Estuary Program
Tampa Bay National Estuary Program

Other
1000 Friends of Florida
Wade-Trim, Inc.

# Appendix 3

## Issue Matrices: Hillsborough County Comprehensive Plan

Issue#1: Point Source Water Pollution [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description**[1] |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>PROGRAMS<br>1.a. Reduction of Domestic and Industrial Pollutant Discharge<br><br>STRATEGIES<br>• Achieve a thorough understanding of the quality and composition of domestic and industrial effluents being discharged into Tampa Bay through the previously described water quality assessment program.<br>• Minimize and/or eliminate pollutant loadings from domestic and industrial wastewater discharged into Tampa Bay through alternative re-use and disposal options and other effective options as determined through the previously described water quality assessment program.<br>• Establish legally enforceable, resource based, effluent allocations for domestic and industrial point sources discharges if such allocations are shown to be necessary through the water quality assessment process.<br>• Discourage overcommitment of wastewater treatment and disposal capacities on the part of the bay area local governments by providing the DER's Southwest District Office with a stronger basis for evaluation of discharge permit applications. This will be accomplished through Step 1 of the previously described water quality assessment process.<br>• Encourage greater private interest cost-sharing (impact fees) in the construction of new regional wastewater treatment facilities.<br>• Discourage the construction of wastewater treatment plants which serve specific projects and promote construction of regional plants.<br>• Minimize and/or eliminate pollutant loadings to Tampa Bay and its tributaries from septic tank seepage.<br>• Promote and/or draft new local, state, and federal legislation and rules necessary to reduce domestic and industrial pollutant discharges to acceptable levels as determined through the water quality assessment process.<br><br>1.b. Enforcement of Effluent Discharge Limitations<br><br>• Bring all domestic and industrial point source discharges into compliance with applicable effluent limitations including allocated waste loads by strengthening local government environmental enforcement and compliance monitoring programs through cost-sharing incentives. | (1) Require, through the efforts of DER and the Southwest Florida Water Management District (SWFWMD), the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | SNSW | 10 | Pol. 1.1 | WWT facilities effluent shall meet AWT stds prior to discharge to surface waters or natural wetlands. |
| | | | | Obj. 2 | Continue to utilize & expand existing water re-use systems were viable. |
| | | | 12 | Obj. 3 | Utilize existing & currently programmed facilities before service area extension is conducted. |
| | | | | Pol. 4.5 | New WWT facilities shall not be constructed w/i the CHHA [see CM Pol. 10.2].<br>*[7] Policies are needed to address non-permitted point sources discharging into surface waters & reduction of permitted sources neg. impacting WQ and commercial/industrial hazwaste discharged into septic tanks.* |
| | | CONS & CM | 54&48 | Pol. 2.1 & 1.1 | Not support lowered surface WQ standards & classification; upgrade where economically feasible.<br>*[1] 'unless necessary' is conditional.*<br>*[2] Same as above; delete phrase.* |
| | | CONS | 55 | Pol. 2.2 | Require all DWTPs discharging into Tampa Bay or tributaries provide advanced WWT or eliminate discharge in order to meet SWIM criteria where economically feasible. |
| | | CONS & CM | 55&49 | Pol. 2.3 & 1.4 | Develop and promote effluent disposal alternatives, including re-use. |
| | | | | Pol. 2.4 & 1.3 | Plan for construction of regional WWT facilities to serve higher density areas.<br>*[3] Re: 2.4, Address how to pay for, and what are the targeted and priority areas? Re: 1.3, No time frame is included.* |
| | | | | Pol. 2.5 & 1.5 | Initiate IA to maintain or expand surface WQ monitoring program.<br>*[3] Re: 1.5, No time frame is included.* |
| | | CM | 49 | Pol. 1.2 | Require all DWTPs discharging into TB or tributaries to meet AWT stds prior to discharge or eliminate to meet SWIM criteria. |
| | | | | Pol. 1.6 | Initiate IA w/ appropriate regulatory agencies to require developments identified as sources of WP within the CA to est. & implement WQM plans to eliminate or improve all substd point source discharges.<br>*[3] Which agencies need to be included?* |
| | | | 52 | Pol. 3.1 | Improve WQ to maintain shellfish viability by improv. sewage treatment in vicinity of CBAP. |
| | | | 62 | Pol. 10.3 | WWT facilities shall not be constructed w/i the CHHA unless meets Pol. 10.2 criteria [see SNSW Policy 4.5]. |
| | | FLU | 33 | Obj. C-1 | Maintain or improve WQ in rivers where does not meet state WQ stds. |
| | | | | Pol. C-1.2 | Prohibit discharges of raw sewage to rivers and tributaries. |
| | | | | Obj. C-37 | Identify geographic area by 1993 wherein discharges are very likely to affect Cockroach Bay. Once identified, new permitted discharges will be required to meet or exceed applicable federal, state, regional, and local WQ stds. Initiate plan to address WQ & habitat restoration within CBAP by end of 1993. |

[1]NOTES: Agency objections, recommendations, and/or comments are shown in italics and are source-coded: [1] DCA, [2] DER, [3] DNR, [4] HILLSBOROUGH COUNTY, [5] MANATEE COUNTY, [6] CITY OF PALMETTO, [7] TBRPC, [8] SWFWMD, [9] 1000 FRIENDS OF FLORIDA, [10] DOT, [11] FGFWFC, [12] DOS, [13] DACS.

Issue#2: Nonpoint Source Water Pollution [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>1.a. Reduction of Domestic and Industrial Pollutant Discharge<br><br>• Minimize and/or eliminate pollutant loadings to Tampa Bay and its tributaries from septic tank seepage.<br><br>1.c. Urban Stormwater Management<br><br>• Reduce the levels of nutrients and other contaminants in urban stormwater runoff by requiring if feasible, that the quality of stormwater discharges be no worse than the state water quality criteria or the existing quality of the receiving water body, whichever is better. The feasibility of implementing this objective will be examined through a review of federal, state, District, and local rules pertaining to storm water management.<br>• Minimize the quantities of nonpoint source pollutants entering Tampa Bay through selection of high priority urban stormwater system retrofit projects and providing cost-sharing incentives to local governments for project implementation.<br>• For all new upland development or redevelopment within the Tampa Bay watershed, runoff rates should not exceed those of natural, undisturbed conditions. The feasibility of implementing this objective will be examined through a review of federal, state, district, and local rules pertaining to stormwater management.<br>• Conduct a multi-year public awareness campaign regarding the causes of nonpoint source pollution and actions the public can take to reduce nonpoint source pollution.<br><br>1.h. Control of Seepage Waste<br><br>• Determine the degree to which Tampa Bay is being burdened by illegal disposal of septage waste through the previously described water quality assessment program.<br>• Eliminating existing health hazards due to seepage of septage waste into the bay and its tributaries.<br>• Ensure the proper regulation and disposal of septage waste. | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | SNSW | 12 | Obj. 4 | Provide collection, transmission, and WWT capacity to correct current deficiencies and meet projected demands based on meeting or exceeding adopted LOSs through 1995. |
| | | | | Pol. 4.4 | Eliminate interim WWT plants as...capacity becomes avail. in the County system. |
| | | | 13 | Pol. 4.8 | Prohibit new develop from using septic tank systems in the CHHA (exceptions provided). |
| | | | 14 | Pol. 7.1 | Continue to require septic systems connect to the county where available unless undue hardship is proven. |
| | | STMA | 21 | Pol. 1.1 | Complete comprehensive Countywide Stormwater Management Master Plan in FY96, and initiate subbasin/watershed master plans by FY94. |
| | | | 24 | Pol. 4.5 | Initiate NPDES permit acquisition w/ USEPA or its formal designee. |
| | | | | Pol. 5.1 | Develop & implement program to improve problem areas; BMPs will be used to minimize poor WQ runoff to ground and surfacewater bodies. |
| | | | | Pol. 5.2 | All new developments shall continue to provide SWT facilities which meet or exceed appropriate local, state, and federal regulations.<br>*[8] Vague; need to describe county interagency coordination and treatment requirements for stormwater.* |
| | | | | Pol. 5.3 | Require appropriate existing development planned for expansion, modif., and/or replacement to provide some effective form of SWT (see CONS 2.10). |
| | | | | Pol. 5.4 | Include use of wetlands for SWT, pend. pretreatment, in WPR prog. in Pol. 2.11.<br>*[2] General STMA comment: Obj. 2 does not mention add'l uses & re-uses for stormwater runoff (e.g., greywater).* |
| | | CONS & CM | 54&48 | Pol. 2.1 & 1.1 | Not support lowered surface WQ standards & classification.<br>*[1] 'unless necessary...welfare' is conditional.*<br>*[2] Same as above; delete phrase.* |
| | | CONS | 55 | Pol. 2.6 | Provide improved DWT service to developed areas where persistent WQ problems are attributable to poorly functioning septic tank systems and where economically feasible.<br>*[3] Define 'persistent WQ problems,' address commercial systems, target priority areas.*<br>*[8] 'Where economically feasible' is conditional; need to est. coordination mechanism w/ incorp. areas, ID areas to be served by septic tanks, & analyze soils for suitability.* |
| | | | | Pol. 2.7 | Develop (via IA) scientifically-defensible siting criteria, performance standards, and density limitations for septic systems, w/ special criteria for siting adj. to Class I, II, & OFWs.<br>*[3] Fails to address impact of systems on adjacent DNR shellfish designated areas.* |
| | | | | Pol. 2.9 | Request local & state agencies to improve monitoring and compliance enforcement of point and nonpoint discharges. |
| | | CONS & CM | 55&50 | Pol. 2.10 & 1.11 | Require existing development planned for expansion, modif., and/or replacement. to provide SWT improvement. where lacking, and retrofit of SWT facilities. in urban areas (see STRMGT 5.3).<br>*[3] Re: 1.11, Developments need to provide state-of-the-art facilities before permit is issued.*<br>(continues) |

Issue#2: Nonpoint Source Water Pollution [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| | | CONS | 56 | Pol. 2.11 | Monitor emerging SWT and BMP techniques & practices and cooperate w/ SWFWMD to ensure WQ objectives are met through methodologies. |
| | | | | Pol. 2.12 | Provide public education for homeowners which addresses impacts on surface waters of pesticides and fertilizers. |
| | | | 57 | Pol. 3.6 | Promote use of native plants for SWT. |
| | | | 73 | Pol. 19.1 | Determine construction setbacks & buffer distances from wetlands, floodplains, and WBs and integrate into LDRs where necessary.<br>*Re: 1.5, No time frame is included.*<br>*[9] Need to include a CONS policy requiring all new development to adequately manage new stormwater runoff to protect WQ of surface water resources, partic. Tampa Bay.*<br>*[9] Revise STMA GOPs to address need for basin stormwater management studies to determine existing stormwater deficiencies & future needs.* |
| | | CM & CONS | 49&55 | Pol. 1.5 & 2.5 | Initiate IA to maintain or expand WQ monitoring program. |
| | | CM | 49 | Pol. 1.7 | Provide improved DWT service to coastal areas where WQ problems are attributable to poorly functioning septic treatment systems.<br>*[2] The phrase 'where economically feasible' is conditional; should be based on need.* |
| | | | 52 | Pol. 1.9 | Request local & state agencies to improve monitoring & compliance enforcement of point & nonpoint source discharges to TB & tributaries.<br>*[1] Need to state specific action or program undertaken to achieve objective.* |
| | | | 55 | Pol. 6.7 | Prohibit use of septic tanks w/i CHHA. |
| | | | 61 | Pol. 10.2 | Publicly-funded infrastructure shall not be constructed w/i the CHHA unless retrofitting SWM facilities for WQ enhancement of SW runoff. |
| | | | 19 | Pol. A-8.7 | Require SWM systems be designed to reduce pollution through compliance with regional & local filtration, retention, and detention standards. |
| | | | 33 | Obj. C-1 | Maintain or improve WQ in rivers where does not meet state WQ stds. |
| | | | | Pol. C-1.1 | Development shall provide storm. mgmt. systems before discharge to rivers, including swales. |
| | | | 42 | Pol. C-21.1 | Prohibit septic tanks & drainfields w/i 200' of the Little Manatee River & tributaries. |
| | | | | Pol. C-37.3 | Mitigate or restrict development likely to impact the CBAP to prevent degradation through the development review process.<br>*[2] Re: previously designated Pol. 2.9: The phrase 'as appropriate' is conditional; remove phrase & define 'significant degradation.'* |
| | | TRANS | 58 | Pol. 1.7.2 | All road construction projects shall meet or exceed adopted state or local SR&T requirements. |

(continues)

Issue#2: Nonpoint Source Water Pollution [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| | | FLU | | Pol. C-37.4 | Seek to establish a scientifically-defensible buffer zone between CBAP & adj. upland uses to prevent degrad. of WQ & aquatic vegetation habitats as part of the CB Overlay Study in Policy C-37.13. *[3] Re. previously designated Pol. 18.3, need to readdress FLU designations if county wants a buffer around CBAP.* |
| | | | | Pol. C-37.6 | By the end of 1992, the County, in conjunction with the EPC, SWFWMD, DNR, TECO and other property owners, will develop a program to identify drainage system alterations that facilitate water quality and habitat value improvements in the Preserve. The area of Concern shall receive priority as the County implements its stormwater management basin studies. The County will utilize a variety of mechanisms, such as the use of natural plant communities for the treatment of stormwater, detention of stormwater, and purchase of lands by the Environmental Lands Acquisition and Protection Program (ELAPP) for multiple use as wildlife habitat and stormwater management. |
| | | | | Pol. C-37.8 | The County will request the ELAP Program to purchase suitable parcels in the Area of Concern and incorporate site restoration projects that achieve water quality and/or habitat benefits to the Preserve. |
| | | | | Pol. C-37.10 | By the end of 1992, the County will encourage all appropriate agricultural or construction operations within the Cockroach Bay drainage basin to develop and apply a Soil Conservation Services Soil Conservation Plan and implement Best Management Practices (BMPs). Upon completion of the County's Stormwater Management Master Plan for this area, the County will require the use of BMPs . |
| | | | | Pol. C-37.11 | By the end of 1993, the County, in cooperation with EPC, the Hillsborough County Public Health Unit and other appropriate entities, will undertake a study to evaluate the impact of existing septic systems on water quality in the Area of Concern. If warranted, the County will initiate a program, by the end of 1995, to address and fund timely remediation of any identified water quality problems to the extent reasonably feasible. |

Issue#3: Phosphate Processing Operations [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>1.f Management of Toxic Pollutants<br><br>• Gypsum fields and other toxic waste sources should be managed in such a manner so as to preclude all future adverse environmental impacts on Tampa Bay.<br>• Previously incurred environmental impacts on Tampa Bay resulting from mismanagement of gypsum fields or other contaminant sources should be readdressed. | (f) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve. | CONS | 63<br><br>64 | Obj. 8<br><br>Pol. 8.2<br><br>Pol. 8.3 | MA...shall comply w/ or exceed state reclamation and wetlands, WQ&Q, and WH regs.<br>Amend mining ordinance to restrict mining in ecologically unsuitable areas.<br>Continue to enforce mining ordinance to prohibit mining w/i 25-yr. river floodplains and restrict w/i 100-yr floodplains of rivers and streams. |

Issue#4: Urbanization/Land Use/Wildlife Habitat [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.a. Encourage Appropriate Land Use: at the local, state, and federal level, encourage appropriate development or agricultural use of land bordering the bay and its tributaries.<br><br>• Promote limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights. Appropriate policies and regulations will be developed by the District for consideration by local governments through the review of comprehensive plans and through preparation of model ordinances.<br>• Promote designations of increased buffer zones, setback requirements, wildlife corridors, and conservation easements reviewing local governments comprehensive plans and ordinances, and recommending appropriate amendments to accomplish the above objectives.<br>• Promote environmental sound local and state comprehensive plans, inclusive of land use plans for preservation of habitats and land tracts.<br><br>1.c. Laws and Permitting Review: evaluate adequacy of existing zoning laws, environmental laws and permitting processes as related to land use and environmental resources.<br><br>• Evaluate existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses).<br>• Promote and/or draft revisions of existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses). This will be accomplished through the development of model ordinances in addition to specific proposed amendments.<br>• Evaluate, promote, and/or draft improved laws for mitigation policies and practices, specifically addressing action to be followed if unanticipated impacts are detected after the fact; mitigation banking should be evaluated as should criteria for monitoring and determining the success of the Project.<br><br>1.d. Developmental Designs and Practices: promote environmentally sound projects and practices..<br><br>• Promote use of existing natural features and native plant species for landscaping and habitat, with special emphasis on use of transportation programs and xeriscaping practices as well as the establishment of wildlife corridors.<br>• Promote and/or draft zoning and environmental laws requiring increased buffer zones, setback requirements, habitat retention, transplantation, xeriscaping practices, and wildlife corridors and requiring reductions in project densities, percent impervious surfaces, use of chemicals, and use of non-native plant species. These objectives will be implemented through the following series of projects: (i) review local comprehensive plans and land use ordinances and recommend appropriate revisions, (ii) prepare model ordinances, and (iii) review District rules pertaining to land use and development practices.<br>• By examining incentives such as tax reductions, or mitigation banking, stimulate redevelopment of existing projects to reduce environmental impacts and improve habitat values.<br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(J) Prohibit non-water dependent uses of submerged lands within the aquatic preserve except in those cases where the Board has determined that the project is overwhelmingly in the public interest and no reasonable alternatives exist. This prohibition shall include floating residential units, as defined in Section 125.0106(6), F.S.<br>(K) Prohibit storage of toxic, radioactive, or other hazardous materials within the aquatic preserve. Any hazardous waste dumps now located within the aquatic preserve should be closed and eliminated.<br>(T) Require, through the efforts of DER and the Southwest Florida Water Management District (SWFWMD), the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | FLU | 13 | Obj. A-1 | DOs shall not be issued unless development is compatible. w/ physical conditions of land & mitigation of adverse impacts affecting HS&W is conducted.<br>*[1] Need to analyze soil conditions, topography, & availability of services & facilities to support objective.* |
| | | | | Pol. A-1.2 | Soil capability analyses for flood hazards, stability, etc. shall be considered for new development.<br>*[2] Inconsistent w/ Chap. 163, F.S., and 9J-5.006(3)(b)1; policy needs to be strengthened to guide/coordinate new development to areas having suitable soils.* |
| | | | 14 | Pol. A-3.2 | No new, expansion, nor replacement development shall be permitted within NPAs (excepting gov't development in the public interest w/ mitigated impacts).<br>*[2] Remove conditional phrase; need to protect resource, esp. w/o mitigation.* |
| | | | | Pol. A-3.5 | LDRs shall address & limit activities having potent. to contaminate. soil, water, or crops. |
| | | | 18 | Obj. A-8 | Require new development to mitigate adverse impacts upon natural, environmental systems as described & required within the CONS&AR and CM elements of comp. plan. |
| | | | | Pol. A-8.1 | Encourage future population growth into existing urbanized areas. |
| | | | | Pol. A-8.2 | Require new development to protect C&P areas as defined in the CONS&AQR element. |
| | | | 19 | Pol. A-8.9 | Utilize public lands for multiple uses (e.g., parks, SWM systems, natural habitats. |
| | | | | Pol. A-8.13 | Preserve wetlands by discouraging use of mitigation, D&F, and similar development activities by revising LDRs.<br>*[1] Need policy(ies) protecting ESAs.*<br>*[2] Need to strengthen policy by allowing development w/o mitigation and D&F.* |
| | | | | Pol. A-8.14 | Require new roadways, interchanges, or bridge designs undergo an environmental. assessment. |
| | | | 34 | Pol. C-1.3 | Prohibit any solid waste landfills and hazwaste facilities that may adversely affect R&T. |
| | | | 47 | Obj. C-30 | Regs. & perform. stds. shall be developed to protect WQ&Q, ESAs, wildlife habitats, rivers and creeks from degradation by development. |
| | | | | Pol. C-30.2 | Require location & design of public roads & bridges w/i riverine corridors to minimize impacts adverse to wildlife habitats & vegetative communities.<br>*[2] Need to strengthen policy by replacing 'minimize' w/ 'prevent.'* |
| | | | | Pol. C-30.6 | Restrict clearing or filling of natural plant communities w/i 50' of EPC jurisdictional. line of rivers & creeks designated as River Corridor Overlay Districts or w/i 100' of MHW line of such rivers & creeks, w/ mitigation as necessary. |
| | | | 52 | Pol. C-35.2 | Forbid all electrical power generating facility construction in or thru CBAP & adjoining ESAs not included w/i EPGF boundary, unless waived as rezoning or other conditions. |
| | | | | | (continues) |

Issue#4: Urbanization/Land Use/Wildlife Habitat [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br><br>(continues) | | FLU | 52 | Pol. C-35.3 | Zoning approval of an electrical power generating facility adj. to CBAP is contingent upon absence of adverse impact(s) to CBAP and adjoining ESAs. *[1] Need to define 'adverse impact' and rethink appropriateness of EGPF LU category located adjacent to CBAP and w/i CHHA (moot issue—plant moved to Polk Co.).* |
| | | | | Obj. C-37 | Identify geographic area by 1993 wherein discharges are very likely to affect Cockroach Bay. Once identified, new permitted discharges will be required to meet or exceed applicable federal, state, regional, and local WQ stds. Initiate plan to address WQ & habitat restoration within CBAP by end of 1993. |
| | | | | Pol. C-37.4 | The County shall seek to establish a scientifically defensible protective buffer zone between the Cockroach Bay Aquatic Preserve and adjacent upland habitat land uses to prevent degradation of water quality and aquatic vegetative habitats as part of the Cockroach Bay Overlay District Study called for in Policy C-37.13. *[3] Re. previously designated Pol. 18.3, need to readdress FLU designations if county wants a buffer around CBAP.* |
| | | | | Pol. C-37.6 | By the end of 1992, the County, in conjunction with the EPC, SWFWMD, DNR, TECO and other property owners, will develop a program to identify drainage system alterations that facilitate water quality and habitat value improvements in the Preserve. The area of Concern shall receive priority as the County implements its stormwater management basin studies. The County will utilize a variety of mechanisms, such as the use of natural plant communities for the treatment of stormwater, detention of stormwater, and purchase of lands by the Environmental Lands Acquisition and Protection Program (ELAPP) for multiple use as wildlife habitat and stormwater management. |
| | | CM | 55 | Pol. C-37.8 | The County will request the ELAP Program to purchase suitable parcels in the Area of Concern and incorporate site restoration projects that achieve water quality and/or habitat benefits to the Preserve. |
| | | | | Obj. 7 | Give priority to locating water-dependent/related LUs along shoreline of CA. |
| | | | | Pol. 7.1 | Amend the FLU Element & Map to create marine-related LU category. |
| | | | | Pol. 7.4 | Water-related LUs shall not be developed by dredging & filling wetlands or natural shoreline. |
| | | CONS | 58 | Pol. 4.1 | Amend floodplain regs. by 1995 to protect wildlife habitat and natural floodwater assimilation capacity. *[3] Is 1992 an appropriate date, esp. since LDRs must be developed 1 yr. after plan adoption?* |
| | | | 68 | Pol. 4.2 | Continue to prohibit unmitigated encroachment into 100-yr floodplains. *[3] Specify level of mitigation.* |
| | | | | Obj. 14 | Protect significant wildlife habitat and prevent any further net loss of essential wildlife habitat. |
| | | | | Pol. 14.5 | Develop and implement comprehensive program to conserve and protect significant wildlife habitat from development activities. |
| | | | | Pol. 14.6 | Restrict development activities which adversely affect area identified and mapped as essential wildlife habitat. (continues) |

Issue#4: Urbanization/Land Use/Wildlife Habitat [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| • Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br>• Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs. | | CONS | 70<br><br><br><br>72<br><br><br>73<br><br>74 | Pol. 14.7<br><br><br>Pol. 16.5 & 16.6<br><br>Pol. 17.8<br><br><br>Pol. 19.1<br><br>Pol. 19.2<br><br>Pol. 19.5<br><br>Pol. 19.8 | Consider the effects of development on significant wildlife habitat and protect wildlife corridors during the LU planning and development review process.<br>Protect Conservation/Preservation Areas through LDRs & zoning codes.<br>Restrict incompatible activities adj. to preserves through LU planning and DR process.<br>*[3] Inappropriate adjacent LU categories.*<br>Determine construction setbacks and buffer distances for wetlands, floodplains, and WBs and integrate into LDRs & zoning code where necessary.<br>Encourage development clustering away from ESAs, EWH, or EIAMs.<br>Review and amend LDRs to better address cumulative environmental impacts.<br>Identify Resource Protection Areas on the FLU Map series.<br>*[8] Need timetable, methodology, mapping of areas.* |

Issue#5: Agricultural Activities and Effects on Water Quality and Living Resources [AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>1.d. Agricultural Stormwater Management<br><br>• Develop soil and water conservation plans employing Best Management Practices for agricultural, aquacultural, and silvicultural operations in the Tampa Bay watershed. Priority sub-basins will be identified by the District; conservation plans will be developed for landowners in priority sub-basins by the Soil Conservation Service with assistance from the district and local soil and water conservation districts.<br>• Ensure compliance with approved conservation plans through establishment of new positions within the district with responsibility for compliance monitoring and enforcement.<br>• Reduce the levels of nutrients and other contaminants in agricultural stormwater discharges by requiring if feasible, that the quality of stormwater discharges be no worse than the state water quality criteria or the existing quality of the receiving water body, whichever is better. The feasibility of implementing this objective will be examined through a review of federal, state, District, and local rules pertaining to storm water management.<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.a. Encourage Appropriate Land Use: at the local, state, and federal level, encourage appropriate development or agricultural use of land bordering the bay and its tributaries.<br><br>• Promote limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights. Appropriate policies and regulations will be developed by the District for consideration by local governments through the review of comprehensive plans and through preparation of model ordinances.<br>• Promote designations of increased buffer zones, setback requirements, wildlife corridors, and conservation easements reviewing local governments comprehensive plans and ordinances, and recommending appropriate amendments to accomplish the above objectives.<br>• Promote environmental sound local and state comprehensive plans, inclusive of land use plans for preservation of habitats and land tracts. | (T) Require, through the efforts of DER and the Southwest Florida Water Management District (SWFWMD), the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CM & CONS | 49&55 | Pol. 1.8 & 2.8 | Initiate IA to develop agricultural nutrient monitoring & control program for agricultural LUs adjacent to Tampa Bay; require implementation of BMPs where economically feasible consistent w/ SWIM plan.<br>*[2] The phrase 'where economically feasible' is conditional; delete phrase.*<br>*[3] Re. 1.8, list appropriate reg. agencies. Re: 2.8, fails to define appropriate reg. agencies or 'significant nutrient loadings;' BMPs should be used regardless of economic feasibility; activities impacting ESAs should not be permitted.* |
| | | CONS | 66 | Pol. 11.2 | Require use of topsoil BMPs to minimize erosional soil loss. |
| | | FLU | 31 | Obj. B-9 | Protect ESAs from degradation or damage from agricultural activities by establishing regulatory activities. |
| | | | | Pol. B-9.1 | Regulate the agricultural use of chemical pesticides. |

Issue#6: Mosquito Control Activities and Effects on Water Quality and Living Resources [AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| | (L) Prohibit mosquito control practices within the aquatic preserve that require habitat modification or manipulation (i.e., diking, ditching) unless there are no reasonable alternatives and failure to conduct such practices would result in a threat to public health.<br>(M) Limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency (USEPA) for wetland and aquatic application. | | | | |

Issue#7: Destruction/decline of Seagrasses

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| NATURAL SYSTEMS INITIATIVE 1<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>I.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(J) Prohibit non-water dependent uses of submerged lands within the aquatic preserve except in those cases where the Board has determined that the project is overwhelmingly in the public interest and no reasonable alternatives exist. This prohibition shall include floating residential units, as defined in Section 125.0106(6), F.S.<br>(M) Limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency (USEPA) for wetland and aquatic application.<br>(N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries. | CM | 51 | Pol. 2.6 | Prohibit dev. activities on submerged land containing significant seagrass habitat, and seek to restore seagrass coverage. |
| | | | | Pol. 2.8 | Initiate interagency agreement w/ Tampa Port Authority to restrict coastal area dredge & fill (D&F) to channel maintenance, activities assoc. w/ water-dependent uses, & environmental restoration w/ accompanying criteria.<br>*[3] Need to refine disposal criteria to emphasize more ecological alternatives.*<br>*[7] Inconsistent w/ CRPP Policy 9.4.5 prohibiting D&F of undisturbed bottom.*<br>*[9] Inconsistent w/ Port of Tampa Master Plan, which lacks policies protecting further loss of natural resources.* |
| | | | 54 | Pol. 5.3 | Oppose destruction or degradation of intertidal/subtidal vegetative communities to develop new manmade estuarine beaches. |
| | | FLU | | Pol. C-37.4 | Seek to establish a scientifically-defensible buffer zone between CBAP & adj. upland uses to prevent degrad. of WQ & aquatic vegetation habitats as part of the CB Overlay Study in Policy C-37.13.<br>*[3] Re. previously designated Pol. 18.3, need to readdress FLU designations if county wants a buffer around CBAP.* |
| | | | | Pol. C-37.5 | Establish a Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) by 1992, with members representing the County, the Planning Commission, the Environmental Protection Commission, Hillsborough Community College, state and regional agency staff, concerned citizens and area landowners. The Management Advisory Team shall (selected policies):<br>5. Document the extent and relative health of seagrasses and identify sources of seagrass damage before recommending actions to ban boating or identify exclusionary areas in the Preserve.<br>11. Assist in the development of public education maps and work with the appropriate authorities in the placement of markers clearly indicating boating channels and potential hazards in appropriate locations throughout the Cockroach Bay Aquatic Preserve. |
| | | | | Pol. C-37.9 | By the end of 1992, the County will work with the appropriate authorities, including the Environmental Protection Commission and the Florida Department of Natural Resources, to implement means of protecting seagrasses from propeller dredging throughout the Cockroach Bay Aquatic Preserve. |

Issue#7: Destruction/decline of Seagrasses

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| 1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br>• Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat.<br><br>1.d. Sediment Stabilization: address sedimentological problems of the Tampa Bay system.<br><br>• Reduce turbidity via programs 1.a-c coupled with alternative technologies (e.g., dredging).<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE 3**<br>**Reduce incidental destruction of environmentally sensitive areas.**<br><br>3.a. Signs and Markers: Distribution of visual and educational aids throughout the bay.<br><br>• Provide marking of small boat channels in problematic or environmentally sensitive areas (e.g., seagrass beds, oyster reefs, etc.).<br>• Provide educational signs concerning environmentally sensitive areas; signs to be placed at boat ramps, public beaches, nature preserves, public parks, valuable habitats such as seagrass beds, algae beds, oyster reefs, artificial reefs, restoration Projects, and areas frequented or inhabited by protected species (e.g., osprey, eagles, dolphins, sea turtles, manatees, etc.). | | | | | |

Issue#8: Dredging and Disposal of Dredge Materials [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat.<br><br>1.e. Marinas: evaluate environmental impacts of marinas within Tampa Bay and its tributaries.<br><br>• Evaluate environmental impacts of existing marinas, including impacts on manatees and other protected species.<br>• Develop a marina siting plan.<br>• Evaluate and promote improved marina designs and facilities, specifically addressing problems of fuel storage, sewage, bilge pumping, solid waste, dredging, and related problems. | (E) Prohibit development activities within the aquatic preserve that adversely impact salimarshes and other valuable submerged habitat unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries.<br>(O) Prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve.<br>(Q) Manage spoil islands within the aquatic preserve as bird rookeries and wildlife habitat areas.<br>(T) Require, through the efforts of DER and the Southwest Florida Water Management District (SWFWMD), the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.<br>(W) Prohibit Marinas and associated construction activities in Resource Protection Areas 1 and 2. | CM | 51 | Pol. 2.8 | Initiate interagency agreement w/ Tampa Port Authority to restrict coastal area dredge & fill (D&F) to channel maintenance, activities assoc. w/ water-dependent uses, & environmental restoration w/ accompanying criteria.<br>*[3] Need to refine disposal criteria to emphasize more ecological alternatives.*<br>*[7] Inconsistent w/ CRPP Policy 9.4.5 prohibiting D&F of undisturbed bottom.*<br>*[9] Inconsistent w/ Port of Tampa Master Plan, which lacks policies protecting further loss of natural resources.* |

Issue#9: Wetlands [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br><br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(T) Require, through the efforts of DER and the Southwest Florida Water Management District (SWFWMD), the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CM & CONS | 50&56 | Obj. 2 & 3 | No net loss of wetlands in county coastal area; mandated measurable annual increase in restored acreage.<br>*[1] Re: Obj. 2 'shall seek a measurable increase...,' lacks a specific result to be achieved.*<br>*[2] Include degraded wetlands; remove 'natural.'*<br>*[3] Re: Obj. 2, define 'measurable annual increase.'* |
| | | CM | 51 | Pol. 2.1 | Continue conservation & protection of tidal wetlands, prohibit unmitigated encroachment.<br>*[3] Define 'detrimental.'* |
| | | | | Pol. 2.2 | Prohibit channelization or hardening of coastal shorelines and tidal creeks, except in cases of overriding public interest (see CONS Pol. 3.2).<br>*[1] Need to state specific action or program undertaken to achieve objective.* |
| | | | | Pol. 2.4 | Request reg. agencies to develop, unified & coordinated, wetland mitigation & restoration prog.<br>*[3] Need to include time frame.* |
| | | | | Pol. 2.5 | Initiate IA to maintain minimum freshwater flows in rivers & streams (see CONS Pol. 3.8). |
| | | | | Pol. 2.7 | Amend LDRs to require preservation of native upland plant communities necessary to buffer coastal wetlands.<br>*[1] 'necessary' & 'effective' are conditional.*<br>*[3] What is 'necessary ' and when will requirements become effective?* |
| | | | | Pol. 2.8 | Initiate interagency agreement w/ Tampa Port Authority to restrict coastal area dredge & fill (D&F) to channel maintenance, activities assoc. w/ water-dependent uses, & environmental restoration w/ accompanying criteria.<br>*[3] Need to refine disposal criteria to emphasize more ecological alternatives.*<br>*[7] Inconsistent w/ CRPP Policy 9.4.5 prohibiting D&F of undisturbed bottom.*<br>*[9] Inconsistent w/ Port of Tampa Master Plan, which lacks policies protecting further loss of natural resources.* |
| | | | 54 | Pol. 5.3 | Oppose destruction or degradation of intertidal/subtidal vegetative communities to develop new manmade estuarine beaches. |
| | | CONS | 57 | Pol. 3.1 | Continue to conserve & protect wetlands during development review process, allowing encroachment only as a last resort.<br>*[3] Define 'last resort.'* |
| | | | | Pol. 3.2 | Prohibit channelization or hardening of natural stream courses, except in cases of overriding public interest (see CM Pol. 2.2). |
| | | | | Pol. 3.3 | Continue to prohibit unmitigated encroachment into wetlands.<br>*[3] Address level of mitigation required; what about encroachment into CBAP?* |
| | | | | Pol. 3.4 | Request appropriate environmental reg. agencies to develop unified, coordinated wetlands compensatory & restoration program.<br><br>(continues) |

Issue#9: Wetlands [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| • Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br>• Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat. | | CONS | 57 | Pol. 3.8 | Initiate IA to maintain minimum freshwater flows to support optimal diversity & productivity in estuarine wetlands. (see CM Pol. 2.5).<br>*[9] Revise element to include GOPs addressing necessary estuarine freshwater flows, especially to Tampa Bay.*<br>*9] Potable Water element needs to include GOPs addressing necessary estuarine freshwater flows to protect Tampa Bay.* |
| | | | 58 | Pol. 4.1 | Amend floodplain regs. to protect wildlife habitat and natural floodwater assimilation capacity.<br>*[3] Is 1992 an appropriate date, esp. since LDRs must be dev. 1 yr. after plan adoption?* |
| | | | | Pol. 4.2 | Continue to prohibit unmitigated encroachment into 100-yr floodplains.<br>*[3] Specify level of mitigation.* |
| | | | 64 | Pol. 8.3 | Continue to enforce mining ordinance to prohibit mining w/i 25-yr river floodplains and restrict w/i 100-yr floodplains of rivers and streams. |
| | | FLU | 18 | Obj. A-8 | Require new development to mitigate adverse impacts upon natural, environmental systems as described & required within the CONS&AR and CM elements of comp. plan. |
| | | | | Pol. A-8.2 | Require new development to protect C&P areas as defined in the CONS&AQR element. |
| | | | | Pol. A-8.4 | Give density credits to dev that preserve & maintain environmental integrity of wetlands. |
| | | | | Pol. A-8.13 | Preserve wetlands by discouraging use of mitigation, D&F, and similar dev. activities by revising LDRs.<br>*[1] Need policy(ies) protecting ESAs.* |
| | | | 42 | Pol. C-22.2 | Prohibit draining, clearing, or filling wetlands & hydric hammocks w/i 500' of LMR. |
| | | | | Pol. C-22.3 | Restrict clearing or filling of natural plant communities w/i 50' of EPC wetlands jurisdictional line or w/i 100' of MHW line, whichever is greater. |
| | | TRANS | 58 | Pol. 1.7.3 | Transportation improvements shall eliminate or mitigate adverse impacts on wetlands and other ESAs. |
| | | STMA | 23 | Pol. 2.11 | Encourage new development to maintain streams, lakes, wetlands, and estuaries for which stormwater conveyance or attenuation is significant.<br>*[8] 'Encourage' is advisory only; policy needs to explicitly describe county actions.* |

## Issue#10: Development and Damming of Creeks and Rivers [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| NATURAL SYSTEMS INITIATIVE 1<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br><br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries.<br>(T) Require, through the efforts of DER and the Southwest Florida Water Management District (SWFWMD), the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CONS | 57 | Pol. 3.8 | Initiate an interlocal agreement with SWFWMD to ensure that minimum freshwater flows are scientifically determined and maintained to support natural optimal diversity and productivity in estuarine wetlands. |
| | | | 58 | Pol. 4.1 | Amend floodplain regs. to protect wildlife habitat and natural floodwater assimilation capacity.<br>*[3] Is 1992 an appropriate date, esp. since LDRs must be dev. 1 yr. after plan adoption?* |
| | | | | Pol. 4.2 | Continue to prohibit unmitigated encroachment into 100-yr floodplains.<br>*[3] Specify level of mitigation.* |
| | | | 64 | Pol. 8.3 | Continue to enforce mining ordinance to prohibit mining w/i 25-yr river floodplains and restrict w/i 100-yr floodplains of rivers and streams. |
| | | FLU | 34 | Obj. C-2 | Preserve natural shorelines & reverse trend towards hardening shores & channelization. |
| | | | | Pol. C-2.1 | Prohibit shoreline alteration through hardening. |
| | | | | Pol. C-2.2 | Publicly-owned or controlled lands shall be restored by vegetating riverbanks w/ native vegetation to prevent erosion. |
| | | | | Pol. C-2.3 | Natural riverbanks & levees shall be conserved and preserved.<br>*[2] Need to specify implementing mechanism.* |
| | | | 43 | Pol. C-24.2 | Appropriate provisions from the CBAP mgmt. plan (re. LMR) shall be considered for incorporation into the Hills. County comprehensive plan. |
| | | | 47 | Obj. C-30 | Regs. & performance stds. shall be developed to protect WQ&Q, ESAs, wildlife habitats, rivers and creeks from degradation by development. |
| | | | | Pol. C-30.2 | Require location & design of public roads & bridges w/i riverine corridors to minimize impacts adverse to wildlife habitats & vegetative communities.<br>*[2] Need to strengthen policy by replacing 'minimize' w/ 'prevent.'* |
| | | | | Pol. C-30.6 | Restrict clearing or filling of natural plant communities w/i 50' of EPC jurisdictional line of rivers & creeks designated as River Corridor Overlay Districts or w/i 100' of MHW line of such rivers & creeks, w/ mitigation as necessary. |

Issue#10: Development and Damming of Creeks and Rivers [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat. | | | | | |

## Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br><br>(continues) | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(G) Provide and actively encourage research and educational opportunities for scientists and other interested researchers within the framework of a planned research program in the aquatic preserve.<br>(O) Prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve.<br>(P) Insure that artificial reef construction does not adversely impact environmentally fragile areas within the aquatic preserve and that the construction will maintain the essentially natural condition while enhancing the quality and utility of the preserve.<br>(T) Require, through the efforts of DER and the Southwest Florida Water Management District (SWFWMD), the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.<br>(X) Identify and document any problems caused by fishing, shellfishing, and collecting activities and report them to the Marine Fisheries Commission.<br>(Z) Recognize that successful shellfish culture and harvesting efforts in the aquatic preserve are dependent upon pollution prevention and abatement and careful comprehensive planning. | CM<br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br>FLU | 52 | Obj. 3<br><br><br><br><br>Pol. 3.2<br><br><br><br><br><br><br><br><br><br>Pol. 3.3<br><br>Pol. C-37.2 | Maintain & enhance abundance & diversity of living marine resources in Tampa Bay.<br>*[2] The phrase 'where [environmentally & economically] feasible' is conditional; need to remove phrase.*<br>Coordinate with and support appropriate reg. agencies to ensure land developments w/i the CA discharging into receiving waters flowing into 'conditionally approv.' or 'approv.' DNR shellfish harvesting area demonstrate nondegradation of WQ for all applicable discharges.<br>*[3] COM [re: previously designated CM Pol. 3.2]: Any discharges of sewer effluent will prompt DNR to place a protective buffer; discharges would have to be removed in order to upgrade area.*<br>Request Marine Fisheries Comm. to restrict fishing where necessary to prevent depletion of resource.<br>Work with DNR, EPC, and county Public Health Unit to identify sources of pollution responsible for closure of CBAP to public shellfishing, and develop program to identify means of eliminating such sources. |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat.<br><br>1.e. Monitoring and Research: establish monitoring/research studies associated with strategies of programs 1.a-d.<br><br>• Evaluate success of restoration and preservation projects inclusive of projects begun or completed prior to SWIM endeavors through aerial habitat mapping and coordinated ground based studies.<br>• Develop additional databases useful for design and implementation of future projects.<br>• Promote and/or fund research concerning habitat restoration and functionality (e.g., wildlife utilization of submerged and intertidal habitat for gamefish, commercial species, and other wildlife.<br><br>2.a. Optimize Habitats: performance of programs 1.a-e to optimize habitats for use by botanical, invertebrate, and vertebrate populations and communities.<br><br>2.b. Research: promote and/or fund research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem.<br><br>• Address systems ecology questions, inclusive of ecosystem modeling dealing with carbon flow/energy budgets, secondary production, food webs, standing crops, etc. This strategy will commence by defining the framework of a comprehensive ecosystem model and culminate in the application of the model decision-making on bay management issues.<br>• Establish data base concerning a wildlife inventory for subtidal, intertidal and nearby upland communities; inventory should include distribution and abundance of species throughout ecosystem.<br>• Conduct biennial, quantitative aerial mapping of subtidal, intertidal, and nearby upland habitats.<br>• Evaluate existing commercial and sport fishing practices to determine effects, if any, on habitat, population, and/or community structures.<br><br>(continues) | | | | | |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.a. Optimize Habitats: performance of programs 1.a-e to optimize habitats for use by botanical, invertebrate, and vertebrate populations and communities.<br><br>2.b. Research: promote and/or fund research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem.<br><br>• Address systems ecology questions, inclusive of ecosystem modeling dealing with carbon flow/energy budgets, secondary production, food webs, standing crops, etc. This strategy will commence by defining the framework of a comprehensive ecosystem model and culminate in the application of the model decision-making on bay management issues.<br>• Establish data base concerning a wildlife inventory for subtidal, intertidal and nearby upland communities; inventory should include distribution and abundance of species throughout ecosystem.<br>• Conduct biennial, quantitative aerial mapping of subtidal, intertidal, and nearby upland habitats.<br>• Evaluate existing commercial and sport fishing practices to determine effects, if any, on habitat, population, and/or community structures.<br><br>2.c. Wildlife Management Programs: Promote and/or draft wildlife management programs to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen. Programs must include local, state, and federal legislation and enforcement necessary to accomplish management goals.<br><br>**BAY MANAGEMENT INITIATIVE 2**<br>**Promote the adoption and enforcement of laws and regulation necessary to implement the Natural Systems, Water Quality and Land Use Initiative of the Plan.**<br><br>2.a. Review of Rules and Regulations: Reviews adequacy of rules and regulations of the previously described governmental jurisdictions to carry out the Plan's Programs. This will include a review of the sufficiency of enforcement programs of pertinent regulatory agencies and be inclusive of all applicable fish and wildlife laws.<br><br>(continues) | | | | | |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| 2.b. Commercial and Sport Fishing Regulations.<br><br>• Enhance fishery productivity by developing and implementing biologically defensible fishing regulations, stocking and habitat creation/restoration Projects.<br>• Implement protective regulations and management strategies for fisheries on the decline in Tampa Bay<br>• Improve the enforcement of fishing regulations by consolidating and standardizing all special acts and local laws related to fishing activities.<br><br>2.c. Enforcement: Unify and consolidate all special acts and local laws related to marine resource management and work to ensure adequate funding and staffing levels for increased monitoring and enforcement capabilities for Tampa Bay. | | | | | |

## Issue#12: Replacement of Native Vegetation with Exotic Plants [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| NATURAL SYSTEMS INITIATIVE 1<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species. | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitats, unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(M) Limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency (USEPA) for wetland and aquatic application. | CONS | 70 | Obj. 16 | Continue existing programs to minimize spread of exotic nuisance species and incorporate into management plans for newly-acquired lands. |
| | | | | Pol. 16.1 | Assist DACS, SWFWMD, and DNR in eliminating exotic nuisance plant species. |
| | | | 71 | Pol. 16.8 | Reduce exotic nuisance plants on county owned or leased natural preserve lands. |
| | | FLU | | Pol. C-37.5 | Establish a Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) by 1992, with members representing the County, the Planning Commission, the Environmental Protection Commission, Hillsborough Community College, state and regional agency staff, concerned citizens and area landowners. The Management Advisory Team shall (selected policies):<br>12. In conjunction with the Southwest Florida Water Management District (SWFWMD), the Florida Department of Natural Resources (DNR), the Tampa Electric Company (TECO) and other property owners, initiate a program to reverse the spread of noxious exotic plant species in the Area of Concern, with the goal of replacing exotics with viable e desirable native plant communities. Such a program should include assessment of the extent of the problem, identification of the geographic focus of action, identification of costs and likely funding sources, assess the potential for a volunteer component of the program, and enlist the cooperation of affected private property owners, if any. |
| | | | | Pol. C-37.7 | By the end of 1992, the County will request Hillsborough Community College to expand the focus at the Cockroach Bay Environmental Studies Center to include the study of land management practices such as exotic plant control and fire management. The Environmental Lands Acquisition and Protection Program can utilize the results of such studies to more effectively manage lands purchased throughout the Area of Concern. |

Issue#13: Shoreline Erosion [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitats, unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist. | CM | 53 | Obj. 5 | The county shall stabilize those man-made beaches prone to erosional problems and shall only support development of man-made estuarine beaches in environmentally-acceptable locations. |
| | Selected Additional Onsite Policies & Procedures: | | 54 | Pol. 5.1 | Assess present condition and erosional trends of significant public beaches. Develop estuarine beach enhancement program. |
| | 1. Identify and develop guidelines for areas and plant communities in need of restoration. | | | Pol. 5.2 | Use beach stabilization techniques recommended by DNR. |
| | 2. Discourage developments within the aquatic preserve that require restoration or mitigation. | | | Pol. 5.3 | Oppose destruction or degradation of intertidal/subtidal vegetative communities to develop new manmade estuarine beaches. |
| | 3. Develop an exotic plant control and removal plan following monitoring. | | | | |
| | 4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve. | FLU | 34 | Pol. C-2.2 | Publicly-owned or controlled lands shall be restored by vegetating riverbanks w/ native vegetation to prevent erosion. |
| | (F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances. | RECOS | 12 | Pol. 1.4 | Protect environmental and natural resources, energy efficiency, and the orderly extension and expansion of other public facilities and services during the planning of parks and other recreational facilities. |

Issue#14: Marinas [SWIM]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.e. Marinas: evaluate environmental impacts of marinas within Tampa Bay and its tributaries.<br><br>• Evaluate environmental impacts of existing marinas, including impacts on manatees and other protected species.<br>• Develop a marina siting plan<br>• Evaluate and promote improved marina designs and facilities, specifically addressing problems of fuel storage, sewage, bilge pumping, solid waste, dredging, and related problems. | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(O) Prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve.<br>(R) Encourage public utilization of the aquatic preserve, consistent with the continued maintenance of its natural values and functions.<br>(T) Require, through the efforts of DER and the Southwest Florida Water Management District (SWFWMD), the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.<br>(W) Prohibit Marinas and associated construction activities in Resource Protection Areas 1 and 2. | CM | 55<br><br>56<br><br>58 | Pol. 7.6<br><br>Pol. 7.7<br><br>Pol. 7.8<br><br>Pol. 7.9 | Encourage expansion of existing marinas prior to siting new ones within county.<br><br>Implement marina siting guidelines (w/ environmental considerations).<br><br>Concentrate marine service land uses around existing marinas.<br><br>Fueling facilities shall be designed to contain land and water fuel spills. |

Issue#15: Construction & Operation of Transportation Facilities [SWIM]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.d. Developmental Designs and Practices: promote environmentally sound projects and practices.<br><br>• Promote use of existing natural features and native plant species for landscaping and habitat, with special emphasis on use of transportation Programs and xeriscaping practices as well as the establishment of wildlife corridors.<br><br>1.f. Transportation Network: evaluate the existing and proposed transportation network around, over and on the bay and its tributaries.<br><br>• Evaluate transportation (inclusive of shipping and boat traffic) and roadway problems as related to environmental impacts to the ecosystem.<br>• Review transportation engineering and promote designs to reduce environmental impacts (e.g., runoff). | (F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve. | FLU<br><br><br><br><br><br><br>TRANS | 19<br><br>47<br><br><br><br><br>58 | Pol. A-8.14<br><br><br><br><br><br><br>Obj. 1.7<br><br>Pol. 1.7.1<br><br>Pol. 1.7.2<br><br>Pol. 1.7.3 | Require new roadways, interchanges, or bridge designs undergo an environmental assessment.<br>Require location & design of public roads & bridges w/i riverine corridors to minimize impacts adverse to wildlife habitats & vegetative communities.<br>*[2] Need to strengthen policy by replacing 'minimize' w/ 'prevent.'*<br>Ensure transportation improvements meet all requirements for reducing or mitigating impacts on the natural environment.<br>Avoid routing new roads thru publicly owned natural preserves, parks, recreation areas, and significant or essential wildlife habitat.<br>All road construction projects shall meet or exceed adopted state or local stormwater retention and treatment requirements.<br>Transportation improvements shall eliminate or mitigate adverse impacts on wetlands and other ESAs. |

Issue#16: Intergovernmental Coordination and Planning Consistency [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.a. Encourage Appropriate Land Use: at the local, state, and federal level, encourage appropriate development or agricultural use of land bordering the bay and its tributaries.<br><br>• Promote limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights. Appropriate policies and regulations will be developed by the District for consideration by local governments through the review of comprehensive plans and through preparation of model ordinances.<br>• Promote designations of increased buffer zones, setback requirements, wildlife corridors, and conservation easements reviewing local governments comprehensive plans and ordinances, and recommending appropriate amendments to accomplish the above objectives.<br>• Promote environmental sound local and state comprehensive plans, inclusive of land use plans for preservation of habitats and land tracts.<br><br>1.c. Laws and Permitting Review: evaluate adequacy of existing zoning laws, environmental laws and permitting processes as related to land use and environmental resources.<br><br>• Evaluate existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses).<br>• Promote and/or draft revisions of existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses). This will be accomplished through the development of model ordinances in addition to specific proposed amendments.<br>• Evaluate, promote, and/or draft improved laws for mitigation policies and practices, specifically addressing action to be followed if unanticipated impacts are detected after the fact; mitigation banking should be evaluated as should criteria for monitoring and determining the success of the Project. | (S) Develop a well-coordinated aquatic preserve management mechanism that recognizes and utilizes local government programs and authorities.<br>(V) Encourage the assistance of federal, state, and local government agencies in implementing the aquatic preserve management plans, especially in areas of protection of natural and cultural resources and the enforcement of applicable resource laws and ordinances.<br>(Y) Insure that the aquatic preserve management plans are consistent with all other state and local planning processes and completed plans that may impact aquatic preserves. | CM & CONS | 50&57 | Pol. 2.4 & 3.4 | Request regulatory agencies to develop unified & coordinated wetland mitigation & restoration prog.<br>*[3] Re: 2.4, need to include time frame.* |
| | | CM | 53 | Obj. 4 | Cooperate w/ appropriate regulatory & mgmt. agencies to implement comprehensive & coordinated mgmt. plans for Tampa Bay.<br>*[1] Need to include a specific result to achieve & a std. to measure accomplishment.* |
| | | | 58 | Pol. 4.1 | Provide county cooperation, representation, and assistance to ABM & SWFWMD re: Tampa Bay SWIM plan. |
| | | FLU | 53 | Pol. 7.10 | Initiate MA w/ Tampa Port Authority to address coordination & conflict resolution of issues to ensure orderly development of the Port. |
| | | | | C-22.1 & C-37.1 | Participate w/ DNR to fully implement CBAP management plan.<br>*[1] Need to state specific action or program undertaken to achieve objective.*<br>*[3] Re: 18.8 [now 37.1], county should formally adopt (incorporate) CBAP plan & 18-20, F.A.C.* |
| | | | | Pol. C-37.5 | Establish a Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) by 1992, with members representing the County, the Planning Commission, the Environmental Protection Commission, Hillsborough Community College, state and regional agency staff, concerned citizens and area landowners. The Management Advisory Team shall (selected policies):<br>1. Assist the County with implementation of the Goal, Objectives and Policies that affect the Cockroach Bay Aquatic Preserve area;<br>6. Identify an implementation procedure, thresholds and a timeline for review of applications for development approval within the defined Area of Concern to ensure compatibility with the intent of the Preserve;<br>7. Review proposed comprehensive plan and land development code revisions that may impact the Area of Concern and recommend appropriate changes and other measures to further these Goals, Objectives and Policies. |
| | | IC | 56 | Obj. 5 | Assemble representatives of state & local gov'ts having jurisdiction over aspects of Hills. Co. and Tampa Bay (thru an environmental issues forum) to coordinate policies, data, & research, and eliminate duplicative reviews and contradictory standards.<br>*[7] County should require MPO coordination w/ ABM.* |

Issue#17: Enforcement of Laws and Regulations [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br><br>**INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.c. Wildlife Management Programs: Promote and/or draft wildlife management programs to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen. Programs must include local, state, and federal legislation and enforcement necessary to accomplish management goals.<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.b. Enforcement: promote enforcement of existing zoning laws, environmental laws and permit stipulations inclusive of compliance monitoring<br><br>• Promote additional funding and staffing (inclusive of legal staff) for enforcement and compliance monitoring by offering funding incentives for qualifying local governmental environmental protection programs.<br>• Promote fines or penalties commensurate with the infraction.<br><br>**BAY MANAGEMENT INITIATIVE 2**<br>**Promote the adoption and enforcement of laws and regulation necessary to implement the Natural Systems, Water Quality and Land Use Initiative of the Plan.**<br><br>2.a. Review of Rules and Regulations: Reviews adequacy of rules and regulations of the previously described governmental jurisdictions to carry out the Plan's Programs. This will include a review of the sufficiency of enforcement programs of pertinent regulatory agencies and be inclusive of all applicable fish and wildlife laws.<br><br>(continues) | (S) Develop a well-coordinated aquatic preserve management mechanism that recognizes and utilizes local government programs and authorities.<br>(V) Encourage the assistance of federal, state, and local government agencies in implementing the aquatic preserve management plans, especially in areas of protection of natural and cultural resources and the enforcement of applicable resource laws and ordinances. | REC&OS<br><br>FLU | 18 | Pol. 10.2<br><br>Pol. C-37.12 | Adequate personnel shall be provided to enforce rules and regulations on waterbodies.<br>By the end of 1992, the County will implement means of improving enforcement of marine conservation laws in the Cockroach Bay area, such as the dedication of an environmental deputy to the area. The primary purpose of such a deputy would be to educate boaters and fishermen about boating and safety laws, and secondarily to issue warnings and citations. |

Issue#17: Enforcement of Laws and Regulations [SWIM & AP]

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| 2.b. Commercial and Sport Fishing Regulations.<br><br>• Enhance fishery productivity by developing and implementing biologically defensible fishing regulations, stocking and habitat creation/restoration Projects.<br>• Implement protective regulations and management strategies for fisheries on the decline in Tampa Bay<br>• Improve the enforcement of fishing regulations by consolidating and standardizing all special acts and local laws related to fishing activities.<br><br>2.c. Enforcement: Unify and consolidate all special acts and local laws related to marine resource management and work to ensure adequate funding and staffing levels for increased monitoring and enforcement capabilities for Tampa Bay.<br><br>2.d. State Legislation: Work to ensure that the necessary state legislation and agency rules are in place to carry out the Plan. | | | | | |

Issue#18: Ports

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| | (N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries. | PORT | 148 | Obj. 1<br><br>Pol. 1.1 | Ensure that expansion of existing or the siting of new port or related facilities is coordinated with the Future Land Use, Coastal Management, and Conservation Elements of the Comprehensive Plan.<br>Promote Port & related facilities development & resource protection consistent w/ Tampa Port Master Plan and coordinated w/ HCCP via MA encouraging Port Authority to:<br>a) assure coordination of submerged land management & permitting programs w/ co. LU regulations.<br>b) maintain active membership w/ TBRPC/ABM & coordinate w/ TB SWIM Plan.<br>c) continue support of estuarine resource restoration management programs in Hillsborough Co.<br>d) continue to develop mitigation projects minimizing adverse port development on natural resources.<br>e) continue to implement consolidated berth maintenance dredging & disposal plan.<br>f) develop a comprehensive resource management plan for incorporation into dredge plan.<br>g) develop methods for managing bird nesting & feeding habitats on Port Authority diked disposal islands.<br>h) monitor & mitigate adverse impacts on WQ from dredging projects.<br>i) continue to augment HCEPC WQ monitoring program in inner harbor areas.<br>j) incorporate stormwater treatment capability in port projects where feasible.<br>*[1] incl. objective protecting, conserving, or enhancing remaining coastal wetlands, living marine resources, coastal barriers, and wildlife habitats.*<br>*-No policy addressing cumulative impacts of activities on natural resources.*<br>*-No specific action specified re: support of estuarine research programs.*<br>*-No policy(ies) addressing multijurisdictional estuaries & their management.* |

Issue#19: Identification of Areas, Land Use, Etc.

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.e. Monitoring and Research: establish monitoring/research studies associated with strategies of programs 1.a-d.<br><br>• Evaluate success of restoration and preservation projects inclusive of projects begun or completed prior to SWIM endeavors through aerial habitat mapping and coordinated ground based studies.<br>• Develop additional databases useful for design and implementation of future projects.<br><br>**INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.b. Research: promote and/or fund research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem.<br><br>• Establish data base concerning a wildlife inventory for subtidal, intertidal and nearby upland communities; inventory should include distribution and abundance of species throughout ecosystem.<br>• Conduct biennial, quantitative aerial mapping of subtidal, intertidal, and nearby upland habitats. | (C) Develop a resource inventory and map natural habitat types within the aquatic preserve, with an emphasis on those habitat types utilized by threatened and/or endangered species. | CONS | 57 | Pol. 3.7 | Develop GIS and digital database to monitor trends in wetland losses & gains. |
| | | | 68 | Pol. 14.2 | Identify and map natural plant communities providing significant wildlife habitat as ESAs on FLU map. |
| | | | | Pol. 14.3 | Identify and map essential wildlife habitat. |
| | | | | Pol. 14.4 | Incorporate and build upon LANDSAT database utilized by FGFWFC to develop county database and GIS for monitoring changes in LU cover and essential wildlife habitat. |
| | | FLU | | Obj. C-37 | Identify geographic area by 1993 wherein discharges are very likely to affect Cockroach Bay. Once identified, new permitted discharges will be required to meet or exceed applicable federal, state, regional, and local WQ stds. Initiate plan to address WQ & habitat restoration within CBAP by end of 1993.. |
| | | | | Pol. C-37.5 | Establish a Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) by 1992, with members representing the County, the Planning Commission, the Environmental Protection Commission, Hillsborough Community College, state and regional agency staff, concerned citizens and area landowners. The Management Advisory Team shall (selected policies):<br>2. Identify the specific area of likely impact on the Aquatic Preserve, to be known as the "Area of Concern," based on review of the boundaries of the Aquatic Preserve, the Little Manatee River watershed, and drainage basins which discharge to Cockroach Bay and the Aquatic preserve;<br>3. Identify concerns and problems that may affect the Preserve area;<br>4. Identify research needs and collect data that may assist in resolving identified problems and concerns.<br>13. Develop a means through which to base decisions and recommendations on sound, scientifically-defensible research in order to avoid arbitrary recommendations. |
| | | | | Pol. C-37.13 | By the end of 1994, the Planning Commission will develop a Cockroach Bay Aquatic Preserve Overlay District that addresses such issues as land use, densities, setbacks, etc. |

Issue#20: Threatened and Endangered Species; Manatee Protection; Hazardous Waste Disposal; Boundary Expansion and Other Acquisitions

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br><br>**NATURAL SYSTEMS INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.c. Wildlife Management Programs: Promote and/or draft wildlife management programs to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen. Programs must include local, state, and federal legislation and enforcement necessary to accomplish management goals.<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.e. Marinas: evaluate environmental impacts of marinas within Tampa Bay and its tributaries.<br><br>• Evaluate environmental impacts of existing marinas, including impacts on manatees and other protected species.<br><br>(continues) | (H) Acquire, where feasible, privately owned submerged lands and adjacent lands and islands located within the boundaries of the aquatic preserve pursuant to the authorities contained in Section 253 .02(4), F.S. Of greatest interest are the barrier islands that are at the mouth of the Little Manatee River and those along the coast of Cockroach Bay.<br>(K) Prohibit storage of toxic, radioactive, or other hazardous materials within the aquatic preserve. Any hazardous waste dumps now located within the aquatic preserve should be closed and eliminated.<br>(Q) Manage spoil islands within the aquatic preserve as bird rookeries and wildlife habitat areas.<br>(U) Apply the management criteria contained in the adopted Terra Ceia Aquatic Preserve Plan to all subsequent legislative additions of land to the Aquatic Preserve. | CM | 52 | Pol. 3.4 | Assist DNR and USFWS in West Indian Manatee and other threatened or endangered species recovery programs.<br>*[3] DNR criteria was suggested for inclusion into the HCCP, along with support for a manatee protection plan to be developed by local, state, and federal gov't. The Port of Tampa Master Plan should also incorporate protective measures to avoid and/or minimize impacts to manatees.* |
| | | | | Pol. 3.5 | Consult with FGFWFC when determining issuance of and condition upon land development approvals in coastal areas on sites containing listed species. |
| | | | | Pol. 3.6 | Amend LDRs & zoning to restrict development in essential wildlife habitat. |
| | | CM | 65 | Pol. 13.6 | Prohibit new solid waste and hazardous waste sites in the CHHA.<br>*[7] County should strengthen its public interest test/description, similar to that found in the RPC's CRPP glossary.* |
| | | CONS | 66 | Obj. 12 | Develop comprehensive hazardous waste management and emergency response programs. |
| | | | 67 | Obj. 13 | Further federal and state regulatory agencies' objectives re: enforcement of hazwaste laws & regs. |
| | | | | Pol. 13.1 | Provide technical assistance to DER & USEPA for inventorying hazardous chemical contamination sites within county. |
| | | | | Pol. 13.2 | Provide technical assistance to USEPA and DER for ranking chemical contamination sites within county; increase utilization and direction of federal and state funds for investigations and cleanup of chemical contamination sites within county. |
| | | | | Pol. 13.3 | Provide technical assistance to USEPA and DER for increasing utilization and direction of federal and state funds for investigations and cleanup of SuperFund sites within county. |
| | | | 69 | Pol. 14.9 | Implement a public education program on the need to protect and manage the habitat of threatened and endangered species, and species of special concern. |
| | | | | Obj. 15 | Maintain populations of threatened and endangered species and species of special concern, and increase abundance and distribution of populations where feasible and appropriate. |
| | | | | Pol. 15.1 | Consult w/ and consider recommendations of FGFWFC in determining the issuance and conditions upon land development approvals which would impact upon threatened and endangered species or species of special concern. Conditions of approval shall ensure the maintenance and, where environmentally and economically feasible, increase the abundance and distribution of populations of such species. |
| | | | 70 | Pol. 15.2 | Identify lands suitable for acquisition by ELAPP prog.<br>Use & promote protection alternatives for acquiring and protecting environmental lands, including purchase, easements, TDRs, and long-term leases.<br><br>(continues) |

## Issue#20: Threatened and Endangered Species; Manatee Protection; Hazardous Waste Disposal; Boundary Expansion and Other Acquisitions

| Tampa Bay SWIM Plan | Cockroach Bay Aquatic Preserve | Hillsborough County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and non-point source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.** | | CONS | 70 | Pol. 15.3 | Recommend to landowners specific management and recovery strategies for key listed species, as developed by FGFWFC and USFWS. Incorporate into county land management plans. |
| | | | | Pol. 15.4 | Assist USFWS, FGFWFC, and DNR in implementing recovery programs for threatened and endangered species or species of special concern. |
| 1.g. Hazardous Waste Disposal and management | | | 71 | Obj. 17 | Request assistance of FGFWFC to conduct inventories of threatened and endangered species and species of special concern. |
| • Implement the requirements of the water Quality Assurance Act for a comprehensive statewide hazardous waste management program including the location of temporary storage/transfer facilities for hazardous wastes. | | | | Pol. 17.2 | Increase acreage of publicly-owned or otherwise protected natural preserve land in the county. |
| | | | | Pol. 17.3 | Use natural systems and LU cover inventory to help identify lands suitable for acquisition by ELAPP prog. |
| • Provide needed surface water, groundwater and leachate characterization in and adjacent to potentially dangerous dump sites for application in state and local regulatory responsibilities. | | | 72 | Pol. 17.4 | Use & promote protection alternatives for acquiring and protecting environmental lands, including purchase, easements, TDRs, and long-term leases. |
| • Initiate eventual rehabilitation of dump sites through restorative actions. | | FLU | | Pol. C-35.7 | Continue to request assistance in public acquisition of natural preserves under federal, state, and regional programs, including CARL and SOR.<br>Establish a Cockroach Bay Aquatic Preserve Management Advisory Team (CAPMAT) by 1992, with members representing the County, the Planning Commission, the Environmental Protection Commission, Hillsborough Community College, state and regional agency staff, concerned citizens and area landowners. The Management Advisory Team shall (selected policies):<br>10. Require the County to initiate a request to the Florida Department of Natural Resources and the Governor and Cabinet and the Legislature to expand the boundaries of the Cockroach Bay Aquatic Preserve, if deemed ecologically appropriate and beneficial, to promote more effective management of the natural system and its biological resources;<br>11. Assist in the development of public education maps and work with the appropriate authorities in the placement of markers clearly indicating boating channels and potential hazards in appropriate locations throughout the Cockroach Bay Aquatic Preserve. In addition, work to post manatee educational information and warning signs as needed throughout the Preserve. |

# Appendix 4

## Issue Matrices: Manatee County Comprehensive Plan

Issue#1: Point Source Water Pollution [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description[1]** |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>PROGRAMS<br>1.a. Reduction of Domestic and Industrial Pollutant Discharge<br><br>STRATEGIES<br>• Achieve a thorough understanding of the quality and composition of domestic and industrial effluents being discharged into Tampa Bay through the previously described water quality assessment program.<br>• Minimize and/or eliminate pollutant loadings from domestic and industrial wastewater discharged into Tampa Bay through alternative re-use and disposal options and other effective options as determined through the previously described water quality assessment program.<br>• Establish legally enforceable, resource based, effluent allocations for domestic and industrial point sources discharges if such allocations are shown to be necessary through the water quality assessment process.<br>• Discourage overcommitment of wastewater treatment and disposal capacities on the part of the bay area local governments by providing the DER's Southwest District Office with a stronger basis for evaluation of discharge permit applications. This will be accomplished through Step 1 of the previously described water quality assessment process.<br>• Encourage greater private interest cost-sharing (impact fees) in the construction of new regional wastewater treatment facilities.<br>• Discourage the construction of wastewater treatment plants which serve specific projects and promote construction of regional plants.<br>• Minimize and/or eliminate pollutant loadings to Tampa Bay and its tributaries from septic tank seepage.<br>• Promote and/or draft new local, state, and federal legislation and rules necessary to reduce domestic and industrial pollutant discharges to acceptable levels as determined through the water quality assessment process.<br><br>1.b. Enforcement of Effluent Discharge Limitations<br><br>• Bring all domestic and industrial point source discharges into compliance with applicable effluent limitations including allocated waste loads by strengthening local government environmental enforcement and compliance monitoring programs through cost-sharing incentives. | (T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CM | 4-9 | Pol. 4.1.2.11 | Require all dev. w/i the Coastal Area which will require issuance of a point source discharge permit to establish and implement WQM plans which shall eliminate all discharges not treated to appropriate state standards. |
| | | | 4-7 | Pol. 4.1.2.7 | Prohibit new and expansion of existing WWT plants w/i the coastal area that will affect coastal receiving waters. |
| | | PF | 11-1 | Goal 11.1 | Provide regional sanitary sewer system in the USEPA 201 facilities plan service area west of adopted future development area boundary consistent with other public facilities and natural resource constraints. |
| | | | | Pol. 11.1.1.4 | Prohibit the use of any interim wastewater treatment plant for any project with the USEPA 201 facilities plan service area unless plant is operational and due to be supplanted by the county's planned sanitary sewer system; overridden in the public interest by BCC; or subject to further criteria. |
| | | | 11-4 | Pol. 11.1.1.9 | Require any onsite sewage disposal system be located and constructed consistent with all applicable local, state, and federal regulations, and permitted only where consistent with other applicable GOPs in this comprehensive plan. |
| | | | 11-8 | Obj. 11.1.5 | Continue the current practice of effluent disposal by spray irrigation on agricultural and urban land uses. |
| | | | 11-10 | Obj. 11.1.7 | New growth will be assessed a fair share of capital costs associated with the county's wastewater system. |
| | | | | Pol. 11.1.7.1 | Continue to require that new growth pay its full share of needed capital facilities. |

[1]NOTES: Agency objections, recommendations, and/or comments are shown in italics and are source-coded: [1] DCA, [2] DER, [3] DNR, [4] HILLSBOROUGH COUNTY, [5] MANATEE COUNTY, [6] CITY OF PALMETTO, [7] TBRPC, [8] SWFWMD, [9] 1000 FRIENDS OF FLORIDA, [10] DOT, [11] FGFWFC, [12] DOS, [13] DACS.

Issue#2: Nonpoint Source Water Pollution [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>1.a. Reduction of Domestic and Industrial Pollutant Discharge<br><br>• Minimize and/or eliminate pollutant loadings to Tampa Bay and its tributaries from septic tank seepage.<br><br>1.c. Urban Stormwater Management<br><br>• Reduce the levels of nutrients and other contaminants in urban stormwater runoff by requiring if feasible, that the quality of stormwater discharges be no worse than the state water quality criteria or the existing quality of the receiving water body, whichever is better. The feasibility of implementing this objective will be examined through a review of federal, state, District, and local rules pertaining to storm water management.<br>• Minimize the quantities of nonpoint source pollutants entering Tampa Bay through selection of high priority urban stormwater system retrofit projects and providing cost-sharing incentives to local governments for project implementation.<br>• For all new upland development or redevelopment within the Tampa Bay watershed, runoff rates should not exceed those of natural, undisturbed conditions. The feasibility of implementing this objective will be examined through a review of federal, state, district, and local rules pertaining to stormwater management.<br>• Conduct a multi-year public awareness campaign regarding the causes of nonpoint source pollution and actions the public can take to reduce nonpoint source pollution.<br><br>1.h. Control of Seepage Waste<br><br>• Determine the degree to which Tampa Bay is being burdened by illegal disposal of septage waste through the previously described water quality assessment program.<br>• Eliminating existing health hazards due to seepage of septage waste into the bay and its tributaries.<br>• Ensure the proper regulation and disposal of septage waste. | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CONS<br><br>FLU<br><br>PF | 3-13<br><br>2-79<br><br>11-4<br><br>11-21<br><br>11-21<br><br>11-21<br><br>11-21<br><br>11-22<br><br>11-23<br><br>11-24<br><br>11-24<br><br>11-26<br><br>11-27 | Pol. 3.3.1.4<br><br>Pol. 2.3.3.1<br><br>Pol. 11.1.1.9<br><br>Pol. 11.3.1.5<br><br>Pol. 11.3.1.8<br><br>Pol. 11.3.1.9<br><br>Pol. 11.3.1.10<br><br>Pol. 11.3.2.3<br><br>Pol. 11.3.2.4<br><br>Pol. 11.3.4.2<br><br>Obj. 11.3.5<br><br>Pol. 11.3.6.3<br><br>Pol. 11.4.1.1<br><br>Pol. 11.4.1.2<br><br>Pol. 11.4.1.3<br><br>Pol. 11.4.1.4 | Protect floodplain/natural areas having beneficial hydrological characteristics through regulatory mechanisms, including discouraging new dev. in the 25-year floodplain.<br>Limit density in a manner which will protect all groundwater from septic tank contamination.<br>Require any onsite sewage disposal system to be located and constructed in a manner consistent w/ all applicable local, state and federal regs and permitted only where consistent with other GOPs of the comp. plan.<br>Require stormwater mgmt planning and construction of capital improvements to coincide with the growth of county.<br>Minimize investment w/i the 25-year floodplain by keeping impervious surface area and structures to a minimum.<br>Require all fill w/i the 100-year floodplain to be compensated by an equal or greater volume of storage capacity w/i the floodplain. Areas adj. to a tidally-influenced water body are not subject to this level of service performance standard.<br>All projects shall meet all applicable local, state and federal stormwater regs and shall comply w/ all CM plans. The most stringent standard shall apply.<br>Improve habitat and natural systems by including, where appropriate, development of artificial wetland systems within the design of public stormwater detention basins.<br>*[2] The condition "where appropriate" should be replaced with "whenever possible".*<br>Coordinate w/ SWFWMD's SWIM Program to complement regional water quality mgmt. programs with local stormwater programs.<br>Ensure new development provides onsite detention of runoff to remove pollutants at levels required by applicable fed., state, regional, and local regs.<br>Funding for public drainage facilities; create a stormwater mgmt. fee.<br>*[6] While the intent of the fee is clear, its implementation and effect on municipalities w/i county is unclear.*<br>Consider county implementation of needed improvements to poorly maintained or functioning private stormwater mgmt systems and recover the cost w/ special assessments.<br>Use natural water storage areas for stormwater retention if consistent w/ local, state, and fed. regs.<br>Prohibit alteration of natural watercourses or floodways unless in the public interest.<br>Protect natural drainage features and preserve their function for detention of stormwater.<br>Recognize periodic flooding of 25-year floodplain is natural and prohibit habitable structures and other public and private investment in the area. Policy shall not preclude water-dependent uses, stormwater mgmt. structures, and passive recreation facilities.<br><br>(continues) |

Issue#2: Nonpoint Source Water Pollution [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| | | ME (FLU) | 14-6 | Proc. 2.4 (2.3.3.1) | (b) Monitor HRS and other septic tank studies to ensure that impact of wastewater on groundwater quality is minimized.<br>(c) Evaluate conclusions in HRS or other studies for applicability to county and determine whether a change in policies related to septic tanks is needed.<br>(d) Where new studies by HRS and others recommend or allow for policy change, consider other policies which increase level of consistency. |
| | | ME (PF) | 14-28 | Proc. 11.10 (11.3) | (b) Determine, during 1989, whether or not a stormwater mgmt. fee is in place.<br>(c) No evaluation necessary (NEN).<br>(d) If no fee adopted, revise comp. plan and Capital Improvements Element accordingly. |
| | | CM | 4-8 | Pol. 4.1.2.9 | Establish buffer zones from all state designated APs and OFWs, pursuant to CONS element. |

Issue#3: Phosphate Processing Operations [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.** | (l) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve. | CONS | 3-18 | Pol. 3.3.4.1 | Require new applications for mineral resource extraction to be reviewed for adverse environmental impacts and require compliance with county Reclamation Ordinance No. 81-22.<br>*[11] Policy and its implem. mechanism does not provide necessary wildlife protection measures.* |
| 1.f Management of Toxic Pollutants<br><br>• Gypsum fields and other toxic waste sources should be managed in such a manner so as to preclude all future adverse environmental impacts on Tampa Bay.<br>• Previously incurred environmental impacts on Tampa Bay resulting from mismanagement of gypsum fields or other contaminant sources should be readdressed. | | | 3-19 | Pol. 3.3.4.2 | Require all applications for mineral extraction contain a reclamation program which requires reestablishment of the form and function of an appropriate land cover. |

Issue#4: Urbanization/Land Use/Wildlife Habitat [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.a. Encourage Appropriate Land Use: at the local, state, and federal level, encourage appropriate development or agricultural use of land bordering the bay and its tributaries.<br><br>• Promote limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights. Appropriate policies and regulations will be developed by the District for consideration by local governments through the review of comprehensive plans and through preparation of model ordinances.<br>• Promote designations of increased buffer zones, setback requirements, wildlife corridors, and conservation easements reviewing local governments comprehensive plans and ordinances, and recommending appropriate amendments to accomplish the above objectives.<br>• Promote environmental sound local and state comprehensive plans, inclusive of land use plans for preservation of habitats and land tracts.<br><br>1.c. Laws and Permitting Review: evaluate adequacy of existing zoning laws, environmental laws and permitting processes as related to land use and environmental resources.<br><br>• Evaluate existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses).<br>• Promote and/or draft revisions of existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses). This will be accomplished through the development of model ordinances in addition to specific proposed amendments.<br>• Evaluate, promote, and/or draft improved laws for mitigation policies and practices, specifically addressing action to be followed if unanticipated impacts are detected after the fact; mitigation banking should be evaluated as should criteria for monitoring and determining the success of the Project.<br><br>1.d. Developmental Designs and Practices: promote environmentally sound projects and practices.<br><br>• Promote use of existing natural features and native plant species for landscaping and habitat, with special emphasis on use of transportation programs and xeriscaping practices as well as the establishment of wildlife corridors.<br>• Promote and/or draft zoning and environmental laws requiring increased buffer zones, setback requirements, habitat retention, transplantation, xeriscaping practices, and wildlife corridors and requiring reductions in project densities, percent impervious surfaces, use of chemicals, and use of non-native plant species. These objectives will be implemented through the following series of projects: (i) review local comprehensive plans and land use ordinances and recommend appropriate revisions, (ii) prepare model ordinances, and (iii) review District rules pertaining to land use and development practices.<br>• By examining incentives such as tax reductions, or mitigation banking, stimulate redevelopment of existing projects to reduce environmental impacts and improve habitat values.<br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(J) Prohibit non-water dependent uses of submerged lands within the aquatic preserve except in those cases where the Board has determined that the project is overwhelmingly in the public interest and no reasonable alternatives exist. This prohibition shall include floating residential units, as defined in Section 125.0106(6), F.S.<br>(K) Prohibit storage of toxic, radioactive, or other hazardous materials within the aquatic preserve. Any hazardous waste dumps now located within the aquatic preserve should be closed and eliminated.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | FLU | 2-77 | Pol. 2.3.2.1 | Require special approval for projects adjacent to rivers, lakes and streams. |
| | | | | Pol. 2.3.2.2 | Prohibit new development within the floodway of any perennial stream.<br>*[13] It is not clear if silviculture activities are allowed w/i floodway of perennial stream.* |
| | | | | Pol. 2.3.2.3 | Maximize the exclusion of all proposed development from the 25-year floodplain. |
| | | | 2-78 | Pol. 2.3.2.4 | Minimize alteration of any lake or stream by limiting the density credit transferred. |
| | | | 2-89 | Pol. 2.3.6.1 | Limit the extent and impact of land development in the CA and CHHA so as to preserve the high value of coastal resources. |
| | | CM | 4-1 | Pol. 4.1.1.1 | Protection and enhancement of significant vegetative communities which support wildlife in the Coastal Area.<br>*[2] Objectives are unmeasurable and should be re-written so they reflect "A specific, [measurable, intermediate end that is achievable and marks progress toward a goal".* |
| | | | | Pol. 4.1.1.2 | Prohibit alteration of coastal wetland habitat except in instances of proposed water-dependent uses, overriding public interest, deepwater ports or to avoid a taking.<br>*[3] The county should carefully weigh these exceptions. Future activities of this type should be sited in areas that have already been disturbed, especially deepwater port facilities.* |
| | | | 4-2 | Pol. 4.1.1.3 | Require any encroachments into wetlands be mitigated pursuant to the habitat-specific mitigation ratios described and require monitoring of mitigation success.<br>*[3] The county is urged to take a stronger stand on mitigation. It should be upfront and be monitored for the prescribed number of years. Areas used for mitigation should, at the outset of development become conservation sites and property of county to not be further developed.* |
| | | | 4-4 | Pol. 4.1.1.8 | Require 50 ft. buffer zones for post-dev. jurisdictional wetlands on development sites w/i CA contiguous w/ any special waters. |
| | | | 4-5 | Pol. 4.1.1.9 | Review all proposed developments for compatibility w/ and determination of cumulative impacts on adjacent natural resource reservation areas.<br>*[3] Cumulative impacts are extremely difficult to define and measure. A policy statement on a working definition of cumulative impacts is needed to begin measuring how minor impacts combine into major damages. This policy should state that the working definition is subject to updating as newer methods are available to more accurately measure these activities.* |
| | | | 4-8 | Pol. 4.1.2.8 | Require all proposed development adjacent to the TCAP ensure that no significant degradation of water quality, shoreline or estuarine habitat occurs. DNR will review all development applications.<br>*[3] The addition of the removal of sewage effluent at Tropical Isles and the placing of all dwellings on a sewer line rather than on septic tanks.* |

Issue#4: Urbanization/Land Use/Wildlife Habitat [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as saltems, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br><br>(continues) | | CM | 4-11 | Obj. 4.2.1 | Est. land use criteria giving priority to siting and dev. of water-depend. uses w/i the Coastal Area, as compared with other shoreline uses.<br>*[3] Not all water-depend. uses are compatible w/ natural shorelines. These areas should be set aside and ports, industry, marinas, non-water-depend. uses and all the activities in 4.2.1.1 (5) should be prohibited there.*<br>*[2] Objectives are unmeasurable and should be re-written so they reflect "A specific, measurable, intermediate end that is achievable and marks progress toward a goal".* |
| | | | 4-11 | Pol. 4.2.1.1 | Utilize the following priority list in reviewing applications for shoreline uses, so as to provide increased priority for water-dependent uses.<br>*[11] Policy identifies and prioritizes a list of water-dependent uses and the first priority group includes possible incompatible uses (i.e., wildlife and marinas).* |
| | | | 4-14 | Pol. 4.2.1.6 | Establish minimum construction setback lines for all Coastal Areas which have not been delineated for a Coastal Construction Line by 1993. |
| | | | 4-20 | Obj. 4.3.2 | Limit development density and intensity w/i the CHHA and direct it outside the CHHA. |
| | | | 4-33 | Pol. 4.5.1.5 | Ensure that no development or redevelopment activities adversely affect the TCAP.<br>*[1] A policy that addresses cumulative impacts of dev. and redev. upon water quality and living marine organisms has not been included.* |
| | | CONS | 3-24 | Obj. 3.37 | Protect native wildlife and their habitat from development which would significantly alter their function and character. |
| | | | 3-25 | Pol. 3.3.7.1 | Require the preservation of native habitat during land development activities. |
| | | | 3-31 | Pol. 3.3.7.9 | Permit and encourage the designation of env. sensitive areas as "Conservation Lands" on the Future Land Use Map, as long as this does not constitute a taking w/o compensation.<br>*[6] Though not w/i incorporated Palmetto, the extensive mangroves on Snead Is. and along Terra Ceia Bay should be designated as Conservation on the FLU Map.*<br>*[10] A policy is needed to selectively prohibit the expenditure of public funds for new roads in such areas might be given consideration in order to protect such lands.*<br>*[11] Policy does not identify the process through which a parcel of land is designated as "environmentally sensitive" and should be explicit in listing those env. attributes where such a designation is in the public interest.* |
| | | | 3-32 | Pol. 3.3.7.10 | Encourage the development or preservation of wildlife corridors through IGC and TDRs. |

Issue#4: Urbanization/Land Use/Wildlife Habitat [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br>• Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs. | | TC<br><br>REC&OS | 5-48<br><br>10-15 | Pol. 5.2.4.3<br><br>Pol. 10.3.1.1 | Locate rights-of-way and improvements to reduce impacts on wetlands, rivers, lakes and endangered species.<br>Encourage use of public lands for passive recreation in settings designed to manage the natural resources. Implementation: Coordinate with DNR for use of state funds.<br>Encourage use of public lands for passive recreation in settings designed to manage the natural resources. Implementation: Coordinate with DNR for use of state funds. |

Issue#5: Agricultural Activities and Effects on Water Quality and Living Resources [AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>1.d. Agricultural Stormwater Management<br><br>• Develop soil and water conservation plans employing Best Management Practices for agricultural, aquacultural, and silvicultural operations in the Tampa Bay watershed. Priority sub-basins will be identified by the District; conservation plans will be developed for landowners in priority sub-basins by the Soil Conservation Service with assistance from the district and local soil and water conservation districts.<br>• Ensure compliance with approved conservation plans through establishment of new positions within the district with responsibility for compliance monitoring and enforcement.<br>• Reduce the levels of nutrients and other contaminants in agricultural stormwater discharges by requiring if feasible, that the quality of stormwater discharges be no worse than the state water quality criteria or the existing quality of the receiving water body, whichever is better. The feasibility of implementing this objective will be examined through a review of federal, state, District, and local rules pertaining to storm water management.<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE AND PROGRAMS**<br><br>**INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.a. Encourage Appropriate Land Use: at the local, state, and federal level, encourage appropriate development or agricultural use of land bordering the bay and its tributaries.<br><br>• Promote limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights. Appropriate policies and regulations will be developed by the District for consideration by local governments through the review of comprehensive plans and through preparation of model ordinances.<br>• Promote designations of increased buffer zones, setback requirements, wildlife corridors, and conservation easements reviewing local governments comprehensive plans and ordinances, and recommending appropriate amendments to accomplish the above objectives.<br>• Promote environmental sound local and state comprehensive plans, inclusive of land use plans for preservation of habitats and land tracts. | (T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CM | 4-8 | Pol. 4.1.2.10 | Require all agricultural activities contiguous to, or that have runoff discharging to, the TCAP and Sarasota Bay OFW to implement a program of BMPs by 1995.<br>*[13] Where agricultural uses include silviculture, the Division of Forestry should be the primary agency concerning forest mgmt. plan review and implementing of BMPs.* |

Issue#6: Mosquito Control Activities and Effects on Water Quality and Living Resources [AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| | (L) Prohibit mosquito control practices within the aquatic preserve that require habitat modification or manipulation (i.e., diking, ditching) unless there are no reasonable alternatives and failure to conduct such practices would result in a threat to public health.<br>(M) Limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency (USEPA) for wetland and aquatic application. | | | | |

Issue#7: Destruction/decline of Seagrasses

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br><br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(J) Prohibit non-water dependent uses of submerged lands within the aquatic preserve except in those cases where the Board has determined that the project is overwhelmingly in the public interest and no reasonable alternatives exist. This prohibition shall include floating residential units, as defined in Section 125.0106(6), F.S.<br>(M) Limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency (USEPA) for wetland and aquatic application.<br>(N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries. | CM | 4-1<br><br><br><br><br><br><br><br><br><br>4-5 | Pol. 4.1.1.1<br><br><br><br><br><br><br><br><br><br>Pol. 4.1.1.10<br><br>Pol. 4.1.1.11 | Prohibit non-water dependent development in submerged areas containing significant seagrass.<br>*[3] The words "significant" and "adversely effect" need to be defined. "Significant" should be defined both on a local (Manatee Co.) and a regional (Tampa Bay) basis.*<br>*[2] Objectives are unmeasurable and should be re-written so they reflect "A specific, measurable, intermediate end that is achievable and marks progress toward a goal".*<br>Designate all significant seagrass habitat as idle-speed zones.<br>Prohibit the location of new boat ramps in areas of significant seagrass flats. |

Issue#7: Destruction/decline of Seagrasses

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br>• Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat.<br><br>1.d. Sediment Stabilization: address sedimentological problems of the Tampa Bay system.<br><br>• Reduce turbidity via programs 1.a-c coupled with alternative technologies (e.g., dredging).<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE 3**<br>**Reduce incidental destruction of environmentally sensitive areas.**<br><br>3.a. Signs and Markers: Distribution of visual and educational aids throughout the bay.<br><br>• Provide marking of small boat channels in problematic or environmentally sensitive areas (e.g., seagrass beds, oyster reefs, etc.).<br>• Provide educational signs concerning environmentally sensitive areas; signs to be placed at boat ramps, public beaches, nature preserves, public parks, valuable habitats such as seagrass beds, algae beds, oyster reefs, artificial reefs, restoration Projects, and areas frequented or inhabited by protected species (e.g., osprey, eagles, dolphins, sea turtles, manatees, etc.). | | | | | |

## Issue#8: Dredging and Disposal of Dredge Materials [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat.<br><br>1.e. Marinas: evaluate environmental impacts of marinas within Tampa Bay and its tributaries.<br><br>• Evaluate environmental impacts of existing marinas, including impacts on manatees and other protected species.<br>• Develop a marina siting plan.<br>• Evaluate and promote improved marina designs and facilities, specifically addressing problems of fuel storage, sewage, bilge pumping, solid waste, dredging, and related problems. | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries.<br>(O) Prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve.<br>(Q) Manage spoil islands within the aquatic preserve as bird rookeries and wildlife habitat areas.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.<br>(W) Prohibit Marinas and associated construction activities in Resource Protection Areas 1 and 2. | CM | 4-7<br><br><br><br><br><br><br>4-7<br><br>4-12<br><br><br><br><br>Pol. 4.2.1.3 | Pol. 4.1.2.5<br><br><br><br><br><br><br>Pol. 4.1.2.6<br><br>Pol. 4.2.1.2<br><br><br><br><br><br>Pol. 4.2.1.3 | Restrict D&F operations within the coastal area to operations which facilitate the continuing use of existing channels, water-dependent uses, or to correct environmental problems caused by limited tidal circulation or other deficiencies.<br>Limit construction of artificial waterways to necessary drainage improvements required to implement the goals of the Public Facilities Element.<br>Prohibit dredging and filling of submerged lands, except for uses classified and prioritized in Policy 4.2.1.1 as water dependent. All D&F applications w/i or adjacent to the TCAP shall be submitted to DNR for comments which will be considered by Manatee County during project review.<br>Require the management of developments that require D&F to prevent further degradation of adjacent waters and to insure placement of spoil on suitable upland areas. |

Issue#9: Wetlands [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br><br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CONS | 3-12 | Pol. 3.3.1.1 | Prohibit removal of native vegetation within 50 ft. of wetlands contiguous to AP/OFW.<br>Pol. 3.3.1.2 Prohibit removal of native vegetation within 30 ft. of wetlands not listed in Policy 3.3.1.1<br>Pol. 3.3.1.3 Encourage use of bio. treatment w/i man-made stormwater detention ponds and permit the use of isolated wetlands for stormwater treatment in dev. that discharges into OFW/SHA.<br>*[3] Future man-made stormwater detention facilities should be designated so that runoff will not be discharged directly into OFW or SHAs. Existing facilities should retrofitted as they come in for re-permitting and/or for maintenance permits.*<br>3-21 Pol. 3.3.6.2 Prohibit D&F activities w/i wetlands unless consistent w/ Pols. 4.1.2.5 and 4.1.2.6 and unless adequate mitigation of any adverse alterations and approp. justification made.<br>*[3] Section 18-20.004(1)(e-d), F.A.C. limit D&F activities in aquatic preserves. A policy statement should be included to reflect these limitations. "Adequate mitigation" and "appropriate justification" need to be defined so they are legally defensible.*<br>*[11] Policy does not contain adequate criteria to protect or mitigate the loss of a wetland's wildlife values. Any mitigation proposal should also be evaluated for its replacement of lost wildlife utilization.*<br>3-22 Pol. 3.3.6.4 Establish buffer zones or setbacks around post-dev. wetlands (natural & mitigated) pursuant to the restrictions in Policies 3.3.1.1 and 3.3.1.2.<br>*[3] The terms "all wetland mitigation" should be "all previous and future wetland mitigation sites". The implementation mechanism should then closely define these areas and should set forth a plan to map all wetland mitigation activities and their setbacks so that a monitoring program can be implemented by the county or a state agency.*<br>3-23 Pol. 3.3.6.6 Support all efforts to restore man-altered wetland systems within developments.<br>*[3] If possible, the county should provide incentives in dev. activities for setting aside areas for restoration at this time, but restoration activities often stall for lack of good sites.*<br>3-23 Pol. 3.3.6.8 Require that any wetland encroachments be mitigated pursuant to the habitat-specific mitigation ratios described and require monitoring of mitigation success.<br>*[3] A further statement is necessary here to clarify that encroachments into the Aquatic Preserves are not allowed accept when the activity is in the public interest and meets the management policies, standards and criteria set forth in 18-20.004, F.A.C.*<br>*[11] The mitigation criteria should also include a requirement that all created wetlands be of similar plant diversity and composition as the original wetland being mitigated, ensuring that the wetland's wildlife values shall be replaced.*<br><br>(continues) | | | | |

Issue#9: Wetlands [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| • Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br>• Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat. | | CM | 4-1 | Obj. 4.1.1 | Protection and enhancement of significant vegetative communities which support wildlife in the Coastal Area.<br>*[2]Objectives are unmeasurable and should be re-written so they reflect "A specific, [measurable, intermediate end that is achievable and marks progress toward a goal".* |
| | | | | Pol. 4.1.1.2 | Prohibit alteration of coastal wetland habitat except in instances of proposed water-dependent uses, overriding public interest, deepwater ports or to avoid a taking.<br>*[3] The county should carefully weigh these exceptions. Future activities of this type should be sited in areas that have already been disturbed, especially deepwater port facilities.* |
| | | | 4-2 | Pol. 4.1.1.3 | Require any encroachments into wetlands be mitigated pursuant to the habitat-specific mitigation ratios described and require monitoring of mitigation success.<br>*[3] The county is urged to take a stronger stand on mitigation. It should be upfront and be monitored for the prescribed number of years. Areas used for mitigation should, at the outset of development become conservation sites and property of county to not be further developed.* |
| | | | 4-4 | Pol. 4.1.1.7 | Permit the transfer of density/intensity credit from wetlands, required buffers and endangered species habitats to upland areas of the same dev. site in the Coastal Area. |
| | | | 4-5 | Pol. 4.1.1.8 | Require 50 ft. buffer zones for post-dev. jurisdictional wetlands on dev. sites w/i CA contiguous w/ any special waters. |
| | | | 4-6 | Pol. 4.1.2.1 | Permit utilization of isolated wetlands w/i the Coastal Area as a part of an approved stormwater management plan to limit offsite discharge into coastal waters. |

Issue#10: Development and Damming of Creeks and Rivers [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br><br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | | | | |

## Issue#10: Development and Damming of Creeks and Rivers [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat. | | | | | |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| NATURAL SYSTEMS INITIATIVE 1<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br><br>(continues) | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(G) Provide and actively encourage research and educational opportunities for scientists and other interested researchers within the framework of a planned research program in the aquatic preserve.<br>(O) Prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve.<br>(P) Insure that artificial reef construction does not adversely impact environmentally fragile areas within the aquatic preserve and that the construction will maintain the essentially natural condition while enhancing the quality and utility of the preserve.<br>(T) Require, through the efforts of DER and the Southwest Florida Water Management District (SWFWMD), the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.<br>(X) Identify and document any problems caused by fishing, shellfishing, and collecting activities and report them to the Marine Fisheries Commission.<br>(Z) Recognize that successful shellfish culture and harvesting efforts in the aquatic preserve are dependent upon pollution prevention and abatement and careful comprehensive planning. | CM | 4-5 | Obj. 4.1.2 | *[1] An objective to conserve, appropriately use and protect fisheries and marine habitat has not been included.*<br>To improve the water quality of coastal resources such that all DNR shellfish harvesting prohibition areas are upgraded to "Approved" by 1993 and all other Coastal Area waters meet their applicable standards. |
| | | | | Pol. 4.1.2.2 | Prohibit development which requires the issuance of a point source discharge permit in a "prohibited" DNR shellfish harvesting area except in areas where "prohibited shellfish harvesting" is due to the potential for contamination by sewage in areas receiving effluent discharges.<br>*[3] Point sources are monitored for nutrient levels and depending on the quantity and quality and circulation patterns of the are the site may be designated for SH. Also. agri. and open lands which use treated effluent can have a major impact on downstream water quality if stormwater runoff is not handled properly.* |
| | | | | Pol. 4.1.2.3 | Require that land developments w/i the Coastal Area which discharge into "Conditionally Approved" or "Approved" DNR SHA demonstrate water quality non-degradation for all applicable parameters (compliance w/ OFW criteria). |
| | | ME (CM) | 14-13 | Proc. 4.2 (4.1.2) | (b) Coordinate with the DER and DNR to receive water quality status reports, reports on shellfish classification and pollution sources.<br>(c) Evaluate whether or not progress is being made toward achieving "approved" status for currently "prohibited" SHAs. Also evaluate whether non-degradation of special waters is being maintained.<br>(d) If any DNR "prohibited" SHA is not upgraded to "approved" by 1993, reevaluate coastal policies to achieve objective or change objective if not reasonably attainable. Where degradation of coastal waters is occurring, adopt policies and implement programs to obtain compliance. |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of cultch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat.<br><br>1.e. Monitoring and Research: establish monitoring/research studies associated with strategies of programs 1.a-d.<br><br>• Evaluate success of restoration and preservation projects inclusive of projects begun or completed prior to SWIM endeavors through aerial habitat mapping and coordinated ground based studies.<br>• Develop additional databases useful for design and implementation of future projects.<br>• Promote and/or fund research concerning habitat restoration and functionality (e.g., wildlife utilization of submerged and intertidal habitat for gamefish, commercial species, and other wildlife.<br><br>2.a. Optimize Habitats: performance of programs 1.a-e to optimize habitats for use by botanical, invertebrate, and vertebrate populations and communities.<br><br>2.b. Research: promote and/or fund research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem.<br><br>• Address systems ecology questions, inclusive of ecosystem modeling dealing with carbon flow/energy budgets, secondary production, food webs, standing crops, etc. This strategy will commence by defining the framework of a comprehensive ecosystem model and culminate in the application of the model decision-making on bay management issues.<br>• Establish data base concerning a wildlife inventory for subtidal, intertidal and nearby upland communities; inventory should include distribution and abundance of species throughout ecosystem.<br>• Conduct biennial, quantitative aerial mapping of subtidal, intertidal, and nearby upland habitats.<br>• Evaluate existing commercial and sport fishing practices to determine effects, if any, on habitat, population, and/or community structures.<br><br>(continues) | | | | | |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| **NATURAL SYSTEMS INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.a. Optimize Habitats: performance of programs 1.a-e to optimize habitats for use by botanical, invertebrate, and vertebrate populations and communities.<br><br>2.b. Research: promote and/or fund research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem.<br><br>• Address systems ecology questions, inclusive of ecosystem modeling dealing with carbon flow/energy budgets, secondary production, food webs, standing crops, etc. This strategy will commence by defining the framework of a comprehensive ecosystem model and culminate in the application of the model decision-making on bay management issues.<br>• Establish data base concerning a wildlife inventory for subtidal, intertidal and nearby upland communities; inventory should include distribution and abundance of species throughout ecosystem.<br>• Conduct biennial, quantitative aerial mapping of subtidal, intertidal, and nearby upland habitats.<br>• Evaluate existing commercial and sport fishing practices to determine effects, if any, on habitat, population, and/or community structures.<br><br>2.c. Wildlife Management Programs: Promote and/or draft wildlife management programs to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen. Programs must include local, state, and federal legislation and enforcement necessary to accomplish management goals.<br><br>**BAY MANAGEMENT INITIATIVE 2**<br>**Promote the adoption and enforcement of laws and regulation necessary to implement the Natural Systems, Water Quality and Land Use Initiative of the Plan.**<br><br>2.a. Review of Rules and Regulations: Reviews adequacy of rules and regulations of the previously described governmental jurisdictions to carry out the Plan's Programs. This will include a review of the sufficiency of enforcement programs of pertinent regulatory agencies and be inclusive of all applicable fish and wildlife laws.<br><br>(continues) | | | | | |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| 2.b. Commercial and Sport Fishing Regulations.<br><br>• Enhance fishery productivity by developing and implementing biologically defensible fishing regulations, stocking and habitat creation/restoration Projects.<br>• Implement protective regulations and management strategies for fisheries on the decline in Tampa Bay<br>• Improve the enforcement of fishing regulations by consolidating and standardizing all special acts and local laws related to fishing activities.<br><br>2.c. Enforcement: Unify and consolidate all special acts and local laws related to marine resource management and work to ensure adequate funding and staffing levels for increased monitoring and enforcement capabilities for Tampa Bay. | | | | | |

## Issue#12: Replacement of Native Vegetation with Exotic Plants [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species. | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitats, unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(M) Limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency (USEPA) for wetland and aquatic application. | CONS<br><br><br><br><br><br><br><br>CM | 3-25<br><br><br><br><br><br><br><br>3-34<br><br>4-4 | Pol. 3.3.7.1<br><br><br><br><br><br><br><br>Pol. 3.3.10.1<br><br>Pol. 4.1.1.6 | Require preservation of native habitat during development through maint. or planting of native vegetation such that at least 60% of all post-dev. vegetation is indigenous.<br>*[11] Policy provides 2 methods to preserve natural plant communities. The 2nd option does not represent a viable means to preserve the plant communities' habitat values.*<br>Participate in or encourage restoration of natural plant communities on public lands.<br>Remove all exotic plant species from land development sites during construction.<br>*[13] The major undesirable tree species in the county can be extremely difficult to eradicate and will probably require repeat treatments of an herbicide to do so.* |

Issue#13: Shoreline Erosion [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat, unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances. | CM | 4-10 | Pol. 4.1.3.4<br><br>Pol. 4.1.3.5 | Require all public access to be consistent with appropriate environmental regulations and policies.<br>Limit vehicular access to publicly and privately-owned shoreline areas to designated parking areas except for maintenance and natural resource enhancement and restoration. |

Issue#14: Marinas [SWIM]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.e. Marinas: evaluate environmental impacts of marinas within Tampa Bay and its tributaries.<br><br>• Evaluate environmental impacts of existing marinas, including impacts on manatees and other protected species.<br>• Develop a marina siting plan<br>• Evaluate and promote improved marina designs and facilities, specifically addressing problems of fuel storage, sewage, bilge pumping, solid waste, dredging, and related problems. | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(O) Prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve.<br>(R) Encourage public utilization of the aquatic preserve, consistent with the continued maintenance of its natural values and functions.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.<br>(W) Prohibit Marinas and associated construction activities in Resource Protection Areas 1 and 2. | CM | 4-12 | Pol. 4.2.1.4 | Require that any application for the siting of marina-type uses meet listed criteria (e.g., preferably located outside any Aquatic Preserve and any SHA; add'l criteria incl.).<br>*[3] Criteria #1 should read "Shall comply w/ the county manatee protection and marina siting plan developed cooperatively by the county, state and federal agencies." Additionally, this policy should address water circulation, live-aboards, availability of sewage pumpout stations and a prohibition on sitings w/i Aquatic Preserves.* |
| | | | 4-14 | Pol. 4.2.1.5 | Limit densities for single and multi-family dock facility to no more than one slip per 100 ft. of shoreline unless designated for sail boat only and require facilities w/ over 25 slips to have basins and access channels designated the appropriate speed zones.<br>*[3] Add the words "Until a county manatee protection plan and marina siting plan are developed and implemented, limit densities...." . Policy commended. If the county's rules on docking structures are more stringent than 18-20, they will prevail.* |

Issue#15: Construction & Operation of Transportation Facilities [SWIM]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.d. Developmental Designs and Practices: promote environmentally sound projects and practices.<br><br>• Promote use of existing natural features and native plant species for landscaping and habitat, with special emphasis on use of transportation Programs and xeriscaping practices as well as the establishment of wildlife corridors.<br><br>1.f. Transportation Network: evaluate the existing and proposed transportation network around, over and on the bay and its tributaries.<br><br>• Evaluate transportation (inclusive of shipping and boat traffic) and roadway problems as related to environmental impacts to the ecosystem.<br>• Review transportation engineering and promote designs to reduce environmental impacts (e.g., runoff). | (F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve. | TRCI | 5-47 | Obj. 5.2.4 | Ensure that all transportation improvements are conducted in a manner which minimizes adverse impact on important natural resources. |
| | | | | Pol. 5.2.4.1 | Coordinate with DOT to ensure that alignment of any new E-W expressway is located (to the maximum extent possible) outside of WO-M and WO-E overlay districts (watersheds for Lake Manatee and Evers Reservoirs); encourage DOT to consider minimal impact design if county is overridden. |
| | | | 5-48 | Pol. 5.2.4.2 | Require all roadway improvements discharging stormwater into Lake Manatee and Evers Reservoirs or any inflowing watercourse within WO-M and WO-E overlay districts to include stormwater treatment at 50% of treatment criteria required for OFWs. |
| | | | | Pol. 5.2.4.3 | Locate and design transportation improvements to reduce acreage of adversely altered jurisdictional wetlands; minimize direct and indirect impacts on rivers, lakes, streams, endangered and threatened species, and species of special concern. |

## Issue#16: Intergovernmental Coordination and Planning Consistency [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.a. Encourage Appropriate Land Use: at the local, state, and federal level, encourage appropriate development or agricultural use of land bordering the bay and its tributaries.<br><br>• Promote limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights. Appropriate policies and regulations will be developed by the District for consideration by local governments through the review of comprehensive plans and through preparation of model ordinances.<br>• Promote designations of increased buffer zones, setback requirements, wildlife corridors, and conservation easements reviewing local governments comprehensive plans and ordinances, and recommending appropriate amendments to accomplish the above objectives.<br>• Promote environmental sound local and state comprehensive plans, inclusive of land use plans for preservation of habitats and land tracts.<br><br>1.c. Laws and Permitting Review: evaluate adequacy of existing zoning laws, environmental laws and permitting processes as related to land use and environmental resources.<br><br>• Evaluate existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses).<br>• Promote and/or draft revisions of existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses). This will be accomplished through the development of model ordinances in addition to specific proposed amendments.<br>• Evaluate, promote, and/or draft improved laws for mitigation policies and practices, specifically addressing action to be followed if unanticipated impacts are detected after the fact; mitigation banking should be evaluated as should criteria for monitoring and determining the success of the Project. | (S) Develop a well-coordinated aquatic preserve management mechanism that recognizes and utilizes local government programs and authorities.<br>(V) Encourage the assistance of federal, state, and local government agencies in implementing the aquatic preserve management plans, especially in areas of protection of natural and cultural resources and the enforcement of applicable resource laws and ordinances.<br>(Y) Insure that the aquatic preserve management plans are consistent with all other state and local planning processes and completed plans that may impact aquatic preserves. | CONS | 3-22 | Pol. 3.3.6.5 | Cooperate with DER, SWFWMD, DNR and COE to monitor compliance with dredge & fill permitting process.<br>*[3] A monitoring/compliance map should be devised for the county's use in determining if developers are in compliance w/ the stipulations in their permits.* |
| | | CM | 3-31 | Pol. 3.3.7.8 | Participate in intergovernmental activities to conserve and manage vegetation and wildlife. |
| | | | 4-7 | Pol. 4.1.2.4 | The county or approved agent shall review and comment on dredge and fill applications and all other federal, state or regional permit applications. |
| | | PORT | 7-3 | Pol. 7.2.1.2 | Encourage Port Authority to cooperate w/ local, regional and other gov. agencies to insure that all environmental planning activities are coordinated. |
| | | | 7-4 | Obj. 7.3.1 | Operate and expand Port activities in a manner resulting in minimum impact on facilities operated and maintained by other govt. agencies. |
| | | IC | 13-5 | Obj. 13.1.5 | Require consistency between this comp. plan and the plans of other units of local and state gov't. |
| | | | | Pol. 13.1.5.1 (9) Incl. Matrix | Establish coordinating mechanisms with other local and regional planning entities to ensure their activities are consistent with the comp. plan. Mechanism: Coordinate to obtain DNR reviews to assess and address potential natural resource impacts of proposed dev. when located adjacent to the TCAP.<br>*[1] Analysis of specific problems and needs w/i each element would benefit from improved or additional IGC and the means for resolving those problems and needs have not been included.*<br>*[8] Policy discusses IGC w/ several local and regional entities but does not mention the SWFWMD. The SWIM program should be an area of substantial coordination. (A list of other specific mechanisms for IGC is presented here.)* |
| | | | 13-11 | Pol. 13.1.6.1 | Establish procedures for review of development proposals to identify effects on comprehensive plans of adjacent municipalities and counties. |
| | | | 13-11 | Pol. 13.1.6.2 | Identify specific procedure for advising adjacent local gov'ts and appropriate state agencies of proposed developments impacting their area of jurisdiction, and provide for their review and comment on same. |
| | | | 13-12 | Obj. 13.1.8 | Avoid inconsistency between the comp. plan, regional CRPP, state comprehensive plan.<br>*[1] Analysis of specific problems and needs w/i each element would benefit from improved or additional IGC and the means for resolving those problems and needs have not been included.* |
| | | | 13-13 | Pol. 13.1.9.3 | Coordinate where necessary with other local governments o improve the management of Tampa Bay, Terra Ceia Bay, Braden River and Manatee River.<br>*[1] A policy that addresses the consistent and coordinated mgmt. of certain bays, estuaries and harbors that fall under the jurisdiction of more than one local government has not been included.*<br><br>(continues) |

Issue#16: Intergovernmental Coordination and Planning Consistency [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| | | ME (CM) | 14-13 | Proc. 4.3 (4.1.2.9) | b) Coordinate annually with the Manatee River Soil and Water Conservation District to determine progress in developing and implementing conservation plans w/i the Coastal Area. Maintain estimates of the number of agricultural operations adopting such plans.<br>(c) Evaluate whether or not progress in policy compliance is acceptable.<br>(d) If progress not acceptable, revisit timing on objective or revisit reliance on approach to WQ non-degradation that is dependent on voluntary development of conservation plans. |
| | | ME (IC) | 14-31 | Proc. 13.1 (13.1) | (b) Continuously monitor effectiveness of IGC mechanisms.<br>(c) Evaluate effectiveness of informal (voluntary) mechanisms and formal (mandatory) procedures and interlocal agreements.<br>(d) Consider other procedures and policies where mechanisms aren't achieving purpose. |

Issue#17: Enforcement of Laws and Regulations [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br><br>**INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.c. Wildlife Management Programs: Promote and/or draft wildlife management programs to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen. Programs must include local, state, and federal legislation and enforcement necessary to accomplish management goals.<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.b. Enforcement: promote enforcement of existing zoning laws, environmental laws and permit stipulations inclusive of compliance monitoring<br><br>• Promote additional funding and staffing (inclusive of legal staff) for enforcement and compliance monitoring by offering funding incentives for qualifying local governmental environmental protection programs.<br>• Promote fines or penalties commensurate with the infraction.<br><br>**BAY MANAGEMENT INITIATIVE 2**<br>**Promote the adoption and enforcement of laws and regulation necessary to implement the Natural Systems, Water Quality and Land Use Initiative of the Plan.**<br><br>2.a. Review of Rules and Regulations: Reviews adequacy of rules and regulations of the previously described governmental jurisdictions to carry out the Plan's Programs. This will include a review of the sufficiency of enforcement programs of pertinent regulatory agencies and be inclusive of all applicable fish and wildlife laws.<br><br>(continues) | (S) Develop a well-coordinated aquatic preserve management mechanism that recognizes and utilizes local government programs and authorities.<br>(V) Encourage the assistance of federal, state, and local government agencies in implementing the aquatic preserve management plans, especially in areas of protection of natural and cultural resources and the enforcement of applicable resource laws and ordinances. | | | | |

Issue#17: Enforcement of Laws and Regulations [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| 2.b. Commercial and Sport Fishing Regulations.<br><br>• Enhance fishery productivity by developing and implementing biologically defensible fishing regulations, stocking and habitat creation/restoration Projects.<br>• Implement protective regulations and management strategies for fisheries on the decline in Tampa Bay<br>• Improve the enforcement of fishing regulations by consolidating and standardizing all special acts and local laws related to fishing activities.<br><br>2.c. Enforcement: Unify and consolidate all special acts and local laws related to marine resource management and work to ensure adequate funding and staffing levels for increased monitoring and enforcement capabilities for Tampa Bay.<br><br>2.d. State Legislation: Work to ensure that the necessary state legislation and agency rules are in place to carry out the Plan. | | | | | |

Issue#18: Ports

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| | (N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries. | CM | 4-35 | Obj. 4.7.2 | Maintenance of the port and appropriate expansion of Port Manatee, in a manner consistent with this comp. plan and with the Port Master Plan. |
| | | | | | *[2] The Port element is a continuation of outdated plans and programs which (a) disregard the env. protection and restoration needs of Tampa Bay in favor of development, (b) will result in the continued incremental loss of valuable estuarine resources, (c) are not consistent w/ the CM and CONS elements, (d) does not meet the requirements of Chapter 9J-5 regarding protection of natural resources, and (e) appear to be inconsistent w/ initiatives and strategies in the Tampa Bay SWIM Plan. Specifically, port expansion plans would result in loss of approx. 100 acres of shoreline and bottom; objectives in element are ambiguous; policies are not clear and are based on encouraging Man. Co. Port Auth.—county is Port Auth.; GOPs of element are not derived from facilities data & analysis.* |
| | | PORT | 7-2 | Obj. 7.2.1 | Minimize environmental impact caused by Port operations, tenants, or expansion. |
| | | | | Pol. 7.1.3.1 | Investigate environmental aspects of acquiring additional shore frontage and adjacent land. |
| | | | | Obj. 7.2.2 | Protect & support existing & restored natural habitat. |
| | | | 7-3 | Pol. 7.2.1.2 | Cooperate w/ local, regional, and other gov't agencies to ensure all environmental planning activities are coordinated. |
| | | | | Pol. 7.2.1.4 | Establish the Environmental Director to insure safe storage and transportation of hazardous materials. |
| | | | 7-4 | Pol. 7.2.2.1 | Adopt a plan to manage Port facilities in a manner that will protect natural habitat. |
| | | | | Pol. 7.2.2.2 | Maintain a current inventory of unique habitats near the Port that could be affected by Port activities. |
| | | | | Pol. 7.2.2.3 | Encourage contracts and MOUs between the Port and state agencies for R/M projects. |
| | | | | Pol. 7.2.2.4 | Remain active in the Little Redfish Creek rehabilitation project. |
| | | | | Pol. 7.2.2.5 | Adopt an overall environmental plan and include clear GOPs. |
| | | ME (PORT) | 14-20 | Proc. 7.1 (7.1.3.1) | (b) Monitor, after adoption of LDRs, development at the Port each year.<br>(c) Determine, evaluate and refine technical requirements of regulations related to Port physical development requirements.<br>(d) Where regulations are not achieving development requirements, consider amendments to LDRs. |
| | | | 14-21 | Proc. 7.3 (7.2.1.2) (see IGC-Bay Mgmt.) | (b) Review environmental aspects of proposed Port development and determine impacts.<br>(c) Evaluate impact of Port facilities development in light of conservation, coastal mgmt. and future land use policies of the comprehensive plan.<br>(d) Determine if policies of comprehensive plan are being implemented. |

Issue#19: Identification of Areas, Land Use, Etc.

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.e. Monitoring and Research: establish monitoring/research studies associated with strategies of programs 1.a-d.<br><br>• Evaluate success of restoration and preservation projects inclusive of projects begun or completed prior to SWIM endeavors through aerial habitat mapping and coordinated ground based studies.<br>• Develop additional databases useful for design and implementation of future projects.<br><br>**INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.** | (C) Develop a resource inventory and map natural habitat types within the aquatic preserve, with an emphasis on those habitat types utilized by threatened and/or endangered species. | CM | 4-3 | Pol. 4.1.1.4 | Require land dev. w/i the Coastal Area to identify and preserve representative tracts of native upland communities before development begins.<br>*[3] The term "representative tracts" needs to be defined. The term " considered" needs to be defined in a policy statement so that decisions are consistent from project to project and not subject to legal review.*<br>*[11] Data reflecting the location, status, distribution, and occurrence of state and federally listed wildlife species or of unique upland communities are not included in the plan.*<br>*[11] No information on the extent and character of the coastal zone vegetation and wildlife communities is provided.*<br>*[11] Policies are not adequate for the protection of listed wildlife and their habitats w/i the Coastal Zone overlay, since no preservation uses are identified, rather the plan has given preference to water-dependent uses, with a wide spectrum of possible environmental impacts.* |
| 2.b. Research: promote and/or fund research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem.<br><br>• Establish data base concerning a wildlife inventory for subtidal, intertidal and nearby upland communities; inventory should include distribution and abundance of species throughout ecosystem.<br>• Conduct biennial, quantitative aerial mapping of subtidal, intertidal, and nearby upland habitats. | | CONS | 3-25 | Pol. 3.3.7.2 | Require the evaluation and proper management of endangered and threatened species through site review of proposed developments.<br>*[11] Within the implementation mechanism, the listed approaches will not be sufficient unless the following are incorporated.* |

Issue#20: Threatened and Endangered Species; Manatee Protection; Hazardous Waste Disposal; Boundary Expansion and Other Acquisitions

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br><br>**NATURAL SYSTEMS INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.c. Wildlife Management Programs: Promote and/or draft wildlife management programs to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen. Programs must include local, state, and federal legislation and enforcement necessary to accomplish management goals.<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.e. Marinas: evaluate environmental impacts of marinas within Tampa Bay and its tributaries.<br><br>• Evaluate environmental impacts of existing marinas, including impacts on manatees and other protected species.<br><br>(continues) | (H) Acquire, where feasible, privately owned submerged lands and adjacent lands and islands located within the boundaries of the aquatic preserve pursuant to the authorities contained in Section 253 .02(4), F.S. Of greatest interest are the barrier islands that are located along the coastline and the low lying areas of Terra Ceia Island adjacent to Bishop Harbor and Frog Creek.<br>(K) Prohibit storage of toxic, radioactive, or other hazardous materials within the aquatic preserve. Any hazardous waste dumps now located within the aquatic preserve should be closed and eliminated.<br>(Q) Manage spoil islands within the aquatic preserve as bird rookeries and wildlife habitat areas.<br>(U) Apply the management criteria contained in the adopted Terra Ceia Aquatic Preserve Plan to all subsequent legislative additions of land to the Aquatic Preserve. | CONS | 3-25 | Pol. 3.3.7.2 | Require the evaluation and proper management of endangered and threatened species through site review of proposed developments.<br>*[11] Within the implementation mechanism, the listed approaches will not be sufficient unless the following are incorporated.* |
| | | | 3-29 | Pol. 3.3.7.4 | Protect the Manatee by requiring all development w/i its range to adhere to DNR guidelines.<br>*[3] For long range protection, a county manatee protection plan and marina siting element is needed which will expand on these criteria.*<br>*[3] Include a lighting ordinance on beaches where there are sea turtle nesting attempts.* |
| | | | 3-30 | Pol. 3.3.7.5 | Designate areas cited in Section 370.12(2)(f)12, F.S., as slow speed zones based upon heavy boat and manatee concentrations.<br>*[3] Needs to be modified to read " Manatee county and DNR shall designate the areas cited in Section 370.12(2)(f)12, F.S. and other areas as appropriate as caution manatee or slow speed zones based on heavy boat and manatee concentrations."* |
| | | | 3-31 | Pol. 3.3.7.9 | Permit and encourage the designation of env. sensitive areas as "Conservation Lands" on the Future Land Use Map, as long as this does not constitute a taking w/o compensation.<br>*[6] Though not w/i incorporated Palmetto, the extensive mangroves on Snead Is. and along Terra Ceia Bay should be designated as Conservation on the FLU Map.*<br>*[10] A policy is needed to selectively prohibit the expenditure of public funds for new roads in such areas might be given consideration in order to protect such lands.*<br>*[11] Policy does not identify the process through which a parcel of land is designated as "environmentally sensitive" and should be explicit in listing those env. attributes where such a designation is in the public interest.* |
| | | | 3-32 | Obj. 3.3.8 | Proper management and disposal of all hazardous materials as required by state law. |
| | | | | Pol. 3.3.8.1 | Develop & implement a hazardous materials management plan. |
| | | | | Pol. 3.3.8.2 | Provide for the safe elimination of abandoned dump sites. |
| | | CM | 4-5 | Pol. 4.1.1.7 | Permit the transfer of density/intensity credit from wetlands, required buffers and endangered species habitats to upland areas of the same dev. site in the Coastal Area. |

Issue#20: Threatened and Endangered Species; Manatee Protection; Hazardous Waste Disposal; Boundary Expansion and Other Acquisitions

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | Manatee County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and non-point source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>1.g. Hazardous Waste Disposal and management<br><br>• Implement the requirements of the water Quality Assurance Act for a comprehensive statewide hazardous waste management program including the location of temporary storage/transfer facilities for hazardous wastes.<br>• Provide needed surface water, groundwater and leachate characterization in and adjacent to potentially dangerous dump sites for application in state and local regulatory responsibilities.<br>• Initiate eventual rehabilitation of dump sites through restorative actions. | | | | | |

# Appendix 5

## Issue Matrices: City of Palmetto Comprehensive Plan

Issue#1: Point Source Water Pollution [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description[1]** |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>PROGRAMS<br>1.a. Reduction of Domestic and Industrial Pollutant Discharge<br><br>STRATEGIES<br>• Achieve a thorough understanding of the quality and composition of domestic and industrial effluents being discharged into Tampa Bay through the previously described water quality assessment program.<br>• Minimize and/or eliminate pollutant loadings from domestic and industrial wastewater discharged into Tampa Bay through alternative re-use and disposal options and other effective options as determined through the previously described water quality assessment program.<br>• Establish legally enforceable, resource based, effluent allocations for domestic and industrial point sources discharges if such allocations are shown to be necessary through the water quality assessment process.<br>• Discourage overcommitment of wastewater treatment and disposal capacities on the part of the bay area local governments by providing the DER's Southwest District Office with a stronger basis for evaluation of discharge permit applications. This will be accomplished through Step 1 of the previously described water quality assessment process.<br>• Encourage greater private interest cost-sharing (impact fees) in the construction of new regional wastewater treatment facilities.<br>• Discourage the construction of wastewater treatment plants which serve specific projects and promote construction of regional plants.<br>• Minimize and/or eliminate pollutant loadings to Tampa Bay and its tributaries from septic tank seepage.<br>• Promote and/or draft new local, state, and federal legislation and rules necessary to reduce domestic and industrial pollutant discharges to acceptable levels as determined through the water quality assessment process.<br><br>1.b. Enforcement of Effluent Discharge Limitations<br><br>• Bring all domestic and industrial point source discharges into compliance with applicable effluent limitations including allocated waste loads by strengthening local government environmental enforcement and compliance monitoring programs through cost-sharing incentives. | (T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CONS | VII-2 | Obj. 1.2 | Ensure no net reduction in surface and subsurface water quality in coastal and inland areas as a result of existing and future development.<br>*[2] Objective lacks a policy addressing untreated agric. runoff.*<br>*[3] Incorporate Ch. 17-25.035(1)(b), F.A.C. treatment criteria, and wording guaranteeing no reduction in strength of policy if state regs. weadened in future.* |
| | | | VII-3 | Pol. 1.2.3 | All future urban development shall be served by the City's WWT system to prevent environmental degradation of surface waters, marine & aquatic resources, and underlying groundwater resources. |
| | | | | Pol. 1.2.7 | Implement programs to develop water reclamation and/or reuse alternatives for wastewater effluent and stormwater by 1993. |
| | | CM | VII-11 | Obj. 1.7 | Ensure that no new point sources shall be permitted to discharge directly into the Manatee River or Terra Ceia Bay during horizon of plan.<br>*[2] Expand objective to include nonpoint source pollution & correction of existing discharges causing pollution (e.g., WWT discharge, septic tank usage, & stormwater runoff). Include nonpoint source management policies under this objective.*<br>*[3] Does not address AP.* |
| | | | | Pol. 1.7.2 | Implement upon adoption of comprehensive plan the Terra Ceia Aquatic Preserve Management Plan to measurably improve water quality and increase productivity of commercially important fisheries and other aquatic resources.<br>*[3] Does this include adoption of regulatory wording w/i Ch. 18-20, F.A.C.?* |
| | | | | Pol. 1.7.3 | Pollution discharges into Terra Ceia Bay shall be in compliance w/ at least minimum DER Class II WQ stds. |
| | | SNSW | VII-29 | Obj. 1.1 | Provide sanitary sewer service to all areas within City limits. |
| | | | | Pol. 1.1.1 | City's sewage collection, treatment, and disposal system shall meet or exceed applicable local, state, and federal regulations and guidelines. |

[1]NOTES: Agency objections, recommendations, and/or comments are shown in italics and are source-coded: [1] DCA, [2] DER, [3] DNR, [4] HILLSBOROUGH COUNTY, [5] MANATEE COUNTY, [6] CITY OF PALMETTO, [7] TBRPC, [8] SWFWMD, [9] 1000 FRIENDS OF FLORIDA, [10] DOT, [11] FGFWFC, [12] DOS, [13] DACS.

Issue#2: Nonpoint Source Water Pollution [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>1.a. Reduction of Domestic and Industrial Pollutant Discharge<br><br>• Minimize and/or eliminate pollutant loadings to Tampa Bay and its tributaries from septic tank seepage.<br><br>1.c. Urban Stormwater Management<br><br>• Reduce the levels of nutrients and other contaminants in urban stormwater runoff by requiring if feasible, that the quality of stormwater discharges be no worse than the state water quality criteria or the existing quality of the receiving water body, whichever is better. The feasibility of implementing this objective will be examined through a review of federal, state, District, and local rules pertaining to storm water management.<br>• Minimize the quantities of nonpoint source pollutants entering Tampa Bay through selection of high priority urban stormwater system retrofit projects and providing cost-sharing incentives to local governments for project implementation.<br>• For all new upland development or redevelopment within the Tampa Bay watershed, runoff rates should not exceed those of natural, undisturbed conditions. The feasibility of implementing this objective will be examined through a review of federal, state, district, and local rules pertaining to stormwater management.<br>• Conduct a multi-year public awareness campaign regarding the causes of nonpoint source pollution and actions the public can take to reduce nonpoint source pollution.<br><br>1.h. Control of Seepage Waste<br><br>• Determine the degree to which Tampa Bay is being burdened by illegal disposal of septage waste through the previously described water quality assessment program.<br>• Eliminating existing health hazards due to seepage of septage waste into the bay and its tributaries.<br>• Ensure the proper regulation and disposal of septage waste. | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CONS | VII-2 | Obj. 1.2 | Ensure no net reduction in surface and subsurface water quality in coastal and inland areas as a result of existing and future development.<br>*[2] Objective lacks a policy addressing untreated agric. runoff.*<br>*[3] Incorporate Ch. 17-25.035(1)(b), F.A.C. treatment criteria, and wording guaranteeing no reduction in strength of policy.* |
| | | | | Pol. 1.2.1 | Drainage systems in all new development or redevelopment shall be designed to collect and treat stormwater to minimize pollution loadings to receiving water bodies consistent w/ adopted LOSs. All new development will be required to comply w/ most recent stormwater requirements of SWFWMD. |
| | | | | Pol. 1.2.2 | Assess by 1993 the economic feasibility/cost benefit of retrofitting existing stormwater management facilities to provide treatment and removal of pollutants prior to discharge into receiving waterbodies.<br>*[8] City should coordinate w/ WMD's SWIM program, and sooner than 1993.* |
| | | | VII-3 | Pol. 1.2.4 | Septic tank use shall be restricted to areas in which their efficient use can be determined w/o environmental degradation of water resources or threat to public health.<br>*[1] Specify how septic tanks shall be limited.*<br>*[8] Inconsistent w/ Pol. 1.2.3, CONS element. Consider requiring all new development to connect to City WWT system, & phase out septic tanks.* |
| | | | | Pol. 1.2.6 | Review development regulations by 1991 to encourage use of innovative development practices minimizing negative water quality impacts. |
| | | | | Pol. 1.2.7 | Implement programs to develop water reclamation and/or reuse alternatives for wastewater effluent and stormwater by 1993. |
| | | | | Pol. 1.2.9 | Discourage hardening, channelizing, or structural modification of natural drainageways |
| | | | VII-4 | Pol. 1.2.10 | Preserve natural landscape barriers to flooding and stormwater as a requirement to obtain a DO. |
| | | CM | VII-11 | Pol. 1.7.2 | Implement upon adoption of comprehensive plan the Terra Ceia Aquatic Preserve Management Plan to measurably improve water quality and increase productivity of commercially important fisheries and other aquatic resources.<br>*[3] Does this include adoption of regulatory wording w/i Ch. 18-20, F.A.C.?* |
| | | | | Pol. 1.7.3 | Pollution discharges into Terra Ceia Bay shall be in compliance w/ at least minimum DER Class II WQ stds. |
| | | DRNG | VII-35 | Obj. 1.1 | Adopt a stormwater management plan by 1993 to ensure adequate drainage facilities are available commensurate w/ future development. |
| | | | | Pol. 1.1.2 | Review existing drainage regulations by 12/89 as well as those of other jurisdictional agencies and implement appropriate interim drainage regulations pending completion of stormwater management plan. |
| | | | | Pol. 1.1.5 | City Public Works Dept. shall coordinate its stormwater management activities w/ other gov't agencies to ensure optimal protection of human life & property.<br>*[8] Make policy more specific re: coordination.* |

(continues)

Issue#2: Nonpoint Source Water Pollution [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| | | DRNG | VII-36 | Pol. 1.1.8 | City shall not permit development that will have irreversible adverse impact on storage capabilities, increase flood prone areas, significantly increase rates of runoff or cause unfavorable drainage conditions (except in cases of overriding public interest). |
| | | | | Pol. 1.1.9 | Pollution control structures and techniques shall be required during, and, if necessary, after construction activities to prevent water pollution from erosion and siltation. *[1] Specify how structures will be required.* |
| | | | VII-37 | Obj. 1.3 | City shall coordinate w/ DER, SWFWMD, and Manatee Co. Utilities Dept. toward identification and resolution of City's long-range drainage problems. |
| | | FLU | VII-42 | Pol. 1.1.4 | New development shall be permitted only when adequate drainage & stormwater mgmt., open space, & traffic flow & parking are provided. |
| | | | VII-46 | Pol. 1.9.1 | Adopt & enforce LDRs containing specific & detailed provisions necessary or desirable to implement this plan [selected]: (c) regulate areas subject to seasonal & periodic flooding & and provide for drainage & stormwater management. (d) ensure protection of environmentally sensitive land designated in the comprehensive plan. |
| | | CPIM | VII-51 | Pol. 1.1.2 | Those projects needed to correct existing deficiencies in meeting adopted LOS stds. shall receive highest priority in scheduling & funding. Priorities shall be based on [selected]: —whether project furthers objectives and facilitates state or WMD plans for providing public facilities within the City. |

Issue#3: Phosphate Processing Operations [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| WATER QUALITY INITIATIVE 1<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>1.f Management of Toxic Pollutants<br><br>• Gypsum fields and other toxic waste sources should be managed in such a manner so as to preclude all future adverse environmental impacts on Tampa Bay.<br>• Previously incurred environmental impacts on Tampa Bay resulting from mismanagement of gypsum fields or other contaminant sources should be readdressed. | (l) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve. | | | | |

Issue#4: Urbanization/Land Use/Wildlife Habitat [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.a. Encourage Appropriate Land Use: at the local, state, and federal level, encourage appropriate development or agricultural use of land bordering the bay and its tributaries.<br><br>• Promote limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights. Appropriate policies and regulations will be developed by the District for consideration by local governments through the review of comprehensive plans and through preparation of model ordinances.<br>• Promote designations of increased buffer zones, setback requirements, wildlife corridors, and conservation easements reviewing local governments comprehensive plans and ordinances, and recommending appropriate amendments to accomplish the above objectives.<br>• Promote environmental sound local and state comprehensive plans, inclusive of land use plans for preservation of habitats and land tracts.<br><br>1.c. Laws and Permitting Review: evaluate adequacy of existing zoning laws, environmental laws and permitting processes as related to land use and environmental resources.<br><br>• Evaluate existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses).<br>• Promote and/or draft revisions of existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses). This will be accomplished through the development of model ordinances in addition to specific proposed amendments.<br>• Evaluate, promote, and/or draft improved laws for mitigation policies and practices, specifically addressing action to be followed if unanticipated impacts are detected after the fact; mitigation banking should be evaluated as should criteria for monitoring and determining the success of the Project.<br><br>1.d. Developmental Designs and Practices: promote environmentally sound projects and practices.<br><br>• Promote use of existing natural features and native plant species for landscaping and habitat, with special emphasis on use of transportation programs and xeriscaping practices as well as the establishment of wildlife corridors.<br>• Promote and/or draft zoning and environmental laws requiring increased buffer zones, setback requirements, habitat retention, transplantation, xeriscaping practices, and wildlife corridors and requiring reductions in project densities, percent impervious surfaces, use of chemicals, and use of non-native plant species. These objectives will be implemented through the following series of projects: (i) review local comprehensive plans and land use ordinances and recommend appropriate revisions, (ii) prepare model ordinances, and (iii) review District rules pertaining to land use and development practices.<br>• By examining incentives such as tax reductions, or mitigation banking, stimulate redevelopment of existing projects to reduce environmental impacts and improve habitat values.<br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(J) Prohibit non-water dependent uses of submerged lands within the aquatic preserve except in those cases where the Board has determined that the project is overwhelmingly in the public interest and no reasonable alternatives exist. This prohibition shall include floating residential units, as defined in Section 125.0106(6), F.S.<br>(K) Prohibit storage of toxic, radioactive, or other hazardous materials within the aquatic preserve. Any hazardous waste dumps now located within the aquatic preserve should be closed and eliminated.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CONS | VII-1 | Obj. 1.1 | Protect and enhance its natural resources by ensuring mitigation of adverse impacts of pollution and restoration of natural systems disrupted by new dev. |
| | | | | Pol. 1.1.1 | Restrict development that will result in net reduction in fish and wildlife habitat for rare, threatened, and endangered species. (Coordinate w/ FWFGC to implement.)<br>*[1] Specify how development will be restricted.*<br>*[2] Use of "net" does not offer adequate protection to habitat. Suitable habitat should be identified & protected from activities that would disturb such areas, except restoration activities.* |
| | | | VII-2 | Pol. 1.1.8 | Enter into an interlocal agreement with Manatee Co. to ensure continuation of cooperation to conserve, use, and or protect unique vegetative communities w/ shared boundaries. |
| | | CM | VII-5 | Obj. 1.1 | Review development regulations by 12/89 to ensure no net reduction in native vegetation, marine grass beds, mangrove forests, coastal marshes, and living marine resources (after mitigation).<br>*[1] Specify what mitigation will be required*<br>*[2] Coastal communities should be mapped and classified as ESAs/Preservation lands, and other protective mechanisms should be utilized as necessary.* |
| | | | | Pol. 1.1.3 | Protect living marine resources from immediate and future degradation resulting from improper development and/or waste disposal practices. Review and correct or revise appropriate codes and ordinances as necessary to ensure no net loss of living marine resources.<br>*[2] Coastal communities should be mapped and classified as ESAs/Preservation lands, and other protective mechanisms should be utilized as necessary.* |
| | | | | Pol. 1.1.6 | Review development regulations by 12/89 to assess feasibility of:<br>—preserving 20% of onsite native vegetation after development<br>—using pilings in place of fill to elevate structures in areas of extensive native vegetation<br>—providing buffer strips to separate developed portions of sites from onsite native vegetation<br>—utilizing maximum amount of native vegetation for landscaping in buffer areas, setbacks, and/or open spaces<br>—establishing mitigation stds. for development in and around ESAs. |
| | | | | Pol. 1.1.7 | Assist in enforcement of federal, state, and federal mitigation policies by withholding building permits until all necessary environmental permits are received. |
| | | | VII-7 | Obj. 1.3 | Establish land use criteria giving priority to siting and development of water-dependent uses in the coastal area.<br>*[3] Objective fails to consider AP. All development upland of the AP should receive highest scrutiny.* |
| | | | | Pol. 1.3.1 | Establishes FLU criteria for water-dependent uses.<br>*[3] Does not consider AP.* |
| | | | VII-8 | Obj. 1.5 | Restrict development activities and public funding for facilities within CHHAs.<br><br>(continues) |

Issue#4: Urbanization/Land Use/Wildlife Habitat [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br><br>(continues) | | CM | VII-9 | Pol. 1.5.2 | Review LDRs by 1991 to ensure at a minimum that State Model Coastal Development Code requirements are met. |
| | | | | Pol. 1.5.5 | Restrict expenditure of public funds for facility development in CHHA unless facility is for public access or resource restoration. |
| | | | VII-11 | Pol. 1.7.2 | Implement upon adoption of comprehensive plan the Terra Ceia Aquatic Preserve Management Plan to measurably improve water quality and increase productivity of commercially important fisheries and other aquatic resources. |
| | | | | Obj. 1.8 | Develop a plan by 1993 to restore or enhance natural resources and habitat value of severely damage, newly formed, or extensively altered coastal areas following disastrous storm events. |
| | | REC&OS | VII-15 | Obj. 2.2 | Expand preservation of ESAs indicated on FLU plan, particularly near Terra Ceia Bay. |
| | | | | Pol. 2.2.1 | Preserve private open space through the use of PDs to conserve ESAs at Terra Ceia Bay and Manatee River. |
| | | | VII-16 | Pol. 2.2.2 | Revise LDRs to specify stds. & requirements for private open space conservation with the objective of preservation of Terra Ceia Bay.<br>*[3] Recommend inclusion of Ch. 18-20 criteria, and a 50' setback along the AP boundary.* |
| | | FLU | VII-42 | Pol. 1.1.1 | Development of ESAs such as wetlands shall be avoided through the use of PUDs which transfer development density from coastal areas to upland areas of the same development.<br>*[2] Identify & map ESAs, including wetlands, floodplains, flood prone areas, endangered species habitat, etc.*<br>*[3] Development w/i environmentally sensitive wetlands should be consistent w/ rules of AP.*<br>*[7] Define "ESAs."* |
| | | | | Pol. 1.1.2 | Residential development w/i low-lying areas shall meet flood insurance stds. of elevation and be limited to densities that permit safe evacuation.<br>*[2] Identify & map 100-yr flood hazard areas for conservation use as part of an overall floodplain mgmt. program.* |
| | | | | Pol. 1.1.4 | New development shall be permitted only when adequate drainage & stormwater mgmt., open space, & traffic flow & parking are provided. |
| | | | VII-44 | Obj. 1.4 | Conserve & protect natural & historic resources from unnecessary. |
| | | | | Pol. 1.4.2 | Protect conservation areas identified on FLU map by enactment of appropriate ordinances or by public acquisition. |
| | | | | Obj. 1.5 | Limit coastal area population densities consistent w/ the need for an effective hurricane evacuation plan. |
| | | | | Pol. 1.5.1 | Conserve & protect coastal areas by restricting development, encouraging use of PD techniques, and encouraging acquisition of public open space for parks & water access.<br>*[1] Policy does not specify how City will encourage acquisition. Specify implementation program or activity.* |
| | | | VII-46 | Obj. 1.9 | Enact land use development regulations consistent w/ & implement this plan.<br><br>(continues) |

Issue#4: Urbanization/Land Use/Wildlife Habitat [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br>• Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs. | | FLU | VII-47 | Pol. 1.9.1<br><br><br><br>Pol. 1.9.3 | Adopt & enforce LDRs containing specific & detailed provisions necessary or desirable to implement this plan [selected]:<br>(d) ensure protection of environmentally sensitive land designated in the comprehensive plan.<br>LDRs shall contain performance stds. which address buffering and open space requirements. |

Issue#5: Agricultural Activities and Effects on Water Quality and Living Resources [AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Reduce point and nonpoint source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>1.d. Agricultural Stormwater Management<br><br>• Develop soil and water conservation plans employing Best Management Practices for agricultural, aquacultural, and silvicultural operations in the Tampa Bay watershed. Priority sub-basins will be identified by the District; conservation plans will be developed for landowners in priority sub-basins by the Soil Conservation Service with assistance from the district and local soil and water conservation districts.<br>• Ensure compliance with approved conservation plans through establishment of new positions within the district with responsibility for compliance monitoring and enforcement.<br>• Reduce the levels of nutrients and other contaminants in agricultural stormwater discharges by requiring if feasible, that the quality of stormwater discharges be no worse than the state water quality criteria or the existing quality of the receiving water body, whichever is better. The feasibility of implementing this objective will be examined through a review of federal, state, District, and local rules pertaining to storm water management.<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE AND PROGRAMS**<br><br>**INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.a. Encourage Appropriate Land Use: at the local, state, and federal level, encourage appropriate development or agricultural use of land bordering the bay and its tributaries.<br><br>• Promote limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights. Appropriate policies and regulations will be developed by the District for consideration by local governments through the review of comprehensive plans and through preparation of model ordinances.<br>• Promote designations of increased buffer zones, setback requirements, wildlife corridors, and conservation easements reviewing local governments comprehensive plans and ordinances, and recommending appropriate amendments to accomplish the above objectives.<br>• Promote environmental sound local and state comprehensive plans, inclusive of land use plans for preservation of habitats and land tracts. | (T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | | | | |

Issue#6: Mosquito Control Activities and Effects on Water Quality and Living Resources [AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| | (L) Prohibit mosquito control practices within the aquatic preserve that require habitat modification or manipulation (i.e., diking, ditching) unless there are no reasonable alternatives and failure to conduct such practices would result in a threat to public health.<br>(M) Limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency (USEPA) for wetland and aquatic application. | | | | |

Issue#7: Destruction/decline of Seagrasses

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br><br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(J) Prohibit non-water dependent uses of submerged lands within the aquatic preserve except in those cases where the Board has determined that the project is overwhelmingly in the public interest and no reasonable alternatives exist. This prohibition shall include floating residential units, as defined in Section 125.0106(6), F.S.<br>(M) Limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency (USEPA) for wetland and aquatic application.<br>(N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries. | CM | VII-5 | Obj. 1.1<br><br>Pol. 1.1.1 | Review development regulations by 12/89 to ensure no net reduction in native vegetation, marine grass beds, mangrove forests, coastal marshes, and living marine resources.<br>*[2] Coastal communities should be mapped and classified as ESAs/Preservation lands, and other protective mechanisms should be utilized as necessary.*<br>Prohibit dredge & fill of marine grass beds except in instances of overriding public interest (mitigation is required).<br>*[1] Specify how mitigation will be required.*<br>*[2] Coastal communities should be mapped and classified as ESAs/Preservation lands, and other protective mechanisms should be utilized as necessary.*<br>*[3] Define "mitigation." Loss of further seagrass beds is not in public interest, as only seagrasses w/i Palmetto are w/i Terra Ceia Aquatic Preserve.* |

Issue#7: Destruction/decline of Seagrasses

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br>• Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat.<br><br>1.d. Sediment Stabilization: address sedimentological problems of the Tampa Bay system.<br><br>• Reduce turbidity via programs 1.a-c coupled with alternative technologies (e.g., dredging).<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE 3**<br>**Reduce incidental destruction of environmentally sensitive areas.**<br><br>3.a. Signs and Markers: Distribution of visual and educational aids throughout the bay.<br><br>• Provide marking of small boat channels in problematic or environmentally sensitive areas (e.g., seagrass beds, oyster reefs, etc.).<br>• Provide educational signs concerning environmentally sensitive areas; signs to be placed at boat ramps, public beaches, nature preserves, public parks, valuable habitats such as seagrass beds, algae beds, oyster reefs, artificial reefs, restoration Projects, and areas frequented or inhabited by protected species (e.g., osprey, eagles, dolphins, sea turtles, manatees, etc.). | | | | | |

Issue#8: Dredging and Disposal of Dredge Materials [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat.<br><br>1.e. Marinas: evaluate environmental impacts of marinas within Tampa Bay and its tributaries.<br><br>• Evaluate environmental impacts of existing marinas, including impacts on manatees and other protected species.<br>• Develop a marina siting plan.<br>• Evaluate and promote improved marina designs and facilities, specifically addressing problems of fuel storage, sewage, bilge pumping, solid waste, dredging, and related problems. | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries.<br>(O) Prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve.<br>(Q) Manage spoil islands within the aquatic preserve as bird rookeries and wildlife habitat areas.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.<br>(W) Prohibit Marinas and associated construction activities in Resource Protection Areas 1 and 2. | CONS | VII-2 | Obj. 1.2 | Ensure no net reduction in surface and subsurface water quality in coastal and inland areas as a result of existing and future development.<br>*[2] Objective lacks a policy addressing untreated agric. runoff.*<br>*[3] Incorporate Ch. 17-25.035(1)(b), F.A.C. treatment criteria, and wording guaranteeing no reduction in strength of policy.* |
| | | | VII-3 | Pol. 1.2.9 | Discourage hardening, channelizing, or structural modification of natural drainageways. |
| | | CM | VII-11 | Pol. 1.7.1 | Prohibit dredging and filling of undisturbed bay bottom except in cases of overriding public interest. Mitigation is required where appropriate.<br>*[1] Specify how mitigation will be required.* |

Issue#9: Wetlands [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br><br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CONS | VII-1 | Obj. 1.1 | Protect and enhance its natural resources by ensuring mitigation of adverse impacts of pollution and restoration of natural systems disrupted by new dev. |
| | | | | Pol. 1.1.2 | Freshwater wet prairies, marshes, and swamps shall be protected from development that would significantly alter their natural character. Mitigation is required where development intrudes. Require all applicable permits to be obtained before issuing DO.<br>*[1] Specify what mitigation shall be required.*<br>*[3] Define mitigation levels.* |
| | | | | Pol. 1.1.3 | Development shall not be permitted to supplant key wetlands unless overriding public interest is determined and mitigation required.<br>*[2] "Key wetlands" should be identified, & mapped w/i ESA category w/ no disturbance allowed.*<br>*[3] Define mitigation levels*<br>*[8] Indicate how "key wetlands" protection differs from that offered in Pol. 1.1.2.* |
| | | | | Pol. 1.1.4 | Areas adjacent to wetlands shall be deemed important buffer areas for wetland management and shall be treated in a manner minimizing adverse environ. impacts on ecologically sensitive wetlands. Require all applicable permits to be obtained before issuing DO.<br>*[2] Buffer areas need to be mapped & classified into conservation or ESA LU category, or protected otherwise.*<br>*[3] Define size of buffer area.* |
| | | | VII-2 | Pol. 1.1.7 | In order to protect wetlands and adjacent areas, DOs shall not be issued until all required permits from applicable agencies have been obtained. |
| | | CM | VII-5 | Obj. 1.1 | Review development regulations by 12/89 to ensure no net reduction in native vegetation, marine grass beds, mangrove forests, coastal marshes, and living marine resources.<br>*[2] Coastal communities should be mapped and classified as ESAs/Preservation lands, and other protective mechanisms should be utilized as necessary.* |
| | | | | Pol. 1.1.2 | Prohibit future development of mangrove forests and coastal marshes unless mitigation is required.<br>*[1] Specify how mitigation will be required.*<br>*[2] Coastal communities should be mapped and classified as ESAs/Preservation lands, and other protective mechanisms should be utilized as necessary.*<br>*[3] Mangrove trimming is not permitted w/i APs unless minimal for riparian access.*<br>*[7] Unavoidable destruction should be mitigated on at least a 1:1 basis.* |
| | | REC&OS | VII-15 | Obj. 2.2. | Expand preservation of ESAs indicated on FLU plan, particularly near Terra Ceia Bay. |
| | | | VII-16 | Pol. 2.2.2 | Revise LDRs to specify stds. & requirements for private open space conservation with the objective of preservation of Terra Ceia Bay. |
| | | | | | (continues) |

Issue#9: Wetlands [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br>• Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch. | | FLU | VII-42 | Pol. 1.1.1 | Development of ESAs such as wetlands shall be avoided through the use of PUDs which transfer development density from coastal areas to upland areas of the same development.<br>*[2] Identify & map ESAs, including wetlands, floodplains, flood prone areas, endangered species habitat, etc.*<br>*[7] Define "ESAs."* |
| 1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands. | | | VII-44 | Pol. 1.4.2 | Protect conservation areas identified on FLU map by enactment of appropriate ordinances or by public acquisition. |
| • Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat. | | | VII-46 | Pol. 1.9.1 | Adopt & enforce LDRs containing specific & detailed provisions necessary or desirable to implement this plan [selected]:<br>(c) regulate areas subject to seasonal & periodic flooding & and provide for drainage & stormwater management.<br>(d) ensure protection of environmentally sensitive land designated in the comprehensive plan. |

Issue#10: Development and Damming of Creeks and Rivers [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br><br>(continues) | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve. Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist. Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve. | CONS | VII-2 | Obj. 1.2 | Ensure no net reduction in surface and subsurface water quality in coastal and inland areas as a result of existing and future development.<br>*[2] Objective lacks a policy addressing untreated agric. runoff.*<br>*[3] Incorporate Ch. 17-25.035(1)(b), F.A.C. treatment criteria, and wording guaranteeing no reduction in strength of policy.* |
| | | | VII-3 | Pol. 1.2.9 | Discourage hardening, channelizing, or structural modification of natural drainageways |
| | | | VII-4 | Pol. 1.2.10 | Preserve natural landscape barriers to flooding and stormwater as a requirement to obtain a DO. |
| | | REC&OS | VII-15 | Pol. 2.2.1 | Preserve private open space through the use of PDs to conserve ESAs at Terra Ceia Bay and Manatee River. |

Issue#10: Development and Damming of Creeks and Rivers [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat. | | | | | |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote more stringent local, state, and federal legislation to protect habitats, stressing consistency among governments. Local government regulations will be emphasized initially through District review and advice on developmental practices permitted by local rules and through preparation of model ordinances.<br>• Promote environmentally sound local, regional, and state comprehensive plans, inclusive of preservation categories. Because of deadlines imposed on local governments by the state, emphasis will be placed on reviewing and advising local governments regarding comprehensive plans.<br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br>• Promote and/or conduct public education programs (i.e., television, radio, newspaper, area magazines, speakers bureaus, public schools, civic groups, homeowners' associations, public/guidebooks and handouts, continuing education courses, etc.); efforts designed to teach people the importance of leaving habitats intact.<br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br>• Strategically place channel markers and educational signs for the public and boaters.<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Expand habitats such as salterns, mud flats, seagrass beds, salt marshes, mangrove forests, and uplands as well as some components of spoil islands by selecting high priority projects and funding cost-effective augmentation designs.<br>• Use appropriate native plants to supplement habitats offered by spoil islands as well as those of subtidal, intertidal, riverine, and adjacent upland areas.<br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species.<br><br>(continues) | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist. Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(G) Provide and actively encourage research and educational opportunities for scientists and other interested researchers within the framework of a planned research program in the aquatic preserve.<br>(O) Prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve.<br>(P) Insure that artificial reef construction does not adversely impact environmentally fragile areas within the aquatic preserve and that the construction will maintain the essentially natural condition while enhancing the quality and utility of the preserve.<br>(T) Require, through the efforts of DER and the Southwest Florida Water Management District (SWFWMD), the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.<br>(X) Identify and document any problems caused by fishing, shellfishing, and collecting activities and report them to the Marine Fisheries Commission.<br>(Z) Recognize that successful shellfish culture and harvesting efforts in the aquatic preserve are dependent upon pollution prevention and abatement and careful comprehensive planning. | CM | VII-5 | Obj. 1.1 | Review development regulations by 12/89 to ensure no net reduction in native vegetation, marine grass beds, mangrove forests, coastal marshes, and living marine resources.<br>*[2] Coastal communities should be mapped and classified as ESAs/Preservation lands, and other protective mechanisms should be utilized as necessary.* |
| | | | | Pol. 1.1.3 | Protect living marine resources from immediate and future degradation resulting from improper development and/or waste disposal practices. Review and correct or revise appropriate codes and ordinances as necessary to ensure no net loss of living marine resources.<br>*[2] Coastal communities should be mapped and classified as ESAs/Preservation lands, and other protective mechanisms should be utilized as necessary.* |
| | | | VII-11 | Pol. 1.7.2 | Implement upon adoption of comprehensive plan the Terra Ceia Aquatic Preserve Management Plan to measurably improve water quality and increase productivity of commercially important fisheries and other aquatic resources.<br>*[3] Does this include adoption of regulatory wording w/i Ch. 18-20, F.A.C.?* |
| | | | | Pol. 1.7.4 | DNR approval for shellfish harvesting in Terra Ceia Bay shall be obtained by 1993.<br>*[7] Policy should state that "City shall pursue shellfish harvesting in Terra Ceia Bay."*<br>*[3] DNR approval for shellfishing is hindered by presence of sewage effluent from Tropic Isles Mobile Home Park.* |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| • Design and strategically place artificial reefs throughout the bay and its tributaries.<br>• Expand oyster beds through additions of culch.<br><br>1.c. Restoration of Habitats: restore habitats as replacement for habitat losses throughout the bay, tributaries and adjacent uplands.<br><br>• Restore habitats such as uplands, riverine areas, salt marshes, mangrove stands, seagrass beds, oyster reefs, and mud flats as well as restoration utilizing existing spoil islands by selecting high priority projects and funding cost-effective restoration designs.<br>• Restoration in lieu of or supplemental to sea walls.<br>• Create littoral shelves via dredging and filling, perhaps in concert with planters boxes and breakwater structures.<br>• Evaluate filling borrow pits within the bay, thereby creating additional euphotic habitat.<br><br>1.e. Monitoring and Research: establish monitoring/research studies associated with strategies of programs 1.a-d.<br><br>• Evaluate success of restoration and preservation projects inclusive of projects begun or completed prior to SWIM endeavors through aerial habitat mapping and coordinated ground based studies.<br>• Develop additional databases useful for design and implementation of future projects.<br>• Promote and/or fund research concerning habitat restoration and functionality (e.g., wildlife utilization of submerged and intertidal habitat for gamefish, commercial species, and other wildlife.<br><br>2.a. Optimize Habitats: performance of programs 1.a-e to optimize habitats for use by botanical, invertebrate, and vertebrate populations and communities.<br><br>2.b. Research: promote and/or fund research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem.<br><br>• Address systems ecology questions, inclusive of ecosystem modeling dealing with carbon flow/energy budgets, secondary production, food webs, standing crops, etc. This strategy will commence by defining the framework of a comprehensive ecosystem model and culminate in the application of the model decision-making on bay management issues.<br>• Establish data base concerning a wildlife inventory for subtidal, intertidal and nearby upland communities; inventory should include distribution and abundance of species throughout ecosystem.<br>• Conduct biennial, quantitative aerial mapping of subtidal, intertidal, and nearby upland habitats.<br>• Evaluate existing commercial and sport fishing practices to determine effects, if any, on habitat, population, and/or community structures.<br><br>(continues) | | | | | |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| NATURAL SYSTEMS INITIATIVE 2<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.a. Optimize Habitats: performance of programs 1.a-e to optimize habitats for use by botanical, invertebrate, and vertebrate populations and communities.<br><br>2.b. Research: promote and/or fund research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem.<br><br>• Address systems ecology questions, inclusive of ecosystem modeling dealing with carbon flow/energy budgets, secondary production, food webs, standing crops, etc. This strategy will commence by defining the framework of a comprehensive ecosystem model and culminate in the application of the model decision-making on bay management issues.<br>• Establish data base concerning a wildlife inventory for subtidal, intertidal and nearby upland communities; inventory should include distribution and abundance of species throughout ecosystem.<br>• Conduct biennial, quantitative aerial mapping of subtidal, intertidal, and nearby upland habitats.<br>• Evaluate existing commercial and sport fishing practices to determine effects, if any, on habitat, population, and/or community structures.<br><br>2.c. Wildlife Management Programs: Promote and/or draft wildlife management programs to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen. Programs must include local, state, and federal legislation and enforcement necessary to accomplish management goals.<br><br>BAY MANAGEMENT INITIATIVE 2<br>**Promote the adoption and enforcement of laws and regulation necessary to implement the Natural Systems, Water Quality and Land Use Initiative of the Plan.**<br><br>2.a. Review of Rules and Regulations: Reviews adequacy of rules and regulations of the previously described governmental jurisdictions to carry out the Plan's Programs. This will include a review of the sufficiency of enforcement programs of pertinent regulatory agencies and be inclusive of all applicable fish and wildlife laws.<br><br>(continues) | | | | | |

Issue#11: Decline in Commercial & Recreational Finfish and Shellfish Landings and Lack of Information re: Decline [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| 2.b. Commercial and Sport Fishing Regulations.<br><br>• Enhance fishery productivity by developing and implementing biologically defensible fishing regulations, stocking and habitat creation/restoration Projects.<br>• Implement protective regulations and management strategies for fisheries on the decline in Tampa Bay<br>• Improve the enforcement of fishing regulations by consolidating and standardizing all special acts and local laws related to fishing activities.<br><br>2.c. Enforcement: Unify and consolidate all special acts and local laws related to marine resource management and work to ensure adequate funding and staffing levels for increased monitoring and enforcement capabilities for Tampa Bay. | | | | | |

Issue#12: Replacement of Native Vegetation with Exotic Plants [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.b. Augmentation of Existing Habitats: expand and/or exchange existing habitats as replacement for habitat losses throughout the bay, tributaries, and associated uplands.<br><br>• Eradicate non-native or ecologically undesirable vegetation from subtidal, intertidal, riverine and nearby upland areas and replace with appropriate native species. | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitats, unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(M) Limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency (USEPA) for wetland and aquatic application. | | | | |

Issue#13: Shoreline Erosion [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| | (E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable submerged habitat, unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist.<br>Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances. | | | | |

Issue#14: Marinas [SWIM]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.e. Marinas: evaluate environmental impacts of marinas within Tampa Bay and its tributaries.<br><br>• Evaluate environmental impacts of existing marinas, including impacts on manatees and other protected species.<br>• Develop a marina siting plan<br>• Evaluate and promote improved marina designs and facilities, specifically addressing problems of fuel storage, sewage, bilge pumping, solid waste, dredging, and related problems. | (D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve. Selected Additional Onsite Policies & Procedures:<br>1. Require additional authorization and approval for activities using submerged lands within the aquatic preserve in areas where manatees are present. (Additional restrictions may apply.)<br>(E) Prohibit development activities within the aquatic preserve that adversely impact saltmarshes and other valuable intertidal, submerged, and emergent habitats unless a prior determination has been made by the Board of overriding public importance and that no reasonable alternatives exist. Selected Additional Onsite Policies & Procedures:<br>1. Identify and develop guidelines for areas and plant communities in need of restoration.<br>2. Discourage developments within the aquatic preserve that require restoration or mitigation.<br>3. Develop an exotic plant control and removal plan following monitoring.<br>4. Develop a cumulative impact analysis program for analyzing proposed uses within the aquatic preserve.<br>(F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.<br>(O) Prohibit any activity commercial or recreational that might impact the integrity of hard bottom communities within the aquatic preserve.<br>(R) Encourage public utilization of the aquatic preserve, consistent with the continued maintenance of its natural values and functions.<br>(T) Require, through the efforts of DER and SWFWMD, the maintenance and upgrading of the water quality of the estuary and ensure the natural seasonal flow fluctuations of fresh water into the estuary. In particular encourage the Department of Environmental Regulation and the Environmental Regulatory Commission to extend OFW designations to wetlands above the MHW line in areas within or adjacent to the aquatic preserve.<br>(W) Prohibit Marinas and associated construction activities in Resource Protection Areas 1 and 2. | CM | VII-7<br><br><br><br><br><br>VII-8 | Obj. 1.3<br><br><br><br><br>Pol. 1.3.1<br><br>Pol. 1.3.4 | Establish land use criteria giving priority to siting and development of water-dependent uses in the coastal area.<br>*[3] Objective fails to consider AP. All development upland of the AP should receive highest scrutiny.*<br>Establishes FLU criteria for water-dependent uses.<br>*[3] Does not consider AP.*<br>Encourage water-dependent and related commercial and recreational uses E of U.S.301 & S of Haben Blvd. in PD area. Establish marina siting plan w/ criteria and minimum design specs for this area prior to 1993. |

Issue#15: Construction & Operation of Transportation Facilities [SWIM]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.d. Developmental Designs and Practices: promote environmentally sound projects and practices.<br><br>• Promote use of existing natural features and native plant species for landscaping and habitat, with special emphasis on use of transportation Programs and xeriscaping practices as well as the establishment of wildlife corridors.<br><br>1.f. Transportation Network: evaluate the existing and proposed transportation network around, over and on the bay and its tributaries.<br><br>• Evaluate transportation (inclusive of shipping and boat traffic) and roadway problems as related to environmental impacts to the ecosystem.<br>• Review transportation engineering and promote designs to reduce environmental impacts (e.g., runoff). | (F) Prohibit the trimming and/or removal of salt marsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances.<br>(I) Prohibit the drilling of oil and gas wells, the mining of materials, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve. | TRCI | VII-21 | Obj. 1.7<br><br>Pol. 1.7.1<br><br><br><br><br>Pol. 1.7.2 | Develop and implement a transportation system which enhances environmental quality by reducing environmental impacts of water, air, and noise pollution.<br>Require paving of parking lots in LDRs to reduce fugitive dust, but permit the use of other [pervious] surfaces and techniques to reduce unnecessary impervious surface areas [in such areas].<br>*[1] Does not specify circumstances under which paving will not be required.*<br>City & developers shall protect ESAs from future road construction through applicable permitting processes.<br>*[8] Define and identify ESAs.* |

Issue#16: Intergovernmental Coordination and Planning Consistency [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
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| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.a. Encourage Appropriate Land Use: at the local, state, and federal level, encourage appropriate development or agricultural use of land bordering the bay and its tributaries.<br><br>• Promote limiting or preventing land alterations via incentives such as tax reductions, density tradeoffs, or transfers or purchases of developmental rights. Appropriate policies and regulations will be developed by the District for consideration by local governments through the review of comprehensive plans and through preparation of model ordinances.<br>• Promote designations of increased buffer zones, setback requirements, wildlife corridors, and conservation easements reviewing local governments comprehensive plans and ordinances, and recommending appropriate amendments to accomplish the above objectives.<br>• Promote environmental sound local and state comprehensive plans, inclusive of land use plans for preservation of habitats and land tracts.<br><br>1.c. Laws and Permitting Review: evaluate adequacy of existing zoning laws, environmental laws and permitting processes as related to land use and environmental resources.<br><br>• Evaluate existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses).<br>• Promote and/or draft revisions of existing local, state, and federal laws concerning land use and the permitting process (inclusive of agricultural uses). This will be accomplished through the development of model ordinances in addition to specific proposed amendments.<br>• Evaluate, promote, and/or draft improved laws for mitigation policies and practices, specifically addressing action to be followed if unanticipated impacts are detected after the fact; mitigation banking should be evaluated as should criteria for monitoring and determining the success of the Project. | (S) Develop a well-coordinated aquatic preserve management mechanism that recognizes and utilizes local government programs and authorities.<br>(V) Encourage the assistance of federal, state, and local government agencies in implementing the aquatic preserve management plans, especially in areas of protection of natural and cultural resources and the enforcement of applicable resource laws and ordinances.<br>(Y) Insure that the aquatic preserve management plans are consistent with all other state and local planning processes and completed plans that may impact aquatic preserves. | CONS | VII-2 | Pol. 1.1.8 | Enter into an interlocal agreement with Manatee Co. to ensure continuation of cooperation to conserve, use, and or protect unique vegetative communities w/ shared boundaries. |
| | | CM | VII-11 | Pol. 1.7.2 | Implement upon adoption of comprehensive plan the Terra Ceia Aquatic Preserve Management Plan to measurably improve water quality and increase productivity of commercially important fisheries and other aquatic resources.<br>*[3] Does this include adoption of regulatory wording w/i Ch. 18-20, F.A.C.?* |
| | | DRNG | VII-35 | Pol. 1.1.5 | City Public Works Dept. shall coordinate it stormwater management activities w/ other gov't agencies to ensure optimal protection of human life & property.<br>*[8] Make policy more specific re: coordination.* |
| | | | VII-37 | Obj. 1.3 | City shall coordinate w/ DER, SWFWMD, and Manatee Co. Utilities Dept. toward identification and resolution of City's long-range drainage problems. |
| | | IC | VII-48 | Pol. 1.1.2 | Regional issues shall be addressed at, by, or through the Regional Planning Council.<br>Proposed LU amendments, for properties w/ shared boundaries, to the comprehensive plan shall be forwarded to adjacent local gov'ts and reviewed for consistency w/ the comprehensive plans of those adjacent local gov'ts. |
| | | | | Pol. 1.1.4 | Proposed LU amendments, for properties w/ shared boundaries, to the comprehensive plan shall be forwarded to adjacent local gov'ts & reviewed for consistency w/ their comprehensive plans. |
| | | | VII-49 | Pol. 1.2.3 | Consistent & coordinated mgmt. of Terra Ceia Bay and the Manatee River shall be pursued.<br>*[1] Specify how management will be pursued.*<br>*[8] Policy should reference SWIM program.* |
| | | | | Pol. 1.2.4 | Planning activities mandated the City of Palmetto comprehensive plan shall be coordinated w/ other local gov'ts & units of local gov't providing services but not having regulatory authority over the use of land, the regional, and the state. |
| | | CPIM | VII-54 | Pol. 1.5.2 | Requested plan amendments & development proposals, public or private, shall be reviewed for their anticipated impacts on public facilities and LOS. Establish a policy w/ Manatee Co. and a procedure to review or respond to proposed LU plan amendments within or immediately abutting City planning area. Review criteria includes [selected]:<br>—consistency w/ FLU and Future Coastal LU elements [Coastal Mgmt. element Land Use criteria] & service areas outlined in the Sanitary Sewer, Solid Waste, Drainage, Potable Water; and Natural Groundwater Recharge sub-element[s].<br>—Effects upon SWFWMD facility plans [and funds] and state functional plans. |

Issue#17: Enforcement of Laws and Regulations [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Promote enforcement of existing laws protecting habitats through funding incentives for local government environmental enforcement and compliance monitoring programs.<br>• Promote enforcement of permit stipulations mandated by local, state, and federal agencies (inclusive of compliance monitoring) through funding incentives for local government environmental protection programs.<br><br>**INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.c. Wildlife Management Programs: Promote and/or draft wildlife management programs to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen. Programs must include local, state, and federal legislation and enforcement necessary to accomplish management goals.<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.b. Enforcement: promote enforcement of existing zoning laws, environmental laws and permit stipulations inclusive of compliance monitoring<br><br>• Promote additional funding and staffing (inclusive of legal staff) for enforcement and compliance monitoring by offering funding incentives for qualifying local governmental environmental protection programs.<br>• Promote fines or penalties commensurate with the infraction.<br><br>**BAY MANAGEMENT INITIATIVE 2**<br>**Promote the adoption and enforcement of laws and regulation necessary to implement the Natural Systems, Water Quality and Land Use Initiative of the Plan.**<br><br>2.a. Review of Rules and Regulations: Reviews adequacy of rules and regulations of the previously described governmental jurisdictions to carry out the Plan's Programs. This will include a review of the sufficiency of enforcement programs of pertinent regulatory agencies and be inclusive of all applicable fish and wildlife laws.<br><br>(continues) | (S) Develop a well-coordinated aquatic preserve management mechanism that recognizes and utilizes local government programs and authorities.<br>(V) Encourage the assistance of federal, state, and local government agencies in implementing the aquatic preserve management plans, especially in areas of protection of natural and cultural resources and the enforcement of applicable resource laws and ordinances. | CM | VII-6 | Pol. 1.1.7 | Assist in enforcement of federal, state, and federal mitigation policies by withholding building permits until all necessary environmental permits are received. |

Issue#17: Enforcement of Laws and Regulations [SWIM & AP]

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| 2.b. Commercial and Sport Fishing Regulations.<br><br>• Enhance fishery productivity by developing and implementing biologically defensible fishing regulations, stocking and habitat creation/restoration Projects.<br>• Implement protective regulations and management strategies for fisheries on the decline in Tampa Bay<br>• Improve the enforcement of fishing regulations by consolidating and standardizing all special acts and local laws related to fishing activities.<br><br>2.c. Enforcement: Unify and consolidate all special acts and local laws related to marine resource management and work to ensure adequate funding and staffing levels for increased monitoring and enforcement capabilities for Tampa Bay.<br><br>2.d. State Legislation: Work to ensure that the necessary state legislation and agency rules are in place to carry out the Plan. | | | | | |

Issue#18: Ports

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| | (N) Prohibit the construction of new deepwater ports within the aquatic preserve boundaries. | | | | |

Issue#19: Identification of Areas, Land Use, Etc.

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.e. Monitoring and Research: establish monitoring/research studies associated with strategies of programs 1.a-d.<br><br>• Evaluate success of restoration and preservation projects inclusive of projects begun or completed prior to SWIM endeavors through aerial habitat mapping and coordinated ground based studies.<br>• Develop additional databases useful for design and implementation of future projects.<br><br>**INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.b. Research: promote and/or fund research which provides information important to the development and implementation of ecologically sound wildlife management programs for the Tampa Bay ecosystem.<br><br>• Establish data base concerning a wildlife inventory for subtidal, intertidal and nearby upland communities; inventory should include distribution and abundance of species throughout ecosystem.<br>• Conduct biennial, quantitative aerial mapping of subtidal, intertidal, and nearby upland habitats. | (C) Develop a resource inventory and map natural habitat types within the aquatic preserve, with an emphasis on those habitat types utilized by threatened and/or endangered species. | | | | |

Issue#20: Threatened and Endangered Species; Manatee Protection; Hazardous Waste Disposal; Boundary Expansion and Other Acquisitions

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Initiatives, Programs, & Strategies** | **Management Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| **NATURAL SYSTEMS INITIATIVE 1**<br>**Preserve, enhance, and/or restore upland, riverine, intertidal and subtidal habitats for 1) biological communities, 2) pollution abatement, and 3) aesthetic and recreational purposes.**<br><br>1.a. Preservation of Existing Habitats: promote the preservation of relatively pristine or functional habitats already in existence.<br><br>• Support existing acquisition programs such as Save Our Rivers (SOR) and Conservation and Recreational Lands (CARL).<br>• When appropriate, cooperate with environmental groups and local, state, and federal governments and agencies in the purchase of lands by identifying areas in need of preservation and contributing to their purchase.<br>• Encourage and support private donations of funds and land parcels, parks, etc., as well as passing of local taxing initiatives.<br><br>**NATURAL SYSTEMS INITIATIVE 2**<br>**Preserve, enhance, and/or restore plant and animal populations that use the bay, tributaries, and or associated uplands for part or all of their life cycles.**<br><br>2.c. Wildlife Management Programs: Promote and/or draft wildlife management programs to protect populations and communities associated with the bay inclusive of threatened or endangered species important to commercial and sport fishermen. Programs must include local, state, and federal legislation and enforcement necessary to accomplish management goals.<br><br>**DEVELOPMENT AND PUBLIC USE INITIATIVE 1**<br>**Provide sound environmental policies governing land use which impact the Tampa Bay ecosystem.**<br><br>1.c. Marinas: evaluate environmental impacts of marinas within Tampa Bay and its tributaries.<br><br>• Evaluate environmental impacts of existing marinas, including impacts on manatees and other protected species.<br><br>(continues) | (H) Acquire, where feasible, privately owned submerged lands and adjacent lands and islands located within the boundaries of the aquatic preserve pursuant to the authorities contained in Section 253 .02(4), F.S. Of greatest interest are the barrier islands that are located along the coastline and the low lying areas of Terra Ceia Island adjacent to Bishop Harbor and Frog Creek.<br>(K) Prohibit storage of toxic, radioactive, or other hazardous materials within the aquatic preserve. Any hazardous waste dumps now located within the aquatic preserve should be closed and eliminated.<br>(Q) Manage spoil islands within the aquatic preserve as bird rookeries and wildlife habitat areas.<br>(U) Apply the management criteria contained in the adopted Terra Ceia Aquatic Preserve Plan to all subsequent legislative additions of land to the Aquatic Preserve. | CONS | VII-1 | Pol. 1.1.1 | Restrict development that will result in net reduction in fish and wildlife habitat for rare, threatened, and endangered species. (Coordinate w/ FWFGC to implement.)<br>*[1] Specify how development will be restricted.*<br>*[2] Use of "net" does not offer adequate protection to habitat. Suitable habitat should be identified & protected from activities that would disturb such areas, except restoration activities.* |
| | | | | Pol. 1.1.5 | Identify & adopt appropriate measures and management plans to protect threatened or endangered species known to inhabit the Palmetto area, |
| | | | VII-4 | Pol. 1.2.11 | Enter into IA w/ Manatee Co. Public Works Dept. to develop a hazwaste transfer/temporary storage facility to serve city. All hazwaste shall be collected, stored and disposed consistent w/ applicable laws. Assess effects of such wastes on City's natural resources if applicable. |
| | | SW | VII-33 | Pol. 1.1.6 | Coordinate by 1990 w/ Manatee Co. Public Works Dept. toward developing a hazwaste transfer/ temporary storage facility to serve City. Siting and design shall be consistent w/ adopted regional and state hazwaste management programs. All hazwaste shall be collected, stored, and disposed of consistent w/ applicable laws. |
| | | | | Pol. 1.1.8 | Assess City's hazwaste handling program, and coordinate w/ Manatee Co. Public Works Dept to ensure implementation of appropriate collection, storage, and transfer programs. |

Issue#20: Threatened and Endangered Species; Manatee Protection; Hazardous Waste Disposal; Boundary Expansion and Other Acquisitions

| Tampa Bay SWIM Plan | Terra Ceia Aquatic Preserve | City of Palmetto Comprehensive Plan | | | |
|---|---|---|---|---|---|
| Initiatives, Programs, & Strategies | Management Policy Directives | Element | Pg | GOP | Description |
| **WATER QUALITY INITIATIVE 1**<br>**Reduce point and non-point source pollutant loading to attain water quality necessary to restore and maintain healthy and productive natural systems, protect human health, and to attain the highest possible water use classification.**<br><br>1.g. Hazardous Waste Disposal and management<br><br>• Implement the requirements of the water Quality Assurance Act for a comprehensive statewide hazardous waste management program including the location of temporary storage/transfer facilities for hazardous wastes.<br>• Provide needed surface water, groundwater and leachate characterization in and adjacent to potentially dangerous dump sites for application in state and local regulatory responsibilities.<br>• Initiate eventual rehabilitation of dump sites through restorative actions. | | | | | |

# Appendix 6

## Issue Matrices: Indian River Lagoon Study Area

**ISSUE:** Unregulated freshwater inflows and excessive stormwater discharges due to extensive drainage networks, artificially lowered water tables, and loss of wetlands

| Indian River Lagoon SWIM Plan | Jensen Beach/Jupiter Inlet Aquatic Preserve Mgt Plan | Ft. Pierce Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Natural Systems** | **Mgmt. Policy Directives** | **Element** | **Pg** | **GOP** | **Description**[1] |
| OBJ. A: Mgmt. of freshwater inflows from point & nonpoint sources (W/S quality program). | GOAL A.4: Improve water quality. TASK A.4.1.2: Coordinate with SJRWMD/SFWMD & local govts. toward improving the management of surface water & stormwater discharges into aquatic preserve. | FLU | 1-70 | P1.1.4.5 | Dev allowed in 100-yr floodplain if does not negatively impact storm drainage system. |
| | | INFRA | 4-75 | P4.1.6.4 | Increase retention, detention capacity of drainage basins to reduce stormwater outfall runoff to IRL. |
| | | | 4-76 | P4.1.6.6 | Retrofit existing stormwater system where feasible during redevelopment. |
| | | | | P4.1.6.8 | Adopt LDRs to protect natural drainage features. |
| | | | | P4.1.6.9 | City to adopt LDRs for surface water mgmt. standards consistent with SFWMD. |
| | | | | | *[2] No sufficient analysis re: estuarine pollution from stormwater runoff or mgmt. actions.* |
| | | | | | *[2] Comprehensive stormwater mgmt. study limited, must assess performance. Stormwater mgmt. to concentrate on mgmt. by source control than water capacity.* |
| | | **Jupiter Comprehensive Plan** | | | |
| | | FLU | 1-4 | P1.3.3 | Adopt LDRs which address drainage & stormwater drainage. |
| | | | 1-12 | P1.3.9 | Density of wetlands 1/2 DU. per acre. |
| | | INFRA | IV-6 | P1.3.11 | Update land regs. to provide for drainage facilities & stormwater discharge criteria. |
| | | | IV-9 | O1.6 | Protection of recharge areas & drainage-4 policies re: stormwater regs., open space. |
| | | CM | VI-6 | P1.4.2 | Retrofit substandard drainage system. |
| | | | | P1.4.4 | Alteration of tidal circulation & flushing pattern not permitted |
| | | **Jupiter Inlet Colony Comprehensive Plan** | | | |
| | | FLU | 12 | P3.1 | Property owner responsible for drainage & stormwater runoff. |
| | | INFRA | 33 | P3.2 | Drainage policies. |
| | | | 34 | O 6 | Provide stormwater drainage regs. to protect natural features. |
| | | | | | *[1] Objective & policies are not specific, measurable* |
| | | | | | *COMMENTS:* |
| | | | | | *[1] Need policy re: degraded resources for estuaries, wetlands, drainage, to mitigate future ones* |
| | | | | | *[1] Need objective for use, quantity of projected water sources into estuarine waters* |
| | | | | | *[6] Address new system, retrofit existing to avoid direct discharge of storm drainage* |
| | | | | | *[6] Changes to stormwater discharge* |
| | | **Jupiter Island Comprehensive Plan** | | | |
| | ** Town has no central stormwater drainage system. | FLU | I | P1.06.02.02 | Development to accommodate stormwater onsite with perform standards. |
| | | INFRA | 23 | O4.01.03 | Provide stormwater mgmt. thru sheet flow & percolation. |
| | | | 23 | P4.01.03.01 | Regulate development to assure onsite containment of stormwater. |
| | | CM | 24 | O4.01.06 & P4.01.06.01 | Protect natural drainage features. Revise LDRs to provide for protection of natural drainage features. |
| | | | | | *[2,4] By what method?* |
| | | | 27 | P5.01.04.04 | Dev should be required to have stormwater onsite. |
| | | | | | *[1] No method.* |
| | | | | | *[2] Need to develop master stormwater mgmt. plan.* |

[1]NOTES: Agency comments are shown in italics and are source-coded: [1] DCA, [2] DER, [3] DNR, [4] RESPECTIVE COUNTY, [5] MANATEE COUNTY, [6] TCRPC, [7] WMD.

**ISSUE:** Unregulated freshwater inflows and excessive stormwater discharges due to extensive drainage networks, artificially lowered water tables, and loss of wetlands

| | | | | | |
|---|---|---|---|---|---|
| | | **Martin County Comprehensive Plan** | | | |
| | | CONSOS | 9-14 | PA.3.e | Surface & stormwater mgmt. system for retention. |
| | | | 9-15 | PA.4.a & b | Implement, update surface & stormwater regs. & retrofit drainage systems. |
| | | | 9-16 | P A.4.g | Drainage plans to protect water quality per regs.. |
| | | DRGWAQ | 13-31 | PA.2.f | Stormwater retention, detention system to enhance recharge. *[1] No dates, how.* |
| | | | 13-34 | OA.5 | Reduce environmental impacts of over drainage & restore impacted. |
| | | | | P A.5.a | 1992 wetland protection ordinance. |
| | | | | P A.5.d | Certain areas unsuited for urban/agricultural use-wetland regs. apply. |
| | | | | | *COMMENTS:* *[2] No inventory of estuary pollution from runoff or remedial actions.* *[2] Didn't use regs. for nonpoint source pollution-need master watershed mgmt. plan.* *[2] Excessive stormwater storage considered in Drainage & Aquifer Recharge element.* *[2,7] To correct facilities deficiencies & stormwater quality.* *[7] Redo stormwater facilities re: existing development.* *[8] Need analysis of problems with stormwater quality, volume increases affecting estuaries.* *[8] Need regs. for stormwater, interim, regulate volume discharged without compromise to estuaries.* *[8] Interim standards improving surface waters until stormwater mgmt. study & plan.* |
| | | **Ocean Breeze Park Comprehensive Plan** | | | |
| | | FLU | 18 | P 1.8 | No changes in development that affect drainage & stormwater mgmt. *[6] Town has urban runoff problem that must be addressed in stormwater mgmt. plan* |
| | | INFRA | 104 | P 1.3 | LOS standards for existing drainage shall use IRL mgmt. plan & SWIM manual as guidelines. |
| | | | 110 | O 10 | Address drainage deficiencies, 1 policy re: priorities. *[2] Urban runoff is a problem.* |
| | | | 111 | P 12.1 | Regulate land use & development to protect functions of natural drainage thru use of SFWMD regs.. |
| | | CM | 142 | P 2.1 | By 1990, stormwater mgmt. plan, coordination with county. |
| | | | 146 | P 5.2 | By 1991, review nonpoint discharge into IRL & impact on water quality. *[1] No specifics or measure.* |
| | | CONS | 161 | P1.2 & P1.4 | Restrict floodplains use, establish floodplains ordinance by 91. *[1] No specifics.* *[1,2] Plan doesn't address deficiency of stormwater runoff, is not specific, measurable.* |
| | | **Palm Beach County Comprehensive Plan** | | | |
| | | | | | *COMMENTS:* *[7] Need correcting impacts of existing stormwater sources.* *[7] Take proactive response to protect surface water from stormwater pollution thru land planning/stormwater mgmt.* *[7] Drainage, surplus water incompatible with beneficial uses-outdated premise of preserving wetlands in natural state. P4-d unclear re: timing.* *[7] No specific policy for indirect adverse impacts caused by drainage, development.* |

**ISSUE:** Unregulated freshwater inflows and excessive stormwater discharges due to extensive drainage networks, artificially lowered water tables, and loss of wetlands

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|---|---|---|---|---|---|
| | | **Sewalls's Point Comprehensive Plan** | | | |
| | | DRNG | 76 | O 1.0 | Identify & improve exist drainage facilities thru design criteria & development regs.—1 policy.<br>*[1] No method.* |
| | | | 78 | P 1.2 | Stormwater discharge facilities & mgmt. re: water pollution, & water quality criteria. |
| | | | 79 | P 1.3-4 | Revise regs. re: drainage & aquifer recharge.<br>*[1] No measure.* |
| | | POTH20 | 89 | P 3.1 | Regs. in 1990 to require surface & stormwater mgmt. designed to maximize retention capability. |
| | | CM | 117 | P 1.4 | 1990 Code to require retrofitting of substandard drainage. |
| | | CONS | 152 | O 2.0 | Water mgmt. & conservation policies to include mgmt. of stormwater retention in code, LOS. |
| | | | 153 | P 2.2 | Regs. in 1990 to maximize aquifer recharge thru LOS stormwater retention. |
| | | | 153 | O 3.0 | Adopt stormwater mgmt. & drainage regs.—2 policies.<br>*[2] No stormwater LOS.* |
| | | | 154 | P 3.2 | 1990 land code to require retrofitting of substandard drainage.<br>*[6] Stormwater mgmt. too weak & vague.* |
| | | **St. Lucie County Comprehensive Plan** | | | |
| | | DGDWTAQ | 6C-39 | G 6C.1 | Ensure adequate stormwater drainage & mgmt. system.<br>*[1] What is the method?* |
| | | | | O 6C.1.1 | County stormwater master plan, 7 policies re: plan, development, LOS, program, coordination. |
| | | | 7-120 | P7.2.3.4 | By 2000 location & study of bridge across IRL.<br>*[3] Questions its construction, no sufficient analysis, data.* |
| | | | 7-110 | P7.1.4.1 | Enact LDRs by 1990 consistent with SFWMD/DER drainage criteria & prohibit new pt source discharges of less than 24-yr storm event. |
| | | | 7-112 | P7.1.4.10b | Adopt stormwater mgmt. ordinance by 1990. |
| | | | | P7.1.4.10d | Support reservoir to reduce freshwater flows into IRL. |
| | | | 8-38 | P8.1.2.1-5 | 5 policies re: development regs. for stormwater mgmt. & retention. |
| | | CONS | 8-40 | O 8.1.3 | By 1990 have LDRs to require protection of natural functions of 100-yr floodplain. |
| | | | | P8.1.3.1 | LDRs to have programs to protect floodplains, i.e., parking, easement, cluster planning. |
| | | | | P8.1.3.3 | By 1995, county to conduct study of floodplains for acquisition. |
| | | | | O8.1.4 | By 1990, enact LDRs requiring cons & protection of wetlands. |
| | | | | P8.1.4.2 | LDRs to evaluate of proposed wetland alteration & mitigation. |
| | | | | | *COMMENTS:*<br>*[1,2] Stormwater LOS not acceptable nor compatible with adjacent land uses.*<br>*[2] Consider parks as potential stormwater mgmt. and aquifer recharge.*<br>*[5] No LOS for sanitary sewer, water & drainage.* |

**ISSUE:** Unregulated freshwater inflows and excessive stormwater discharges due to extensive drainage networks, artificially lowered water tables, and loss of wetlands

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|---|---|---|---|---|---|
| | | **Stuart Comprehensive Plan** | | | |
| | | INFRA | IV-3 | PA1.8 | Locate, remove stormwater & sanitary sewer interconnection. |
| | | | | P A1.11 | Establish maintenance for water distribution system. |
| | | | | PA1.9 | LDRs to ensure stormwater treatment consistent with SFWMD permitting regs. |
| | | CONS | V-1 | O A1 | Protect surface water quality-3 policies re: stormwater ordinance & outfall. |
| | | INFRA | IV-4 | P A4.2 | Regs. for stormwater treatment. |
| | | | IV-5 | P A4.6 | Regs. re: stormwater treatment. |
| | | | | PA4.4 | By 92 stormwater drainage masterplan re: water quality. |
| | | CONS | V-3 | O A4 | Adopt floodplain, stormwater mgmt. ordinance by 1990. |
| | | | V-4 | O A5 | Regs. re: Comprehensive drainage master plan, stormwater mgmt. & pollution, dredging, shore alterations-8 policies. |
| | | | V-1 | PA1.1-2 | Enforce stormwater ordinance & redo stormwater outfalls to St. Lucie estuary/tributaries consistent with DER. |
| | | CM | IX-2 | PA4.2 | Retrofit public drainage systems during expansion & redev. |
| | | | | | *COMMENTS:* |
| | | | | | *[2] Stormwater LOS compatible with adj. county. Parks/open space used as stormwater mgmt. & recharge areas.* |
| | | | | | *[6] City has reduced threshold area [RTA] & wells by contamination from various sources, analysis required.* |
| | | **Tequesta Comprehensive Plan** | | | |
| | | DRNG | DR-1 | P1.1.3 | Develop stormwater mgmt. plan. |
| | | | DR-2 | P1.1.6-7 | By 1995, funds for stormwater mgmt. plan. |
| | | | DR-3 | P1.2.1 | Support, enforce development stormwater drainage regs. |
| | | | DR-3 | P1.2.3 | Continue retention, detention drainage to minimize runoff. |
| | | AQFRCH | NG-1 | P1.1.2 | Stormwater regs. amended for retention of runoff. |
| | | CONS | C-1 | P1.2.1 | Adopt stormwater retention, detention criteria for regs. |
| | | | C-3 | O 1.6 | Development to restrict stormwater pollutants runoff. |
| | | CM | CM-4 | O 2.1 | Analyze drainage system in reducing urban stormwater pollutants from entering estuaries & groundwater. |
| | | **St. Lucie Village Comprehensive Plan** | | | |
| | | | | | *[1] No mention of protecting function of natural drainage, IRL.* |

**ISSUE:** Excessive nutrient loadings from point and nonpoint sources, particularly canals draining from agricultural & urban drainage areas

| Indian River Lagoon SWIM Plan | Jensen Beach/Jupiter Inlet Aquatic Preserve Mgt Plan | Ft. Pierce Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Natural Systems** | **Mgmt. Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| GOAL 1: To attain & maintain water & sediment of sufficient quality in order to support a healthy, macrophyte-based estuarine lagoon ecosystem.<br>OBJ. C: Reduction of excessive point/nonpoint source loadings of nutrients to levels that promote macrophyte-based system. | GOAL A.4: Improve water quality.<br>OBJ. A.4.1: To coordinate with DER, WMD and local govts toward improving water quality in lagoon.<br>TASK A.4.1.1: Enter into mutual agreement with DER to utilize Pollution Recovery Trust Funds to conduct demonstration projects that improve water quality. | INFRA | 76 | P4.1.6.9 | Adopt LDRs that provide for strict sediment control measures to deter erosion into waterways. |
| | | CM | 5-56 | P5.1.1.7 | Regulate all development in coastal area to take measure to prevent increased soil erosion. |
| | | | 5-59 | P5.1.3.1 | Drainage regs. to be consistent with SFWMD/DER & prohibit new pt sources discharging into IRL. |
| | | | | P5.1.3.4 | To reduce nonpoint pollution loadings, dumping into drainage systems, IRL to be prohibited.<br>*COMMENTS:*<br>*[2] SWIM & other pollutant load reduction goals for area's surface incorporated into LOS.* |
| | | **Jupiter Comprehensive Plan** | | | |
| | | CONS | V-5 | P1.4.6 | Urban runoff controlled by updated drainage system. |
| | | CM | V1-6 | P1.4.3 | Coordinate with govts. to minimize pollutants & excessive silt. |
| | | SWIM | Pg IV | TABLE A | Contract IR-1-112-M, feasibility study re: stormwater system, salinity, material loadings. |
| | | **Jupiter Inlet Colony Comprehensive Plan** | | | |
| | | INFRA | 34 | P 6.1 | Limit post-development runoff.<br>*[1] No method, measure, implementation.* |
| | | CM | 37 | P 2.3 | Use BMPs to reduce nonpoint pollutant loadings.<br>*[1] Eliminate nonpoint pollution into estuary.* |
| | | CONS | 42 | P 2.1 | Development to provide irrigation to reduce demands. |
| | | **Jupiter Island Comprehensive Plan** | | | |
| | | FLU | I | P1.06.02.01 | New point sources discharging into the IRL should be restricted. |
| | | CM | 26 | P5.01.04.02 | Regs. should restrict new point sources of pollution discharge into IRL.<br>*[4] By what method?* |
| | | **Martin County Comprehensive Plan** | | | |
| | | DRGWAQ | 13-32 | O A.3 | Maintenance, improvement of existing drainage. |
| | | | 13-32 | PA.3.c | In 1993 adopt county master drainage ordinance. |
| | | | 13-33 | PA.3.1 | Have stormwater utility ordinance to fund drainage basin improvements.<br>*COMMENTS:*<br>*[2] Agricultural runoff affecting discharge quality into Intracoastal to be addressed. Confirmed in updated comprehensive plan.* |
| | | **Palm Beach County Comprehensive Plan** | | | |
| | | CONS | 8-C | P6-c | Implement program to reduce nonpoint discharge to surface waters when not subject to SFWMD permit. Develop surface water quality & stormwater runoff ordinance. |
| | | CONS | 9-C | P6-d | Coordinate with WMD to develop agency practices that reduce degradation of water quality. |
| | | DRNG | 3-DR | O 1 | Drainage LOS adequate to 3 conditions, 5 policies. |
| | | | 5-DR | O 2 | Regs. to require no adverse development impact on drainage, 2 policies. |
| | | | 7-DR | O 5 | 7 policies re: drainage planning, drainage plan for unincorporated area. |

**ISSUE:** Excessive nutrient loadings from point and nonpoint sources, particularly canals draining from agricultural & urban drainage areas

| | | | | | |
|---|---|---|---|---|---|
| | | **Sewall's Point Comprehensive Plan** | | | |
| GOAL 1: To attain & maintain water & sediment of sufficient quality in order to support a healthy, macrophyte-based estuarine lagoon ecosystem.<br>OBJ. C: Reduction of excessive point/nonpoint source loadings of nutrients to levels that promote macrophyte-based system. | GOAL A.4: Improve water quality.<br>OBJ. A.4.1: To coordinate with DER, WMD and local govts toward improving water quality in lagoon.<br>TASK A.4.1.1: Enter into mutual agreement with DER to utilize Pollution Recovery Trust Funds to conduct demonstration projects that improve water quality. | FLU | 16 | P 3.5 | Drainage & stormwater controlled by development meeting LOS regs. in LDR/code. |
| | | DRNG | 77 | P 1.1 | LOS for drainage.<br>*[1,6,7] No identification of existing & not specific.* |
| | | | 80 | P 2.1<br>O 3.0 | Land code to retrofit drainage to meet LOS.<br>Protect IRL as natural drainage by regulating development in land code to restrict runoff. |
| | | | | P 3.1 | Post-development runoff limited to pre-development volume in 1990 Code.<br>*COMMENTS:*<br>*[1] No objectives re: natural drainage protection.*<br>*[7] CONS has no data on water needs*<br>*[1,2,7] No data on capacity, LOS for development, artificial substances from urban, marina & agricultural sources.* |
| | | **St. Lucie County Comprehensive Plan** | | | |
| | | DGDWTAQ | 6C-41 | O6C.2.1 | Drainage master plan by 1992, 3 policies re: development regs., improvements. |
| | | CM | 7-111 | P7.1.4.4 | To reduce nonpoint pollutant loadings, dumping of debris into drainage/IRL to be prohibited. |
| | | | 7-112 | P7.1.4.9 | By 1991, prioritize point & nonpoint source pollution problems with assistance from DER/SFWMD. |
| | | | | P7.1.4.10c | Adopt regs. to improve control of illegal dumping into canals, ditches & increase BMPs.<br>*COMMENTS:*<br>*[7] No future water demands & drainage plan.*<br>*[1,7] Interim drainage LOS not sufficient re: capacity.* |
| | | **St. Lucie Village Comprehensive Plan** | | | |
| GOAL 1: To attain & maintain water & sediment of sufficient quality in order to support a healthy, macrophyte-based estuarine lagoon ecosystem.<br>OBJ. C: Reduction of excessive point/nonpoint source loadings of nutrients to levels that promote macrophyte-based system. | GOAL A.4: Improve water quality.<br>OBJ. A.4.1: To coordinate with DER, WMD and local govts toward improving water quality in lagoon.<br>TASK A.4.1.1: Enter into mutual agreement with DER to utilize Pollution Recovery Trust Funds to conduct demonstration projects that improve water quality. | INFRA | 4-19 | O4.1.4 &<br>P4.1.4.1-5 | Drainage regs. & natural drainage(IRL), 5 policies re: DOs, ordinances, drainage LOS. |
| | | INFRA | 4-20 | O 4.1.7 | Regs. for aquifer recharge area protection, 4 policies re: study, aquifers, wellfield protection program. |
| | | CONS | 6-34 | P6.1.2.1 | Adopt drainage system design regs. consistent with SFWMD & DER.<br>*COMMENTS:*<br>*[1] No mention of correcting existing drainage facility deficiencies.* |
| | | **Stuart Comprehensive Plan** | | | |
| | | CM | IX-2 | PA4.1 | By 1992, adopt drainage ordinance. |
| | | **Tequesta Comprehensive Plan** | | | |
| | | CM | CM-8 | P3.1.3 | Urban drainage, tanks & hydrological changes main causes of water quality<br>*COMMENTS:*<br>*[2] Need basinwide planning to control nonpoint pollution.*<br>*[3] Eliminate tanks, develop stormwater mgmt. plan & review of new development.* |
| | | **Ocean Breeze Park Comprehensive Plan** | | | |
| | | CONS | 161 | P1.5 | Establish program to control nonpoint sources of water pollution into IRL. |

**ISSUE:** Releases of artificial substances from urban, marina, and agricultural activities

| Indian River Lagoon SWIM Plan | Jensen Beach/Jupiter Inlet Aquatic Preserve Mgt Plan | Jupiter Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Natural Systems** | **Mgmt. Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| GOAL 1: Maintain water, sediment to support healthy, macrophyte-based, estuarine lagoon system.<br>OBJ. D: Elimination or reduction in releases of toxic substances from point & nonpoint sources. | GOAL A.4: Improve water quality.<br>OBJ. A.4.1: To coordinate with DER, water mgmt. districts & local govts toward improving water quality in the lagoon-three tasks re: agreements & coordination.<br>POL. GUIDELINE 5: Protect biological resources & water quality by prohibiting fueling facilities in the lagoon, except at commercial docks & marinas that have been approved as fueling sites & which incorporate procedures & equipment for spill prevention & clean-up. | CONS | V-5 | P1.4.8 | Parking facilities to be located away from water & runoff controls.<br>*(2) Need financial plan to correct deficiencies in stormwater mgmt. system.* |
| | | **Jupiter Island Comprehensive Plan** | | | |
| | | CONS<br>FLU | 33 | P6.01.03.09<br>P1.06.03.09 | Regs. to be modified to include SWIM.<br>New point sources of pollution discharging into IRL, or drainage canals should be restricted |
| | | **Martin County Comprehensive Plan** | | | |
| | | SANSEW<br>DRGWAQ | 10-19<br>13-29 | PA.2.k & PA.1.l | Use treated wastewater effluent for irrigation uses.<br>*(2) Provide objectives & policies for SWIM. Need SWIM & other pollutant reduction goals for surface water included in LOS.*<br>*(3) No policy for liveaboards, open water mooring. Consider marine sanitation ordinance.* |
| | | **Stuart Comprehensive Plan** | | | |
| | | CM | IX-3 | PA4.3 | City seeks cooperation of all surroundings in minimizing & eliminating pollutant sources entering estuarine waters. Will coordinate with SFWMD in permitting process<br>*(2) St. Lucie River in suspected condition re: untreated urban runoff. Need to identify industrial discharge.*<br>*(2) Drainage inconsistent with elements. Water & environmental effects with marinas & boats-need marina recommendations re: IRL AP.* |
| | | **Palm Beach County Comprehensive Plan** | | | |
| | | CONS | 8-C | P6-b, c, f, g, i | Adopt ordinance for surface water quality, expand program to identify point & nonpoint, prevent saltwater intrusion. |
| | | **Tequesta Comprehensive Plan** | | | |
| | | CM | CM-5 | P2.1.3 | Incorporate plan to reduce nonpoint pollutant to IRL Aquatic Preserve. |
| | | **Sewall's Point Comprehensive Plan** | | | |
| | | | | | *(1) No policies re: activity that affect water quality.*<br>*(2) No reference re: point, nonpoint pollution & regs.* |

**ISSUE:** Releases of artificial substances from urban, marina, and agricultural activities

| | | | | | |
|---|---|---|---|---|---|
| | | **St. Lucie County Comprehensive Plan** | | | |
| | | CM | 7-108 | O7.1.3 | Protect marine resources by mgmt. program & regs.<br>*(1,2) No criteria re: water quality & environmental effects.*<br>*(3) Doesn't contain marine sanitation ordinance or address live-aboards.*<br>*(2) Need to address reuse of reclaimed water.*<br>*(3) Consider acquisition of buffers along shoreline.*<br>*(7) CM policies re: culverts, fertilizers into drainage.* |
| | | **St. Lucie Village Comprehensive Plan** | | | |
| | | CM | 5-53 | P5.1.3.1-13 | 13 policies re: marinas, point pollution, docks, drainage, regs., nonpoint pollutant reduction. |
| | | **Ft. Pierce Comprehensive Plan** | | | |
| | | INFRA | 76 | P4.1.6.9 | City to adopt LDRs for cooperation plan for identification & elimination of illegal discharges & connections to drainage waterways. |
| | | CM | 5-57 | P5.1.1.11 | Marina siting criteria to require sewage pump-out service measures to prevent fuel storage tank leakage, compliance w/ DNR pollutant spill contingency plan. |

**ISSUE:** Wastewater and sewage effluent and leachates from septic tanks, treatment plants and agricultural areas

| Indian River Lagoon SWIM Plan | Jensen Beach/Jupiter Inlet Aquatic Preserve Mgt Plan | Ft. Pierce Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Natural Systems** | **Mgmt. Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| OBJ. C: Reduction of excessive point and nonpoint source loadings of nutrients to level that promotes macrophyte-based system (W/S quality program).<br>OBJ. E: Reduction of anthropogenic loadings of fecal & coliform bacteria of shellfish harvesting areas to levels below state standards or to natural, background levels. | GOAL A.4: Improve water quality.<br>OBJ. A.4.1: Coordinate with DER, WMDs, & local govts to improving water quality in lagoon.<br>TASK A.4.1.1: Enter into a agreement with DER to utilize Pollution Recovery Trust Funds to conduct demonstration projects that improve water quality.<br>TASK A.4.1.2: Coordinate with SJRWMD/SFWMD & local govts to improving surface water mgmt. & stormwater discharges into aquatic preserve. | INFRA<br><br><br><br><br>CM | 4-70<br><br><br><br><br>5-59 | P4.1.1.2-4<br><br><br><br><br>P5.1.3.2 | Priority to monitor wastewater plant effluent & sanitary sewer to septic tanks. Seek alternate wastewater effluent disposal strategies as outfall extension, dechlorination, mixed zone expansion if surface water disposal not feasible. Altering wastewater sludge disposal.<br>Aquatic toxicity testing on treated effluent.<br>*COMMENTS:*<br>*[3] Require hookup of existing septic, new permits not granted except special circumstances.*<br>*[5] Eliminate wastewater disposal into IRL.*<br>*[5] Need more specifics than toxicity testing.* |
| | | **Jupiter Inlet Colony Comprehensive Plan** | | | |
| | | FLU<br>CM | 13<br>36 | P 4.3<br>P 1.3<br><br>P 2.1 | Those on tanks governed by FL law.<br>Prohibit individual wells for potable water.<br>*[1] No regulation, management techniques.*<br>Strict maintenance of tanks.<br>*COMMENTS:*<br>*[1] No method, date.*<br>*[2] Establish standards to convert tanks to system.* |
| | | **Jupiter Island Comprehensive Plan** | | | |
| | ** Town has no central sewer system. | INFRA | 23 | P4.01.05.0 3<br><br><br>P4.01.05.0 4 | Permit wastewater effluent disposal thru septic tanks while protecting water.<br>*[4,5] No detail, data, in conflict with previous policies.*<br>Consider program for periodic inspection of all tanks.<br>*[4] No specifics.*<br>*COMMENTS:*<br>*[2] Shallow monitoring wells to be installed.*<br>*[2] Analysis of pollution from tanks to be performed. Need measurable objectives to ensure impacts of tanks.* |
| | | **Martin County Comprehensive Plan** | | | |
| | | SANSEW<br><br><br>SANSEW<br><br><br><br><br><br>DRGWAQ<br><br> | 10-15<br><br><br>10-17<br><br>10-18<br><br>10-18<br>10-19<br>10-22<br>13-29<br>13-30 | P 1.e<br><br><br>P 1.i & j<br><br>P 2.b-d<br><br>P 2.e<br>P A.2.i<br>O5&P5a-c<br>P A.1.o<br>P A.1.q<br>P A.1.m | Regulate collection to areas with septic failure, ground, surface water pollution.<br>*[1] No objectives for determining impact septic discharges.*<br>Package treatment plants prohibited in certain areas. Deficiencies corrected prior to development order.<br>Wastewater plant facilities location, inspection & development.<br>LOS for packaging wastewater treatment plants not listed.<br>By 1992, have industrial waste effluent program.<br>Sanitary sewer deficiencies & connections.<br>Tanks allowed on single family lots with minimum acreage.<br>All development to have well & septic evaluation.<br>New, existing development to connect to water, wastewater system.<br>*COMMENTS:*<br>*[2] Needs tank mgmt. plan & specific policy to limit, reduce tanks & package plants in IRL.* |

**ISSUE:** Wastewater and sewage effluent and leachates from septic tanks, treatment plants and agricultural areas

| | | | | | |
|---|---|---|---|---|---|
| | | **Ocean Breeze Park Comprehensive Plan** | | | |
| | ** City's wastewater plant no longer discharges into IRL. | INFRA | 103 | P 1.1 | All tanks maintain LOS per Health Dept. |
| | | | 106 | O 2 | Correct sanitary sewer facilities deficiencies. |
| | | | | | *[1] No date, method.* |
| | | | | O 3 | Coordinate regulating future development sanitary sewer. |
| | | | | P 3.1 | Developers submit formal notice re: sanitary sewer along with development impact. |
| | | | 111 | O 12 | Protect natural drainage features thru design & regs. |
| | | | | | *[1] No dates, method.* |
| | | | | | *COMMENTS:* |
| | | | | | *[2] Doesn't address disposal of sludge from package plants.* |
| | | | | | *[4] Consider hookup with county wastewater plant, eliminate septic & package plant, risk of groundwater contamination.* |
| | | **Palm Beach County Comprehensive Plan** | | | |
| | | SANSEW | 15-SS | P 2-b,c | Septic tanks allowed on single-family lots & LOS for tanks. |
| | | | | O 3 | Correct sanitary sewer deficiencies. |
| | | | | | *[1] What is the method?* |
| | | | 17-SS | O 4 | Rehabilitate sanitary sewer system. |
| | | DRNG | 3-DR | O 1 | Adopt LOS to maintain runoff levels with receiving waters. |
| | | | 6-DR | O 4 | 3 policies address monitoring to evaluate LOS for drainage. |
| | | | 7-DR | O 5 | Adopt drainage plan in cooperation with SFWMD. |
| | | **Sewall's Point Comprehensive Plan** | | | |
| | | FLU | 19 | O 6.0 | Development to connect with county potable water & sanitary sewer. |
| | | | 22 | P 9.5 | Identify tanks contaminating water & sensitive lands, feasibility of eliminating tanks within 5 yrs. |
| | | SANSEW | 61 | O 2.0 | Coordinate with county for sanitary sewer service & protect IRL & water supplies. |
| | | | | | *[1,2,3,6] No specifics or measure.* |
| | | | | | *COMMENTS:* |
| | | | | | *[4] Should mandate region wastewater treatment hookup.* |
| | | | | | *[7] Should not encourage tanks.* |

**ISSUE:** Wastewater and sewage effluent and leachates from septic tanks, treatment plants and agricultural areas

| | | | | | |
|---|---|---|---|---|---|
| | | **St. Lucie County Comprehensive Plan** | | | |
| | | FLU | 1-63 | P1.1.5.4 | Complete wastewater master plan. |
| | | | 1-64 | P1.1.5.9 | Septic disposal system for industrial waste. |
| | | | | | *[1,2] No method.* |
| | | | 1-64 | P1.1.5.11 | Existing development re: central water & sewer system. |
| | | | 1-64 | P1.1.5.12 | Subdiv/development have water/wastewater collection. |
| | | | 1-86 | P1.1.9.14-15 | New development allowed in floodplain, to be consistent with soils. |
| | | | 1-88 | O 1.1.12 | DO if public facilities meet LOS. |
| | | | 1-88 | P1.1.12.4 | Development not with central water & sewer. |
| | | SANSEW | 6A-24 | P6A.1.1.2 | Central sanitary sewer limited utility service areas. |
| | | | | | *[1,2] Not measurable.* |
| | | | 6A-24 | P6A.1.2.2 | Sanitary sewer LOS for unincorporated areas. |
| | | | 6A-25 | P6A.1.2.7 | Development/regional sanitary sewer system. |
| | | | 6A-27 | P6A.1.4.2 | Limit onsite wastewater system to existing septic/package plants. |
| | | | 6A-28 | P6A.1.4.4 | Amend ordinance to regulate expansion of site WWTPs & comply with stds. |
| | | | 6A-28 | P6A.1.5 | Develop sanitary sewer master plan. |
| | | | 6A-29 | O6A.2.1 | Develop unincorporated areas wastewater masterplan. |
| | | | 6A-29 | P6A.2.1.1 | Wastewater master plan & criteria. |
| | | | 6A-31 | O6A.2.3 | Acquire private utilities in unincorporated areas, policies re: acquisition, package. |
| | | DGDWTAQ | 6C-43 | P6C.3.2.2 | County health re: issue of tank permit. |
| | | POTWAT | 6D-21 | P6D.1.4.2 | Those with tanks evaluated for water service. |
| | | CM | 7-110 | P7.1.4.2 | Sewage treat plants required to connect to central treat plants. |
| | | | 7-111 | P7.1.4.7 | By 1995, plan for central treat & disposal of effluent from development on barrier isles not served. |
| | | | | | *COMMENTS:* |
| | | | | | *[1] No LOS for package plants, sanitary sewer facilities.* |
| | | | | | *[7] Need to address possible contamination of private wells.* |
| | | **St. Lucie Village Comprehensive Plan** | | | |
| | | INFRA | 4-17 | O 4.1.1 | Land regs. re: development, 3 policies re: permits, treatment & septic system. |
| | | | | O 4.1.2 | Central sanitary sewage system introduced to village, 4 policies re: feasibility of system, permits. |
| | | | | | *[3] Should connect to central sewer system.* |
| | | | 4-18 | P4.1.2.4 | If development within 50 yds of IRL, septic drainfields at least 4 feet above highest groundwater level. |
| | | | | | *COMMENTS:* |
| | | | | | *[1] Inconsistent LOS re: sanitary sewer & reliance on tanks.* |
| | | | | | *[1] No mention of amending LOS when converts to central system.* |
| | | | | | *[1] Inconsistency re: use of tanks & density of single family.* |
| | | | | | *[2] Tanks should not be permitted due to soil limitations.* |
| | | | | | *[2] With individual wells & tanks not used, sanitary sewer LOS not applicable.* |
| | | | | | *[6] Sanitary sewer LOS not applicable due to septic tanks.* |
| | | **Stuart Comprehensive Plan** | | | |
| | | INFRA | IV-1 | P A1.1 | Correct deficiencies of wastewater & water, drainage system. |
| | | | IV-2 | PA1.4B | Implement water/sewer master plan. |
| | | | IV-4 | PA3.1 | Update, implement recs. of water/wastewater master plan. |
| | | | IV-6 | O A6 | Determine tanks impacts on water quality, study by 1995. |
| | | | | P A7.4 | LOS re: sanitary sewer & drainage. |
| | | | | | *COMMENTS:* |
| | | | | | *[2] Need policy for tank removal.* |
| | | | | | *[4] Replace tanks with central system.* |
| | | | | | *[5] Need study on tanks & effects on estuary.* |

**ISSUE:** Wastewater and sewage effluent and leachates from septic tanks, treatment plants and agricultural areas

| | | | | | |
|---|---|---|---|---|---|
| | | **Tequesta Comprehensive Plan** | | | |
| | | DRNG | DR-3 | O 1.2 | Incorporate wastewater system design/construction criteria. |
| | | SANSEW | SS-1 | P 1.1.1 | Installation/use of septic tanks governed by FAC & new development to connect to central system. |
| | | | SS-1 | P 1.1.3 | Eliminate use of septic in all development. |
| | | | SS-2 | P 1.1.7 | Tanks acceptable alternative, yet study taken if water quality tests prove contamination. |
| | | CONS | C-7 | P 2.5.2 | Prohibit tank & private sanitary sewer systems in coastal areas. |
| | | **Jupiter Comprehensive Plan** | | | |
| | | INFRA | IV-4 | P 1.3.5 | New & existing development to connect with ENCON sewer. |

**ISSUE:** Dredge and fill operations/shoreline alteration

| Indian River Lagoon SWIM Plan | Jensen Beach/Jupiter Inlet Aquatic Preserve Mgt Plan | Ft. Pierce Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Natural Systems** | **Mgmt. Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| OBJ. B: Assessment of suspended matter loadings. | POL. GUIDELINE 7: Promote revegetation of shorelines by stipulating in permit review process that wetland vegetation be used for shoreline stabilization either alone or with riprap. | CM | 5-56 | P5.1.1.8-11 | Alteration which degrades estuarine quality prohibited unless it provides access to marine resources. Require vegetative buffers to IRL, tributaries. Encourage pilings. Marina siting criteria, 12 parts. |
| | POL. GUIDELINE 8: Reduce impact of turbidity on seagrasses by banning dredging for sole aim of accommodating boats with drafts greater than the mooring, operational capabilities. | | 5-59 | P5.1.3.3 | No constrictions re: water circulation in lagoon permitted unless environment studied. |
| | GOAL A.1: Maintain resource inventories. | CONS | 6-46 | P6.1.2.3 | Cooperation re: dredging, fill permits. |
| | OBJ. A.2.2: Inventory & assess cumulative impacts on natural resources. | | | | *COMMENTS:* |
| | TASK A.2.2.1: Survey docks, piers, dredged areas, shoreline stabilization & other human uses. | | | | *[3] Replace seawalls with slopes or riprap. Acquire buffer areas between development & shorelines.* |
| | GOAL 4: Improve water quality. | | | | |
| | OBJ. A.4.1: Coordinate with DER, WMDs & govts to improve water quality in lagoon. | | | | |
| | | **Jupiter Comprehensive Plan** | | | |
| | TASK A.4.1.1: Enter into agreement with DER to utilize Pollution Recovery Trust Funds to conduct demonstration projects that improve water quality. | FLU | I-12 | P1.3.12 | Development to have environmental assessment. *[5] Should be in all land use decisions* |
| | | INFRA | IV-3 | P1.1.8 | Continue maintenance of drainage system & plant shoreline vegetation. |
| | OBJ. B.1.4: Ensure that human use of the preserve doesn't create turbidity levels that adversely affect submerged vegetation. | CONS | V-6 | P1.4.10-11 | Seawalls discouraged, can be replaced if exists. |
| | | | | P1.4.12 | Sloping revetments used instead of seawalls. |
| | TASK B.1.4.2: Require that all dredge & fill projects use effective turbidity control practices. | | | P1.4.13 | Dredge & fill of submerged lands & wetlands prohibited unless approved or mitigated. |
| | | | | | *[2] Is inconsistent, irresponsible, some unprotected.* |
| | | | | P1.4.18-19 | Dredging for navigational access/flood control. |
| | | CM | VI-4 | P1.1.6 | Encourage wetland reestablishment in previous areas where feasible. |
| | | | VI-6 | P1.4.5 | Canals prohibited except for agricultural & drainage. |
| | | | VI-7 | P1.5.4 | Discourage development projects that require dredge & fill. |
| | | | | P1.5.8 | Prevent unnecessary channels. |
| | | | VI-8 | P1.5.10 | Docks & piers constructed in way so as to not restrict water flow or block view. |
| | | | | P1.5.15 | Prevent & regulate flood barrier construction. |
| | | | VI-9 | P1.6.2 | Marina siting study & development of criteria. |
| | | CONS & CM | V-7 | P1.4.20 & P1.4.6 | Turbidity control procedures to protect water quality adjacent to construction. |
| | | | | | *COMMENTS:* |
| | | | | | *[3] Need buffer between development & shoreline. Encourage seawall removal.* |
| | | **Jupiter Inlet Colony** | | | |
| | | INFRA | 29 | P 1.2 | All development to be consistent with LOS. |
| | | | 31 | P 1.5 | No more than 50% of lot to be developed. |
| | | CM | 36 | P 1.1-2 | Prohibit development that impacts wetland, seagrasses, mangroves, habitats thru review process. |
| | | | | | *[1] No method & impacts of development on water.* |
| | | | 37 | O 3 | Shoreline development for residential, recreation, water dependent uses. |
| | | | | | *[1] No specifics or measures.* |
| | | CONS | 42 | P 3.1 | Work with owners re: shoreline erosion. |
| | | | | | *[1] No methods.* |

**ISSUE:** Dredge and fill operations/shoreline alteration

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| | | **Jupiter Island Comprehensive Plan** | | | |
| | | FLU | 1 | P1.06.01.01 | Marine & estuary wetland "should" be protected from dredging & fill activities. *[3,4,5] Allows for mitigation, conflicts with P1.06.01.02.* |
| | | | 2 | P1.05.05.01 | LOS for infrastructure applied to development approval. |
| | | INFRA | 24 | P4.01.05.06 | Require new homes to have onsite irrigation wells. |
| | | CM | 26 | P5.01.01.01 | Marine & estuarine wetland protected from dredge/fill activities thru standards. *[1,4] No method or measure.* |
| | | | 27 | P5.01.04.03 | Shoreline planted with vegetation, hardening of shore to stabilize it, trap sediments & nonpoint source pollution. |
| | | | | P5.01.04.05 | Regs. to prohibit structures that impede IRL circulation. |
| | | | | O5.01.05 | Protect natural functions of coastal barrier. *[4] No mention of wetlands.* |
| | | | | P5.01.05.06 | Construction/seawalls permitted seaward of CCL in accordance with regs. *[3,4] No data, analysis, specifics.* |
| | | | 28 | | |
| | | | | P5.01.05.07 | Rebuilding of seawalls as appropriate to town's character. *[3,4] Inconsistent with 9J5, unnecessary.* |
| | | | | P5.01.05.08 | Construction of N. Beach Rd & preservation of mangroves. |
| | | **Martin County Comprehensive Plan** | | | |
| | | CM | 8-32 | PA.4.a-e | Pol include shoreline perform stand, buffers, fill, mgmt. plans, construction, coordination. |
| | | CONS&OS | 9-16 | PA.5.a-h | 8 policies for erosion reduction from agricultural & development slope protection, bank stabilization, drainage outfalls. |
| | | | 9-35 | PA.8.a | Shoreline perform standards-protection zone, vegetation, uses, mangroves, exceptions. |
| | | | 9-39 | PA.8.b-d | Regulation of shore construction activity near estuary, landscape, tidal flushing, circulation & prohibiting canals. |
| | | DRGWAQ | 13-30 | PA.2.c | Activities not permitted which affect recharge quality. |
| | | | | | *COMMENTS:* *[1] Establishment of LOS, none for existing development.* *[3] Before seawall construction, vegetative shoreline method to be shown ineffective.* *[7] Shoreline stabilization, protection of marine resources need policies.* |
| | | **Ocean Breeze Park Comprehensive Plan** | | | |
| | | CM | 143 | P 2.7 | Limit development, no development on submerged lands & western part of IRL. |
| | | | 146 | P 5.1 | Revise bldg. code to ensure estuarine quality not degraded. *[1] No method.* |
| | | | | P 5.3 | No permitting multi-slip marina in town's intracoastal. |
| | | | 147 | P 5.6 | Shoreline landscape to include native species, xeriscape. |
| | | | | O 6 | Prioritize shoreline uses. *[1] Objective is not specific.* |
| | | CONS | 161 | O1 & P1.1 & P1.3 | Improve shore along IRL. Maintain natural vegetation along shoreline for stabilization. Restrict construction to eliminate possibility of marina in IRL. |
| | | | 164 | P4.2 | Continue shoreline mgmt. & regulate new development to accommodate protection & conservation. |
| | | CIE | 208 | O 4 | Improvements of IRL shoreline to seawall maintenance. *COMMENTS:* *[3] Town constructed seawall along IRL border-not environmentally sensitive.* |
| | | **Palm Beach County Comprehensive Plan** | | | |
| | | CONS | 6-C | P4-a | Adopt marina siting ordinance to prevent no net loss of wetland values & functions. |
| | | CM | 4-CM | P3-c | Prohibit shoreline alter & construct that degrades wetland. |
| | | | 7-CM | P 5-b | Re: placement of material from inlet dredging not having effect on water quality, resources. |

**ISSUE:** Dredge and fill operations/shoreline alteration

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|---|---|---|---|---|---|
| | | **Sewall's Point Comprehensive Plan** | | | |
| | | FLU | 12 | O 2.0 | Development must be consistent with FLU. |
| | | | 12 | P 2.1 | Amend development code in 1990 to prohibit development not consistent with existing use of area. |
| | | | 13 | P 2.4 | Development orders continuing with facilities & services by 1990. |
| | | POTH20 | 88 | P 1.2 | 1990 land code require development concurrent with LOS. |
| | | CM | 116 | P 1.2 | Restore resources, estuary & drainage with regs. to mitigate degradation, buffers, landscape, ordinance. |
| | | | | | *[1] Not measurable, specific.* |
| | | | | | *COMMENTS:* |
| | | | | | *[2] No reference to dredging, filling of wetlands & no specifics re: marina siting criteria.* |
| | | **St. Lucie County Comprehensive Plan** | | | |
| | | FLU | 1-64 | P1.1.5.11 | Existing development re: central water & sewer system. |
| | | | 1-64 | P1.1.5.12 | Subdivision & development have water & wastewater collection. |
| | | | 1-86 | P1.1.9.14-15 | New development allowed in floodplain, to be consistent with soils. |
| | | | 1-88 | O 1.1.12 | DO if public facilities meet LOS. |
| | | | | P1.1.12.4 | Development not with central water & sewer. |
| | | SANSEW | 6A-25 | P6A.1.2.7 | Development & regional sanitary sewer system. |
| | | CM | 7-111 | P7.1.4.3 | New causeways across IRL to be prohibited to reduce water circulation constriction. |
| | | | | P7.1.4.5 | Dredging of IRL to be placed on uplands except as authorized. |
| | | | | P7.1.4.8 | By 1990, enact LDRs to prohibit shoreline alteration & construction that degrades estuarine productivity. |
| | | CONS | 8-40 | O 8.1.4 | Regs. re: wetland protection, 9 policies re: buffer, dredge/fill, acquisition, coordination, mitigation. |
| | | **St. Lucie Village Comprehensive Plan** | | | |
| | | FLU | 1-42 | O 1.1.2 | Development orders, permits if resources protected & consistent with GOP. |
| | | | | P1.1.2.2 | Development which endangers exotic or endangered species prohibited, regs. re: flora, wetlands. |
| | | | | | *[1] Not supported by data.* |
| | | | | | *[2] Should be part of planning process & not review process.* |
| | | | 1-43 | P1.1.2.5 | Developer responsible for runoff consistent with GOP. |
| | | | | | *[2] What is the method?* |
| | | | 1-44 | O 1.1.3 | Orders issued if soil & topography compatible, 2 policies. |
| | | | | O 1.1.4 | Orders issued if facilities meet LOS, 3 policies re: timing, location. |
| | | CM | 5-59 | P5.1.7.7 | Seawall repair after hurricane. |
| | | | 5-61 | O 5.1.9 | LOS, infrastructure & development orders, 3 policies re: funding, LOS, development. |
| | | CONS | 6-35 | P6.1.2.3 | Require compliance re: dredge & fill process & IRL AP mgmt. plan. |
| | | | | | *[2] Needs method, measure.* |
| | | | | P6.1.2.4 | Adopt regs. re: buffer around wetland, retention, deepwater habitats. |
| | | | | | *COMMENTS:* |
| | | | | | *[5] Need policy re: vegetation in landscaping in coastal zones.* |

**ISSUE:** Dredge and fill operations/shoreline alteration

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| | | **Stuart Comprehensive Plan** | | | |
| | | FLU | I-1 | PA3.2 | Development to those served by utilities. |
| | | | I-2 | O A4 | Construction along water, drainage, not increase flooding, 1 policy re: stormwater ordinance. |
| | | | | | *[1] No method.* |
| | | INFRA | V-4 | PA4.2 | Post development runoff not to exceed pre-development. |
| | | CONS | V-2 | PA2.5 | No adverse effects on aquifer, quality, re: runoff, mgmt., recharge. |
| | | | | | *[1] No method.* |
| | | CIE | VIII-3 | PA2.2 | Develop amendments based on 6 guidelines. |
| | | | | PA3.1 | Future development to pay drainage, water, sewer facilities. |
| | | | VIII-5 | PB1.2 | Development orders coordinated with development regs. |
| | | | VIII-9 | PB2.2 | Develop if facilities & services are available. |
| | | CM | IX-3 | PA4.5 | Prohibit canals. |
| | | | | P A4.4 | Development to prevent negative alteration of tidal flushing, circulation. |
| | | | | P A4.6 | Turbidity control procedures used to protect water quality. |
| | | | | | *COMMENTS:* |
| | | | | | *[2,3] Encourage removal of existing seawalls.* |
| | | | | | *[6] Describe efforts to implement SWIM policies. Need acquisition buffers between development & shorelines.* |
| | | **Tequesta Comprehensive Plan** | | | |
| | | FLU | FLU-3 | P1.6.1 | Require surface water mgmt. permit/water use permit for development order. |
| | | FLU | FLU-3 | P 1.4.5 | Mangrove trimming/removal consistent with county mangrove protection ordinance. |
| | | FLU | FLU-5 | P 1.4.7 | In 1990, adopt mangrove protection ordinance. |
| | | DRNG | DR-4 | 1.2.4-5 | Regs. for runoff & protection of water quality thru use of BMPs. |
| | | | | | *[6] SWIM to eliminate this.* |
| | | CONS | C-1 | O 1.2 | Subdivision regs. to have recharge standards. |
| | | CONS | C-6 | O 2.3 | Prohibit development in IRLAP that affects water quality, wetlands. |
| | | CONS | C-7 | P2.7.1 | Support Jupiter Inlet District dredging for relief from hurricane flood. |
| | | | | | *[6] Inconsistent with aquatic preserve mgmt. plan.* |
| | | CM | CM-3 | P1.3.2 | Prohibit dredging & filling activities near areas. |
| | | | CM-12 | P4.1.1 | Require 20 ft. buffer along IRL Aquatic Preserve. |

**ISSUE:** Loss and alteration of seagrass beds due to shoreline development, jet ski & boat activity

| Indian River Lagoon SWIM Plan | Jensen Beach/Jupiter Inlet Aquatic Preserve Mgt Plan | Jupiter Island Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Natural Systems** | **Mgmt. Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| OBJ. A: Preservation of existing seagrass beds.<br>OBJ. B: Restoration of lost seagrass beds.<br>OBJ. C: Creation of new seagrass beds where feasible (Habitat Pres. Program).<br>OBJ. B: Assessment of suspended matter loadings rates as to contribution to "much" & turbidity problems & reduction of suspended matter loadings to maintain overall health of IRL (W/S quality program). | POL. GUIDELINE 1: Promote recognition that seagrasses provide habitat & food source.<br>POL. GUIDELINE 2: Designate waterway as year-round idle speed zone.<br>POL. GUIDELINE 8: Reduce turbidity impact on seagrasses by banning dredging for purpose of boats.<br>OBJ. B.1.4: Ensure human use of preserve does not create turbidity levels that adversely affect submerged vegetation. | CM | 26 | P5.01.03.01 | Estuarine fauna should be protected by establish of boat speed limits in designated manatee habitats & those containing seagrass. |
| | | **MARTIN COUNTY COMPREHENSIVE PLAN** | | | |
| | | CONSOS | 9-42 | P A.8.h | No modification of grassbeds, though sensitive to turbidity, nutrients consistent with natural system |
| | | **JUPITER COMPREHENSIVE PLAN** | | | |
| | | CONS | V-7 | P1.5.1-20 | 20 policies re: habitats, vegetation, wetlands & regulations for protection.<br>*COMMENTS:*<br>*[2] Need policies re: seagrass beds & construction.* |
| | | **SEWALL'S POINT COMPREHENSIVE PLAN** | | | |
| | | CONS | 155 | P 5.1-4 | 4 policies re: protect of marshes, mangroves, grassbeds, ESAs. |
| | | **ST. LUCIE COUNTY COMPREHENSIVE PLAN** | | | |
| | | CM | 7-109<br>7-114 | P7.1.3.4&5<br>O 7.1.7 | Policies re: seagrass, sanctuaries, endangered.<br>Regs. re: prioritizing shoreline uses, water uses.<br>*COMMENTS:*<br>*[3] Port expansion hurts seagrass.* |
| | | **Tequesta Comprehensive Plan** | | | |
| | | CONS | C-5<br>C9-11<br>C-9 | O 2.2<br>P2.13.1-13<br>O 2.13<br>P2.13.1-13 | Prohibit development along IRL AP that destroys seagrass.<br>Policies re: wetlands, mangroves, seagrasses, preservation/LU.<br>Protect/conserve mangroves, wetlands & seagrasses.<br>Specific policy re: above & those that affect them.<br>*COMMENTS:*<br>*[3] Both CONS & CM neglect negative effects associated with cumulative impacts to seagrasses.* |
| | | **Stuart Comprehensive Plan** | | | |
| | | CONS<br><br>CM | V-7<br><br>IX-2 | P A8.2<br>P A8.3<br>P A3.1-2 | Sloping revetments along shoreline.<br>Replant seagrass during redev shall be encouraged.<br>Site review re: habitat, wildlife, fish, endangered. |
| | | **Ocean Breeze Park Comprehensive Plan** | | | |
| | | CONS | 161<br><br><br><br>163 | O 1 & P1.1-5<br><br><br><br>P4.1 | Improve IRL banks & shores, 5 policies re: native vegetation, shoreline buffer, marina construction & floodplains use.<br>Establish nonpoint control program & floodplains ordinance by 1991.<br>*[1] No specifics.*<br>Developers to consider hydrological, vegetation covers in development plans & include development regs. |

**ISSUE:** Loss and alteration of seagrass beds due to shoreline development, jet ski & boat activity

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|---|---|---|---|---|---|
| | | **Ft. Pierce Comprehensive Plan** | | | |
| | | CM | 5-57<br><br>5-58 | P5.1.1.11<br><br>P5.1.2.2<br>P5.1.12.2 | Marina siting criteria to require dock design have light penetration enough for shallow water habitats.<br>All docks require approval by DNR, DER, COE & city.<br>Marina proposals to include plans designating boat speed limits in seagrass beds |
| | | **Palm Beach Comprehensive Plan** | | | |
| | | CM | 5-CM | P3-1 | Shall protect seagrasses thru development & improvement of freshwater & marine wetland ordinances. |

**ISSUE:** Loss of wetlands, mangroves due to shoreline development, navigational improvements and mosquito impoundments

| Indian River Lagoon SWIM Plan | Jensen Beach/Jupiter Inlet Aquatic Preserve Program | Jupiter Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Natural Systems** | **Mgmt. Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| OBJ. D: Restoration of ecological functions of impounded marshes where feasible.<br>OBJ. E: Preservation of existing marshes.<br>OBJ. F: Creation of marshes where feasible<br>(Habitat Pres. Program). | POL. GUIDELINE 7: Permit review process stipulation that native wetland vegetation used for shore stabilization.<br>GOAL.3: Restore estuarine habitat.<br>OBJ. A.3.1: Identify suitable unvegetated & disturbed shoreline areas as restoration sites. | CONS | V-6 | P1.4.14-15 | Buffer zones along waterway. Avoid connections that disrupt wetlands, grasses & shellfish. |
| | | CM | VI-1 | O1.1 | Protect/preserve wetland thru regs. |
| | | | VI-3 | P1.1.4 | Mgmt. of wetlands to be consistent with other plans. |
| | | | VI-4 | P1.1.9 | Re:-establish wetland vegetation C-18 canal. |
| | | | | P1.1.8 | Impoundments modified for provision of marine fisheries habitat, water quality. |
| | | | VI-5 | P1.2.5 | Support SFWMD wetland restoration program. |
| | | | VI-6 | P1.4.4 | Alterations of tidal circulation & flushing pattern not permitted. |
| | | | | | *COMMENTS:*<br>*[1] Objectives of CONS element not measurable.* |
| | | **JUPITER INLET COLONY COMPREHENSIVE PLAN** | | | |
| | | CONS | 42 | P4.3 | Protect mangroves, stabilize shoreline, enforce Mangrove Protection Ordinance.<br>*[1] No method, no implementation.* |
| | | **Jupiter Island Comprehensive Plan** | | | |
| | | FLU | | O1.06.01 | Protect, conserve wetlands & natural resources.<br>*[3,4,5] Objective & policies aren't specific & have no data, analysis for support.* |
| | | | | P1.06.01.01 | Marine & estuarine wetlands to be protected from dredge/fill activities. |
| | | | | P1.06.01.02 | Future alteration of wetlands to be accompanied by mitigation measures. |
| | | CM | 26 | P5.01.01.02 | Degradation of wetlands should be accompanied by mitigation.<br>*[4,5] Contradicts previous policy above.* |
| | | CONS | 33 | P6.01.06.03 | Regs. revised to protect IRL, wetlands associated with development. |
| | | | 33 | O6.01.06 | Regs. for vegetated communities to require environmental assessments for large development & road construction. |

**ISSUE:** Loss of wetlands, mangroves due to shoreline development, navigational improvements and mosquito impoundments

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| | | **Martin County Comprehensive Plan** | | | |
| | | CM | 8-13 | PA.1.a-b | Wetlands protected-perform standards met before order. |
| | | | 8-16 | PA.1.b.7b | Wetlands encroachment. *[3,7] Not consistent with P A.1.a. Allows wetland mitigation without environmental agencies.* |
| | | | 8-18 | PA1.b.8d | Wetland deficiencies, criteria, performance standards, dredging. |
| | | | 8-19 | PA.1.c-d | Two policies re: wetlands protection, mgmt. plan, exceptions, density. |
| | | | 8-31 | P A.3.f | No development allowed except as listed. |
| | | CONSOS | 9-18 | O 7 | Protect/preserve function of wetland & upland systems. |
| | | | 9-18 | PA.7.a-b | Defines wetland & protection. |
| | | | 9-23 | PA.7.c | Designated wetland areas. |
| | | | 9-24 | PA.7.d | Buffer zones & performance criteria for wetland. *COMMENTS: [1] Consider lower intensity land use in wetlands. [2] Wetland definition re: soils. Density transfer not for wetlands. [3] Evaluate impoundments to natural. Habitat alteration prohibited in parks. [3] Loss of wetland thru mitigation, relocation revised. [3] Boating guidelines/marina siting to include manatee protection, slow or idle speeds. [7] No specifics on identification of wetland as condition for approval. Avoid effects of wetland as option. [7] Explain exemption for wetland & mitigation, density wetlands to uplands. Reevaluate wetland on LU map. Explain sites of wetland [GFWFC] County wetland policy revised in function, accommodate restoration.* |
| | | **Ocean Breeze Park Comprehensive Plan** | | | |
| | | CONS | 161 | O 1 & P1.1-5 | Improve IRL banks & shores, 5 policies re: native vegetation, shoreline buffer, restrict marina construction & floodplains use, establish nonpoint control program, establish floodplains ordinance by 1991. *[1] No specifics.* |
| | | **Palm Beach County Comprehensive Plan** | | | |
| | | CONS | 6-C | O 4 | Maintain functions & values of wetlands, with ordinance, buffer, restoration—6 policies. *[7] Little detail.* |
| | | | 6-C | P4-b,c | Wetlands protection & mitigation. |
| | | CM | 4-CM | P3-c,f, h,l | Protection of wetlands, marine resources thru freshwater & marine wetlands, marina siting, sea turtle ordinance. |
| | | | 6-CM | P3-m | Prohibit shoreline alteration & construction that degrades natural resources, wetlands. |

**ISSUE:** Loss of wetlands, mangroves due to shoreline development, navigational improvements and mosquito impoundments

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| | | **St. Lucie County Comprehensive Plan** | | | |
| | | CM | 7-106 | O7.1.2 | Protect wetlands & habitat by development criteria, no loss, 8 policies re: regs., buffer, erosion.<br>*[1,2] Isn't measurable, specific.*<br>*[3] Verbiage allows mitigation.* |
| | | | 7-107 | P7.1.2.1-4 | By 1990 regs. re: buffer, exotic vegetation, native vegetation.<br>*[1,2,3] No specifics.* |
| | | | 7-108 | P7.1.2.5 | By 1994 mosquito impoundments assessed for marine fisheries habitat, water quality. |
| | | | 7-108 | P7.1.2.6-7 | Regs. re: site plans & wetland alterations, mitigation, identification. |
| | | | 7-109 | P7.1.3.3 | Specific/cumulative impacts of development/redevelopment on wetlands limited by implement of policy under O7.1.2. |
| | | | 7-115 | P7.1.7.1-4 | 4 policies re: marinas, regs., construction.<br>*[3] Consider shoreline stabilization ordinance, no policy for wetland vegetation.* |
| | | CONS | 8-41 | P8.1.4.4 | LDRs to require buffer zone of native vegetation around wetland & deepwater habitat. |
| | | | | P8.1.4.5 | Cooperate with DER, DNR, SFWMD & COE on dredge/fill permits by commenting on county wetland regs. |
| | | | | P8.1.4.56 | LDRs to protect wetlands thru reduced paving, easements, cluster site planning & micrositing of bldgs. |
| | | | 8-51 | O8.1.12 | Designating wetlands & ESAs, 3 pol re: coordination, vegetation.<br>*COMMENTS:*<br>*[1,2] No restoration of degraded natural resources.*<br>*[7] Proposed residential density in environmentally sensitive areas.*<br>*[3] Any non-functional impoundments to be returned to natural system.* |
| | | **St. Lucie Village Comprehensive Plan** | | | |
| | | INFRA | 4-20 | O 4.1.5 | Assist mosquito control district re: maintenance, drainage canals improvement, 4 policies re: LOS, development, discharge, water sheds. |
| | | CM | 5-50 | O5.1.1 | Regs. re: development & wetlands, marine resources & wildlife habitat.<br>*[1] Need analysis of impacts on natural resources.*<br>*[5] Need policies re: manatee protection, native vegetation.* |
| | | | | P5.1.1.1-8 | 8 policies re: density, IRL mgmt., flora, grasses, wetland alter, buffers, exotic vegetation.<br>*[3] P 5.1.1.3 re: mitigation, performed within coastal area.* |
| | | CONS | 6-34 | P6.1.2.2 | Regs. re: site plan, wetland alterations.<br>*[5] While protecting wetland from alteration, policy needs clarification.* |
| | | **Stuart Comprehensive Plan** | | | |
| | | FLU | I-2 | PA3.3 | Adopt protection measures providing perform stds. for wetlands shoreline alteration, mangrove protection. |
| | | CONS | V-3 | PA4.1 | Continue to implement its mangrove protection ordinance. |
| | | | | PA4.2 | New development to preserve buffer zone of 125 ft from MHW line of native vegetation. |
| | | | V-5 | PA.5.5 | Require, thru development approval process, wetlands preserved & maintained thru site design. |
| | | CM | IX-5 | PA6.2 | To adopt Martin county marina siting criteria.<br>*COMMENTS:*<br>*[4] Need conservation policy re: wetlands & water habitat managed & protected. Need analysis of water demand, alterations.*<br>*[6] Need policies re: protection & identification of wetland habitat.* |

**ISSUE:** Loss of wetlands, mangroves due to shoreline development, navigational improvements and mosquito impoundments

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| | | **Tequesta Comprehensive Plan** | | | |
| | | CM<br>CM<br><br>CM | CM-1<br>CM-3<br><br>CM-8 | O 1.1<br>P1.3.3<br><br>O 3.2 | Restrict development affecting mangrove area.<br>Coordinate marina siting ordinance with county & regional authorities.<br>Minimize impact on mangroves from mosquito control, drainage.<br>*COMMENTS:*<br>*[3] Palm Beach county wetlands ordinance.* |
| | | **Ft. Pierce Comprehensive Plan** | | | |
| | | CONS | 6-46 | P6.1.2.4 | LDRs to provide buffer zones around wetlands & deepwater habitats constructed or preserved on new development sites. This does not preclude construction of seawalls |

**ISSUE:** Protection of manatee and bird rookery habitat

| Indian River Lagoon SWIM Plan | Jensen Beach/Jupiter Inlet Aquatic Preserve Program | Ft. Pierce Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Natural Systems** | **Mgmt. Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| OBJ. D: Restoration of ecological function of impounded marshes (Habitat preservation program).<br>OBJ. E: Preservation of existing marshes.<br>OBJ. F: Creation of marshes were feasible. | POL. GUIDELINE 4: Promote use of HSNWR as rookery & protection to manatees by designating areas as idle-speed zone.<br>OBJ. A.1.3: Inventory of wading birds & habitats.<br>TASK A.1.3.1: Inventory of coastal birds in lagoon.<br>GOAL B.1: Protection of submerged & emergent vegetation.<br>OBJ. B.1.1: Minimize damage to vegetation thru application review for use of state land in aquatic preserve.<br>TASK B.1.1.1: Develop policy for inventory of biological resources.<br>GOAL B.2: Protection of designated species habitat.<br>OBJ. B.2.2: Ensure habitat protection thru review process.<br>OBJ. C.2.1: Determine aquatic area to preserve as habitat for designated species.<br>TASK. C.2.1.2: Establish system of monitoring sites to determine preserve's use by designated species. | CM<br><br>CONS | 5-58<br><br>6-47 | P5.1.1.1 3<br><br>P6.1.5.1 -5 | Spoil islands retained for bird nesting & feeding, new islands to serve same.<br>Development regs. re: endangered species, TDRs, protection, ESAs, CARL. Proposals for new marinas to provide for manatee protection program approved by appropriate agencies.<br>*COMMENTS:*<br>*[3] Should be consistent with county IRL spoil island Mgmt. plan, by DNR, FIND.* |
| | | **Jupiter Comprehensive Plan** | | | |
| | | CM | VI-4 | P1.17 | Spoil islands retained in public ownership for bird rookery, applicable water-oriented recreation areas. |
| | | **Tequesta Comprehensive Plan** | | | |
| | | CONS<br><br><br>CM | C-12<br><br>C-13<br>CM-6<br><br>CM-6<br><br>CM-11 | O2.14 & 15, P2.14.1-3, P2.15.1-5<br>P 2.2.7<br><br>P2.2.6-7<br><br>P3.7.2 | These objectives & policies address measures to protect native wildlife & habitats and the use of native plants in landscape.<br>Manatee protection ordinance to be adopted which designates boat speed<br>Policies re: manatee protection program, ordinance, marina siting.<br>By 1991, adopt sea turtle protection ordinance.<br>*COMMENTS:*<br>*[3] Palm Beach county manatee protection speed zone.* |
| | | **Martin County Comprehensive Plan** | | | |
| | | CM | 8-28 | PA.2.a-i | Guidelines to protect wildlife/habitat, manatee protection, endangered species. |
| | | **Palm Beach County Comprehensive Plan** | | | |
| | | CONS<br><br><br>CM | 5-C<br><br>5-C<br>5-CM | O 3<br><br>P3-c<br>P3-h | Protect endangered species, habitat-6 policies.<br>*[Other] No manatees mentioned.*<br>Regs. to protect species during development.<br>Manatee mgmt. plan enhancement of habitat & coordination of Intracoastal waterway speed zone program |
| | | **St. Lucie County Comprehensive Plan** | | | |
| | | CM | 7-109 | P7.1.3.2<br><br>P7.1.3.1 -10 | Enact regs. to protect manatee by providing local criteria, i.e., boat speed, critical habitats, marina construction.<br>10 policies re: sea turtle, manatees, wetland, spoil isles, seagrass, sanctuaries, endangered. |

**ISSUE:** Protection of manatee and bird rookery habitat

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|---|---|---|---|---|---|
| | | **St. Lucie Village Comprehensive Plan** | | | |
| | | CM | 5-52 | O 5.1.2 | Adopt regs. re: special species protection, 2 policies re: development, substances. |
| | | **Stuart Comprehensive Plan** | | | |
| | | CONS | V-5 | PA6.1-3 | Policies re: endangered species & protection, regulations, bird sanctuary. |
| | | | | | *[1,2] No method.* |
| | | CM | IX-1 | O A1 | Marina effects on manatee thru education, enforcement. |
| | | **Jupiter Inlet Colony Comprehensive Plan** | | | |
| | | CONS | 42 | P 4.4 | Post signs in Intracoastal as manatee protection area. |
| | | **Jupiter Island Comprehensive Plan** | | | |
| | | CM | 26 | P5.91.03 .01 | Estuarine fauna, including manatee, to continue protection with boat speed limits in designated habitats & seagrass beds. |

**ISSUE:** Inconsistent resource management among regulatory agencies and need for improved coordination among DNR, DER, WMDs and local governments regarding water quality and land use planning

| Indian River Lagoon SWIM Plan | Jensen Beach/Jupiter Inlet Aquatic Preserve Program | Ft. Pierce Comprehensive Plan | | | |
|---|---|---|---|---|---|
| **Natural Systems** | **Mgmt. Policy Directives** | **Element** | **Pg** | **GOP** | **Description** |
| GOAL III.<br>OBJ. C: Coordination among state, regional & local govt. regulatory units to implement regs. in consistent manner (Regulation & enforcement program).<br>OBJ. A: Organization of SJRWMD & SFWMD personnel re: conducting 5 SWIM programs (Administration, planning program).<br>OBJ. B: Enhancement of cooperation, involvement, coordination among various public agencies. | GOAL A.3: Restore estuarine habitat.<br>OBJ. A.3.2: Coordinate with DER & WMD in restoring estuarine habitat.<br>TASK A.3.2.2: Have agreement with SJRWMD/SFWMD re: habitat restoration.<br>GOAL A.4: Improve water quality.<br>OBJ. A.4.1: Coordinate with DER, WMDs & govts re: water quality.<br>GOAL A.5: Coordinate with local govts on land use planning.<br>OBJ. A.5.1: Coordinate with planning depts., regional councils & DCA to revise comprehensive plans.<br>TASK A.5.1.1-2: Have field rep for DNR & govts. Assist in ordinance affecting submerged lands. | INFRA | 4-73<br>4-76 | P4.1.4.2<br>P4.1.6.10-12 | Establish permit procedures re: LOS maintenance.<br>Participate re: water quality. County water study. Participate with SWIM.<br>*[6] How, need specific SWIM policy in plan.* |
| | | CM | 5-65 | O5.1.12<br>P5.1.12.4 | Assist enforcing other state regs. to improve IRL water quality.<br>Request TCRPC to convene IRL planning task force to include other regs. |
| | | CONS | 6-46 | P6.1.2.6 | Development to meet SFWMD surface & stormwater mgmt. criteria. |
| | | | 6-48 | P6.1.5.4 | Coordinate w/adjacent govts., et al. to protect ESAs. |
| | | IGOCO | 8-26 | O8.1.1<br>P8.1.1.4-5 | Coordinate comprehensive plans w/adjacent plans.<br>Coordinate comprehensive plan & regulations with development plans. |
| | | | 8-27 | P8.1.2.2 | Support agreements re: mgmt. of IRL & other natural resources. |
| | | | | P8.1.2.4<br>O8.1.3 | City to review development impacts of other govts.<br>Establish LOS coordination with county & adjacent towns. |
| | | | | | *COMMENTS:*<br>*[1] Support agreement re: IRL mgmt., other resources. Review development impacts of other govts. Establish LOS coordination. Coordinate existing resource protection plans, programs.*<br>*[2] Stormwater mgmt., recreation & open space planning coordinated.*<br>*[2] No adequate govt. coordination re: runoff.* |
| | GOAL B.1: Protect submerged & emergent vegetation.<br>OBJ. B.1.1: Minimize damage to vegetation thru application review.<br>TASK B.1.1.2-3: Coordinate with regional DNR re: staff comments & with other regulatory agencies .<br>GOAL B.1.2: Ensure projects are in compliance.<br>TASK B.1.2.1-3: Coordinate re: leases, agreements, special conditions.<br>OBJ. B.1.3: Ensure projects are authorized.<br>TASK B.1.3.1-2: Report unauthorized activities. Coordinate with regulatory agencies.<br>GOAL B.2: Protect designated species habitat.<br>TASK B.2.2.2: Ensure habitats are given maximum protection thru review process. | FLU | 1-68 | P1.1.1.1 | Development review analyze utilities & environmental impacts. |
| | | | 1-70 | P1.1.4.4-5 | Development to meet local/SFWMD stormwater runoff, etc.<br>Development in 100 yr. floodplain not to affect drainage system, aquifers. |
| | | INFRA | 4-72<br>4-75 | P4.1.3.1<br>O4.1.6 | Update recs. of water, wastewater, drainage.<br>Protect recharge & drainage.<br>*[1] By what method?* |
| | | | 4-76 | P4.1.6.5 | Enforce development of stormwater drainage regs. of SFWMD. |
| | | CM | 5-55 | G5.1 | Increase economic benefits of port, town while protect resources. |
| | | | 5-56 | P5.1.1.5 | Revise regs. to require native vegetation in new development landscaping. |
| | | | 5-63 | O5.1.10 | Programs to increase water access. |
| | | RECOS | 7-36<br>7-37 | P7.1.3.2-3<br>P7.1.4.2 | Access to beaches, shores & LOS conformance.<br>Connections created by wetlands encouraged re: recreation. |
| | | | | | *COMMENTS:*<br>*[1] Need policies re: restoration of resources, wetlands, drainage, estuaries. No method, implement.*<br>*[2] No sufficient analysis re: estuarine pollution from stormwater runoff or mgmt. actions.*<br>*[2] No sufficient objective and policy to improve existing stormwater mgmt. system.*<br>*[2] Comprehensive stormwater mgmt. study limited, must assess performance. Stormwater mgmt. to concentrate on mgmt. by source control than water capacity.* |

**ISSUE:** Inconsistent resource management among regulatory agencies and need for improved coordination among DNR, DER, WMDs and local governments regarding water quality and land use planning

| | | Jupiter Comprehensive Plan | | | |
|---|---|---|---|---|---|
| | | FLU | I-1 | P1.1.1 | Development approved if LOS met & is compatible with CIE. |
| | | | I-11 | P1.3.4-7 | Uses in environmentally sensitive areas & designation & regs. |
| | | INFRA | IV-3 | P1.1.9 | Work with others re: drainage. |
| | | | IV-4 | P1.3.3 | Coordinate for water masterplan. |
| | | | IV-6 | P1.3.12 | Coordinate drainage design, construction & maintenance with county, towns, other agencies. |
| | | CONS | V-3 | P1.2.4 | Participation re: hydrologic connections. |
| | | | V-5 | P1.4.4-5 | Support Loxahatchee mgmt. & TCRPC. |
| | | CM | VI-4 | P 1.2.1 | Along Loxahatchee to be designated as Conservation areas. |
| | | | VI-6 | P 1.5.1 | Adopt objectives & policies of Loxahatchee Mgmt. plan. |
| | | | VI-8 | P1.5.11 | Coordination of shoreline development to prevent loss of coastal resources. |
| | | | VI-8 | P1.5.13 | Coordinate with DNR for mangrove ordinance. |
| | | | VI-17 | P2.5.1 | Coordinate to implement IRL mgmt. & other plans. |
| | | IGOCO | VIII-3 | P1.1.16 | Technical assistance re: natural resource protection. |
| | | | VIII-5 | P1.1.30-33 | Coordination re: CONS & CM policies, waterways, ESAs. |
| | | | VIII-6 | P1.1.34- 35 | Technical assistance re: CONS & CM policies. |
| | | | | | *COMMENTS:* |
| | | | | | *[1,2] Coordinate land use with topography.* |
| | | | | | *[1,2] Void between town & county comprehensive plans re: deficiencies, analysis of facilities, land use, coordination of extensions, improving facilities.* |
| | | | | | *[2] Natural resource as wetlands & floodplains under conservation land use, environmental overlay.* |
| | | INFRA | IV-7 | O1.4 | Public facilities expansion & criteria for water LOS, sanitary, drainage—4 policies re: LOS. |
| | | CONS | V-9 | P1.5.19 | Planning Dept. to review development adjacent to reservation areas. |
| | | CM | VI-17 | O2.5 | Ensure resources in more than one jurisdiction are managed. |
| | | RECOS | VII-6 | P3.1.1 | ESAs preserved for open space, passive recreation & enhancement. |
| | | | | | *COMMENTS:* |
| | | | | | *[1] Need policies re: regs., stormwater mgmt., sanitary sewer, septic tanks. Need measure for facility deficiencies, stormwater mgmt. study & program. Stormwater mgmt. facilities compatible with pollutant load reduction goals.* |
| | | | | | *[2] INFRA element needs policies re: resource protection as surface & groundwater quality. Stormwater LOS inadequate with adj. land & govts.* |
| | | | | | *[6] LOS standards re: development impacts not adequate.* |

**ISSUE:** Inconsistent resource management among regulatory agencies and need for improved coordination among DNR, DER, WMDs and local governments regarding water quality and land use planning

| | | | | | |
|---|---|---|---|---|---|
| | | **Jupiter Inlet Colony Comprehensive Plan** | | | |
| | | FLU | 11 | P 1.8 | Submerged lands in Intracoastal in conservation use. |
| | | | 13 | O 5 | Coordinate with govts. re: impacts. |
| | | CM | 36 | O 2 | Maintain environmental quality, no alteration of mangroves & seagrasses. |
| | | | | | *[1] No method, implementation.* |
| | | | | P 2.2 | Support mgmt. program of IRL Pres. |
| | | | 40 | O 12 | Assure estuarine quality thru Loxahatchee COG. |
| | | | | | *[1] No specifics, measures.* |
| | | CONS | 41 | P 1.1 | Coordinate with others re: Intracoastal waterway, Loxahatchee River. |
| | | | | | *[1] There is no implementation.* |
| | | | | P 1.3 | County coordination re: surf water quality. |
| | | | | P 1.4 | Coordinate re: stormwater runoff. |
| | | | 42 | P 3.3 | Coordinate re: vegetated communities. |
| | | | | | *[1] No method.* |
| | | | | O 6 | Development compatible with environment. |
| | | | | | *[1] No measure/method to ensure coordination, prevention of degradation re: enforcement of regulations.* |
| | | | | P 3.5 | Preserve coastal resources by monitoring. |
| | | | | P 4.5 | Prohibit destruction of endangered species & habitats, govt. coordinate in enforcement. |
| | | IGOCO | 46 | P6.1-3 | Establish stds., policies to regulate uses of aquatic preserve. |
| | | | | P1.1-4 | Coordinate with county, re: growth, development, land use amend, impacts. |
| | | | 47 | | |
| | | | | P 2.2 | Participate with county, adjacent towns re: development impacts/land use. |
| | | | | P 3.2 | Review plans re: landscape, environment. |
| | | | | | *[1] No method.* |
| | | | 48 | P 4.3 | Participate in mgmt. of estuary system. |
| | | **Jupiter Island Comprehensive Plan** | | | |
| | | FLU | | P1.06.03.01 | Adopt policies & LDRs to coordinate w/resource planning & mgmt. plans. |
| | | CM | 26 | P5.01.03.02 | Continue cooperate with the IRLAP mgmt. plan & future resource protection plans for IRL. |
| | | | | | *[4] By what method?* |
| | | | | O5.01.04 | Improve estuarine environment quality. |
| | | | | | *[4] By what method?* |
| | | | | P5.01.04.01 | LDRs to require IRL water quality thru govt. cooperation. |
| | | | 28 | O5.02.02 | Establish LOS of infrastructure improvements in coastal area. |
| | | | | | *[2,4] By what method?* |
| | | CONS | 32 | P6.01.02.01 | Cooperation re: wetlands & compliance. |
| | | | | P6.01.03.05 | Investigate freshwater lenses for irrigation water supply. |
| | | | | P6.01.03.10 | Require water usage study & recs. for reduction. |
| | | | 33 | P6.01.03.09 | Modify LDRs to include SWIM plan. |
| | | IGCO | 39 | P8.01.03.02 | Coordinate with Navigation District improvements re: dredging. |
| | | | | P8.01.03.04 | Cooperate with BELM on AP mgmt. plan by coordinating activities waterward of MHW line with DNR. |
| | | | | | *[4] Too vague.* |
| | | | 40 | P8.01.03.09 | Cooperation re: protecting natural environment. |
| | | | | | *[2,4] Too vague.* |
| | | | | P8.01.04.01 | Coordinate efforts with Tequesta & county. |

**ISSUE:** Inconsistent resource management among regulatory agencies and need for improved coordination among DNR, DER, WMDs and local governments regarding water quality and land use planning

| | | Martin County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| | | IGOCO | 3-3 | O A.1-9 | 9 objectives & 69 policies for coordinating plans, agreements. |
| | | CM | 8-28 | P A.1.k | Buffer zone & preserve area setbacks. |
| | | | 8-39 | O A.5 | 5 policies (7 pgs.) re: water uses, marinas, zoning, environmental restraints. |
| | | | 8-59 | O A.6 | 7 policies for interjurisdictional resource mgmt. |
| | | CONSOS | 9-15 | P A.4.c | Coordination re: minimizing impacts to St. Lucie. |
| | | | 9-16 | PA.4.d-f | Improve water quality of estuary & agricultural areas. Complete drainage projects-this effects IRL. |
| | | | 9-41 | P A.8.e | Coordinate activities along shore re: coastal resources. |
| | | | | O 12 | Objectives. & policies relate to interjurisdictional resource mgmt., no SWIM. |
| | | | 9-47 | O 6 | Coordinate with DER for deficiencies—3 policies. |
| | | POTWAT | 11-22 | P A.1.k | Development regs. to limit water supply. |
| | | DRGWAQ | 13-29 | P A.3.b | By 1992 watershed mgmt. master plan. |
| | | | 13-32 | P A.3.j | Coordination re: offsite drainage facilities. |
| | | | 13-33 | O A.7 | Ensure ground, surface water resources are preserved. |
| | | | 13-35 | PA.7.a-t | 20 policies re: intergovernmental coordination (DER, SFWMD, TCRPC, no SWIM). |
| | | CM | 8-15 | PA.1.b.5 | Preservation mgmt. plan required of wetland. |
| | | | 8-22 | PA.1.d-g | Planting & waste disposal in wetlands & wetland buffer. |
| | | CONSOS | 9-41 | PA.8.g | Evaluate growth mgmt. & adoption of mgmt. estuarine techniques. |
| | | DRGWAQ | 13-33 | O A.4 | Maintain surface water levels to reduce environmental impacts—4 policies. |
| | | | 13-34 | PA.5.b | County engineer assist in ecology of water resources. |
| | | | 13-35 | PA.5.f | Monitor water & stormwater wetland. |

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| | | | | | |
|---|---|---|---|---|---|
| | | **Ocean Breeze Park Comprehensive Plan** | | | |
| | | FLU | 17 | P1.7 | Development permits coordinated with county & TCRPC. |
| | | | 18 | P1.8 | Cooperate with WMD re: soil percolation capacity. |
| | | | | P1.10c | Development agreement re: DNR & endangered species protection. |
| | | | 19 | P1.10f | Coordinate development approval w/resource & mgmt. plans, review IRL mgmt. plan. *[1] No policy, method or measure.* |
| | | | 20 | O 4 | Comply w/SWIM plan. |
| | | | | O 6 | Review IRL mgmt. plan every 2 yrs re: development & consistency w/mgmt. plan. |
| | | INFRA | 103 | O 1 | Complete buildout by 1995 & adopt LOS for sanitary sewer, drainage. |
| | | | 104 | O 4 | Drainage LOS determined by study, use IRL mgmt. guidelines. |
| | | | 107 | O 11 | Development to connect with county sewage. *[1] No policies, date, method.* |
| | | | 111 | P1.3 | Coordinate drainage facility expansion, no policy. *[1] Not specific.* |
| | | CM | 104 | P2.8 | Cooperate w/county re: town's comprehensive plan & regs. to protect IRL. |
| | | | 144 | P2.9 | Coordinate with SWIM & IRLAP plan. |
| | | | 145 | P4.1 | Development to require infrastructure at time of impact. *[1] No date, method.* |
| | | | 146 | P5.5 | Regs. & mgmt. for restoration of estuarine wetlands & drainage system include mitigation during development or redev. |
| | | | 147 | O 7 | Limit expenses in coastal hazard areas, except restoration of natural resources, no policies. |
| | | IGOCO | 190 | P 1.1 | Meet w/SFWMD, DNR, DER to interface on plans for consistency. |
| | | | 191 | O 2 | Ensure development impacts coordinate w/county, state thru agreements & comprehensive plan. |
| | | | 192 | P2.1-2 | Coordinate intergovernmental mgmt. of IRL thru mgmt. plan & agencies. |
| | | CONS | 161 | G 1 | Conserve and maintain IRL ecological value, 5 objectives. |
| | | **Palm Beach County Comprehensive Plan** | | | |
| | | RECOPS | 13-RO | P3-e | Participate with agencies in conservation projects. |
| | | CONS | 8-C | P6-a,d,e | Coordinate with SFWMD, SCS re: water resource, quality, 6 objectives, 48 policies. *[1] No methods, dates.* |
| | | IGOCO | 7-1G | O 4 | County to coordinate planning efforts re: land use. |
| | | | | P4-a-z | 25 policies re: coordination, no specifics re: environmental preservation. |
| | | | 14-1G | P5-c,d,g | Coordinate re: sewer & water plans, strategies for protecting resources & for review process. |
| | | LU | 13-LU | P 4-d-f | 3 policies re: development review, resource planning. |
| | | | | P 4-b | Impact of development on resources during environmental review process. |
| | | CM | 3-CM | P 3-6 | Environ review process to consider consistency of proposed development w/AP mgmt. plan. |

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| | | Sewall's Point Comprehensive Plan | | | |
|---|---|---|---|---|---|
| | | FLU | 18 | O 5.0 | Review resource planning, mgmt. & coordinate LU decisions with plan—1 policy.<br>*[2] No date, method.* |
| | | CM | 117 | P 1.3<br>P 1.5 | Identify programs to mitigate estuarine degradation.<br>Within 2 yrs, discuss policies with RPC re: IRLAP & SWIM.<br>*[1] No action, method.* |
| | | | 118 | P 1.6 | Annual review re: estuary system & impacts of development. |
| | | FLU | 20 | O 9.0 | Development to require facilities, are available concurrently—2 policies. |
| | | DRNG | 81 | O 4.0 | Protect groundwater aquifer recharge & drainage by regulating land.<br>*[1] No method.* |
| | | CONS | 152 | P 2.2 | Development dedicate open space & in 1990 land code, 2 policies. |
| | | RECOSP | 165 | O 3.0 | Cooperate w/SFWMD re: evaluation of groundwater sources. |
| | | IGOCO | 173 | O 1.0 | Coordinate with govts., county, RPC re: growth management. |
| | | | 174 | O 2.0 | Coordinate development with adjacent govt., use RPC for mediation. |
| | | | 175 | P 3.2-4 | Communication re: agreements, LOS with other govts.<br>*COMMENTS:*<br>*[1] No specific policy re: pollution, water runoff, marine resource protection. No policies re: vegetation, designating ESAs, coordinate bay mgmt., estuaries, harbors.*<br>*[1,2] No specifics re: SWIM, stormwater mgmt. coordination.*<br>*[3] Amend land code for development effect on fish, wildlife, habitat-5 policies re: habitat, marina development & buffers.* |

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| | | St. Lucie County Comprehensive Plan | | | |
|---|---|---|---|---|---|
| | | FLU | 1-55 | G1.1 | Ensure quality, natural resources.<br>*[1,2] Not specific or measurable.*<br>*[1] No ESAs, inconsistent land use.* |
| | | | 1-85 | P1.1.9.10-13 | Regs. re: impacts on resources & post run off, extractions. |
| | | | 1-89 | O1.1.13 | Coordination re: development & mitigation.<br>*[1] No data, analysis.* |
| | | | | P1.1.13.1 | Coordinate DO, permits. |
| | | SANSEW | 6A-28 | P6A.1.4.4 | Coordination re: wastewater system ordinance. |
| | | | 6A-30 | O6A.2.2 | Specific sites re: sewer system & sanitary sewer service. |
| | | DGDWTAQ | 6C-41 | O6C.1.4 | Coordination re: drainage study & stormwater regs., 3 policies re: coordination, identification, LOS. |
| | | | 6C-43 | O6C.3.2 | Regs. re: LU/groundwater recharge. |
| | | IGOCO | 10-11 | O10.1.4 & P10.1.4.1-3 | Establish intergovernmental process re: development, policies re: agreements with IRL, TCRPC. |
| | | PORT | 4-36 | O 4.1.3 | Aviation & port sited with little impacts on environment.<br>*[1] No data, analysis.* |
| | | | 4-36 | P4.1.3.1-4 | Aviation & port not to destroy wetlands/habitat, mitigation & runoff as with SFWMD & DER. |
| | | CM | 7-106 | P7.1.1.6 | Coordinate w/agencies re: IRL AP Mgmt. & surface water improvement plans. |
| | | | 7-112 | P7.1.4.10a | Continue cooperation w/SWIM programs. |
| | | | 7-123 | O 7.3.1 | Improved public access re: IRL. |
| | | | 7-124 | P7.3.1.7 | Identify marinas & criteria.<br>*[2,3] Lack specifics.* |
| | | CONS | 8-44 | O 8.1.6 | Comprehensive mgmt. plan re: soils, 5 policies. |
| | | | 8-50 | P8.1.10.1-5 | 5 policies re: education, planning, coordination.<br>*COMMENTS:*<br>*[2] No policy re: coordinating AP mgmt. plan & govt. coordinate with SWIM & AP mgmt. plan.*<br>*[4] No policies re: land use & resource preservation & protection.*<br>*[5] No policy re: coordination w/IR county SWIM.*<br>*[7] Weak conservation policies.*<br>*[1,7] Need measure. Note model water shortage ordinance.* |

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| | | St. Lucie Village Comprehensive Plan | | | |
|---|---|---|---|---|---|
| | | FLU | 1-45 | O 1.1.5 | Growth, development in suitable areas with sound planning, 7 policy. |
| | | | 1-47 | P1.1.7.3 | Coordinate development with GOP of IRLAP mgmt. plan. *[2,3] What is method?* |
| | | CM | 5-62 | O 5.1.10 | Single family low density & non-conforming uses thru regs., 4 policies. |
| | | CONS | 6-37 | P6.1.5.3 | TCRPC to convene IRL planning task force re: development, water use. |
| | | | 6-38 | O 6.1.7 | Trust for land acquisition, 2 policies. |
| | | RCOSP | 7-7 | P7.1.2.2 | Cooperate with other re: IRL Aquatic Preserve protection. *[1,2,3] No method, measure, indices.* |
| | | IGOCO | 8-11 | G 8.1 | Coordination among entities re: efficient use of resources. *[1] What is method?* |
| | | | | O 8.1.1 | Establish formal coordination with adjacent cities & others. |
| | | | | P8.1.1.1 | Notify county re: rezoning/LU amendments. |
| | | | | P8.1.1.2 | Formal request of liaisons between state agencies & village. |
| | | | | P8.1.1.3 | Mayor responsible for development/enforcement of intergovernmental coordination program. |
| | | | 8-12 | O 8.1.2 | Work w/county re: performance stds., 3 policies re: timing, location & improvement. |
| | | | 8-11 | P8.1.1.4 | Request RPC to play active role between village & county. |
| | | | 8-12 | P8.1.1.5 | Cooperative education programs & regs. with TCRPC assistance. |
| | | | 8-13 | P8.1.3.1-4 | Request county re: rezoning amend, liaison (school, SFWMD, TCRP) agreements. |
| | | | | O 8.1.4 | By 1990 establish intergovernmental coordination process re: development impacts. |
| | | | | P8.1.4.1-3 | Adopt agreements re: IRL mgmt., work with TCRPC, coordinate with adjacent govts. *[2,3] What is method?* *COMMENTS:* *[1] Need policy re: implement programs for regulating land use & development to protect drainage features.* |
| | | FLU | 1-39 | G 1.1 | Quality environment thru land uses that maximize natural resources. |
| | | | 1-39 | P1.1.1.1 | Regs. re: land & water, buffers, species, conservation, LOS. *[2,3] Does not specify how, method.* |
| | | | 1-43 | P1.1.2.6 | Extracting natural resources permitted where compatible *[2] What is the method of determination.* |
| | | INFRA | 4-17 | O 4.1.2 | Central sanitary sewage systems introduced to village, 4 policies re: feasibility of system, permits. *[3] Should connect to central sewer system.* |
| | | CM | 5-50 | G 5.1 | Environmental resources maintained thru regs. *[1] How, method.* |
| | | | 5-60 | O 5.1.8 | No loss of public access to IRL, 6 policies. |
| | | CONS | 6-34 | G 6.1 | Natural resources protected. *[1] What is the method, measure.* |
| | | RCOSP | 7-7 | O 7.1.2 | Maintain IRL access, rec. facilities. |
| | | | 7-8 | P7.1.2.4 | LOS of IRL access maintained. |
| | | CIE | 9-13 | O 9.1.3 | Future development to share costs for facility improvements to maintain LOS. |

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| | | | | | |
|---|---|---|---|---|---|
| | | **Stuart Comprehensive Plan** | | | |
| | | INFRA | IV-5 | PA4.3 | Coordinate drainage design, construction & maintenance. |
| | | | IV-8 | O A10 | Protect & enhance recharge areas & drainage features. |
| | | CONS | V-1 | P A1.3 | Coordinate w/agencies re: IRL AP, SWIM plans. |
| | | IGOCO | VII-1 | O A1 | Coordinate w/agencies re: FLU. |
| | | | | PA1.1-4 | Govt. cooperation thru agreements, policy, landscape regs. |
| | | | VII-2 | P A1.9 | Coordination with public works dept. re: stormwater mgmt. |
| | | | VII-4 | O A3 | Implement CONS/CM w/advice from DNR, DER, WMD, TCRPC. |
| | | | | PA3.1-11 | 11 policies re: CONS, CM, IRLAP, groundwater, conservation, erosion, development plans. |
| | | | VII-6 | PA5.1-6 | 6 policies re: coordination & drainage master plan, technical assistance. |
| | | CIE | VIII-1 | O A2 | Development to be coordinated with regs. & public facility availability. |
| | | CM | IX-3 | PA4.3.3 | Cooperation in minimizing pollutants in estuary. |
| | | | IX-5 | PA6.2 | Adopt county marina siting criteria. |
| | | | IX-10 | O B4 | Resources with 1+ jurisdiction to coordinate, 4 policies re: estuarine/resources, no IRL. |
| | | | | | *COMMENTS:* |
| | | | | | *[1] No participation with aquatic programs in intergovernmental coordination, other.* |
| | | FLU | I-1 | O A3 | Regs. re: natural resource protection, 4 policies. |
| | | | | P A3.3 | Protect ESAs, recharge, wetlands, habitat. |
| | | | | | *[1,3] No method, measure.* |
| | | INFRA | IV-1 | O A1 | Program for facility deficiencies & corrections. |
| | | | | | *[1,2] No measure.* |
| | | CONS | V-1 | G A | Protect resources. |
| | | | | | *[1] No method.* |
| | | | V-4 | PA5.2 | Protection/mgmt. of wetland & deepwater habitats consistent w/IRL plan & other resource plans. |
| | | | V-6 | P A8.1 | Native vegetation in site review, buffer. |
| | | CM | IX-1 | PA2.1-2 | Rec. activities compatible with land. |
| | | | | | *[2] No method.* |
| | | | IX-2 | O A4 | Support SFWMD, DER re: estuarine quality, 6 policies. |
| | | | IX-5 | O A6 | Water activities, 2 policies re: marine development/siting. |
| | | | | | *[1,2] No method.* |
| | | **Tequesta Comprehensive Plan** | | | |
| | | SANSEW | SS-2 | O 1.3 | Coordinate with development to meet wastewater treatment needs. |
| | | | C-5 | P2.1.2 | Cooperate with DERM & DER re: plans, development, consistency for IRLAP. |
| | | CONS | C-6 | P2.2.1 | Prohibit development within AP except for water-related uses. |
| | | | | P2.5.1 | Limit impervious area in flood zones. |
| | | IGOCO | IGC-1 | O 1.1 | Include towns/2 counties/school board part of plan review. |
| | | | IGC-2 | P1.2.3 | Review state plan for intergovernmental coordination. |
| | | | IGC-3 | P1.3.3 | Coordinate to protect IRLAP by estuarine policies. |
| | | HOUSNG | H-3 | P1.3.2 | Utilize mgmt. to alleviate residential water pollution, with special attention to Loxahatchee River, Intracoastal Waterway. |
| | | DRNG | DR-3 | P1.2.2 | Enforce open space regs. for development for impervious areas. |
| | | AQFRCH | NG-1 | O 1.1 | By 93, have protection of natural groundwater recharge areas. |
| | | | NG-1 | P1.1.3 | Coordinate, implement aquifer recharge area protection programs to meet standards. |

# Appendix 7

## Acronyms & Abbreviations

**Acronyms and Abbreviations**

| | |
|---|---|
| AP | Aquatic Preserve |
| AWT | Advanced Wastewater Treatment |
| C&P | Conservation and Preservation Areas |
| CA | Coastal Area |
| CBAP | Cockroach Bay Aquatic Preserve |
| CHHA | Coastal High Hazard Area |
| CM | Coastal Management |
| Co | County |
| CONS & AR | Conservation and Aquifer Recharge element [Hillsborough County] |
| CONS | Conservation |
| CPIM | Capital Improvements element [City of Palmetto] |
| DACS | [Florida] Department of Agriculture and Consumer Services |
| DCA | [Florida] Department of Community Affairs |
| DER | [Florida] Department of Environmental Regulation |
| DNR | [Florida] Department of Natural Resources |
| DO | Development Order |
| DOS | [Florida] Department of State |
| DOT | [Florida] Department of Transportation |
| DR | Development Review |
| DRNG | Drainage element [City of Palmetto] |
| DWT | Domestic Wastewater Treatment |
| DWTP | Domestic Wastewater Treatment Plants |
| EIAMRs | Economically Important Agricultural or Mineral Resources |
| EPC | Environmental Protection Commission |
| EPGF | Electric Power Generating Facilities [LU Plan Category] |
| ESAs | Environmentally Sensitive Areas |
| EWH | Essential Wildlife Habitat |
| FLU | Future Land Use |
| FWFGC | [Florida] Freshwater Fish and Game Commission |
| GOPs | Goals, Objectives, & Policies |
| Hazwaste | Hazardous waste |
| HRS | [Florida] Department of Health and Rehabilitative Services |
| HS&W | Health, Safety, and Welfare |
| IA | Interlocal Agreement |
| IC | Intergovernmental Coordination |
| IGC | Intergovernmental Coordination |
| INFRA | Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater, Aquifer Recharge |
| IRL | Indian River Lagoon |
| LDRs | Land Development Regulations |
| LMR | Little Manatee River |
| LOS | Level of Service |
| MA | Mining Activities [or] Memorandum of Agreement |
| ME | Monitoring and Evaluation element [Manatee County] |
| MHW | Mean High Water |
| MOU | Memorandum of Understanding |
| NEP | National Estuarine Program |
| NPA | Natural Preservation Area |
| OFW | Outstanding Florida Water |
| PD | Planned Development |
| PF | Public Facilities element [Manatee County] |
| PORT | Port element [Hillsborough County] |
| R&T | Rivers and Tributaries |
| R/M | Restoration/Mitigation |
| REC & OS | Recreation and Open Space |
| SHA | Shellfish Harvesting Area |
| SM | Stormwater Management [may be used individually] |
| SNSW | Sanitary Sewerage element [ Hillsborough County & City of Palmetto] |
| SR&T | Stormwater Retention and Treatment |
| ST | Sewage Treatment |
| St | State [Florida] |
| Stds | Standards |
| STMA | Stormwater Management element [Hillsborough County] |
| SW | Solid Waste element [City of Palmetto] |
| SWFWMD | Southwest Florida Water Management District |
| SWT | Stormwater Treatment |
| TBRPC | Tampa Bay Regional Planning Council |
| TCAP | Terra Ceia Aquatic Preserve |
| TRCI | Traffic Circulation |
| WH | Wildlife Habitat |
| WMD | Water Management District |
| WPR | Wetland Preservation and Restoration |
| WQ | Water Quality |
| WQ&Q | Water Quality and Quantity |
| WWT | Wastewater Treatment |

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