NASSAU RIVER

ST. JOHNS RIVER MARSHES

AND

FORT CLINCH STATE PARK

AQUATIC PRESERVES

MANAGEMENT PLAN

APRIL 1986

DEPARTMENT OF NATURAL RESOURCES

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APRIL 22, 1986

Dr. Elton J. Gissendanner
Executive Director
Department of Natural Resources

This plan was prepared by
The Bureau of Historic and Environmental Land Management
Division of Recreation and Parks

Preparation of this management plan was primarily supported by a grant from the U.S. Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, and the Florida Department of Environmental Regulation, the Office of Coastal Management, through the Coastal Zone Management Act of 1972 as amended.

EXECUTIVE SUMMARY

The Nassau River-St. Johns River Marshes Aquatic Preserve and the Fort Clinch State Park Aquatic Preserve are located in the northeastern region of the state along the Atlantic intracoastal waters of the St. Marys, the St. Johns and Nassau Rivers. These two aquatic preserves comprise both estuarine and marine waters of exceptional biological and aesthetic value to the state.

The Nassau River-St. Johns River Marshes Aquatic Preserve, located in eastern Nassau and Duval Counties, was designated an aquatic preserve on November 24, 1969 for the primary purpose of preserving the biological (estuarine) resources of the Nassau Sound area marshes and associated waters. This area consists of a vast salt marsh estuary with numerous interconnecting tidal creeks, rivers and channels and minor uplands (tree islands). The preserve is important in protecting critical habitat to an extensive array of fish and wildlife. Maintaining the continued health of this preserve will involve minimizing water pollution and losses of wetlands resulting from urban, residential and industrial development in the region.

The Fort Clinch State Park Aquatic Preserve located in northeastern Nassau County along Amelia Island, was designated on March 4, 1970 for the primary purpose of establishing a protective aesthetic buffer for the state park and historic Fort Clinch. This preserve surrounds the state park and is comprised largely of open waters associated with St. Mary's Inlet, the Amelia River and a three mile extension into the Atlantic Ocean off Amelia Island. The western boundary borders an extensive salt marsh system along Tiger Island: the northern boundary extends to the intracoastal waterway channel between the states of Florida and Georgia. Major threats to this preserve include proposed port developments along Amelia Island, water pollution associated with regional industrial and urban developments, and ship traffic along the Intracoastal Waterway.

The major objectives of the aquatic preserve management program are to ensure the maintenance of an essentially natural condition. Management will also be directed to ensure public recreational opportunities while assuring the continued propagation of fish and wildlife resources. This task will be guided by the identification and mapping of natural resources and habitat necessary to meet these objectives. An additional management objective is the review and comment on applications for the use of state-owned submerged lands. Meeting these objectives will require a fully implemented management program with on-site field personnel for the aquatic preserve.

STATE OF FLORIDA

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

RESOLUTION

WHEREAS, the Board of Trustees of the Internal Improvement Trust Fund is charged with the acquisition, administration, management, control, supervision conservation, protection, and disposition of all lands title to which is vested in the Trustees under Chapter 253, Florida Statutes; and

WHEREAS, Chapter 258, Florida Statutes, directs that state-owned submerged lands within aquatic preserves be set aside forever in their essentially natural or existing condition for the benefit of future generations; and

WHEREAS, the Trustees are charged with the adoption and enforcement of reasonable rules and regulations to carry out the provisions of Sections 258.35 through 258.46, Florida Statutes, regarding the regulation of human activity within the aquatic preserves so as not to unreasonably interfere with lawful and traditional public uses of the preserves; and

WHEREAS; Section 16Q-20.13, Florida Administrative Code, mandates the development of management plans for aquatic preserves; and

WHEREAS, the Trustees desire to serve the public by effectively planning, managing and protecting aquatic preserves; and

WHEREAS, the Trustees have recognized the Fort Clinch State Park Aquatic Preserve as an aesthetic preserve and the Nassau River-St. Johns River Marshes Aquatic Preserve as a biological preserve in formal action on October 21, 1969; and

WHEREAS, the Trustees recognize the importance and benefits of protecting the natural resources and preserving the natural ecosystem and aesthetics in the Nassau River St. Johns River Marshes and Fort. Clinch State Park Aquatic Preserves area; and

NOW THEREFORE BE IT RESOLVED that the Board of Trustees of the Internal Improvement Trust Fund hereby adopts the Nassau River-St. Johns River Marshes and Fort Clinch State Park Aquatic Preserves Management Plan; and

BE IT FURTHER RESOLVED that the Trustees designation of October 21, 1969 for these two aquatic preserves is hereby reaffirmed; and

BE IT FURTHER RESOLVED that the Nassau River St. Johns River Marshes and Fort Clinch State Park Aquatic Preserves Management Plan shall serve as a fundamental policy guideline for the Trustees and other state and local agencies having jurisdiction relative to maintaining the natural resources and environmental quality of these aquatic preserves, and shall provide the overall policy direction for the development and implementation of all administrative rules and programs related to the management of state-owned submerged lands within the Nassau River-St. Johns River Marshes and Fort Clinch State Park Aquatic Preserves; and

BE IT FURTHER RESOLVED THAT the Department of Natural Resources, Division of Recreation and Parks, is hereby designated as agent for the Trustees for purposes of aquatic preserve planning and management.

IN TESTIMONY WHEREOF The Board of Trustees of the Internal Improvement

Trust Fund have hereunto subscribed their names and have caused the Official Seal of the Board of Trustees of the Internal Improvement Trust Fund to be hereunto affixed in the City of Tallahassee, The Capitol, on this the twenty-second day of April, A.D., 1986.

Governor

(Seal)

Secretary of State

Commissioner of Education

Attorney General

Commissioner of Agriculture

Comptroller

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

Treasurer

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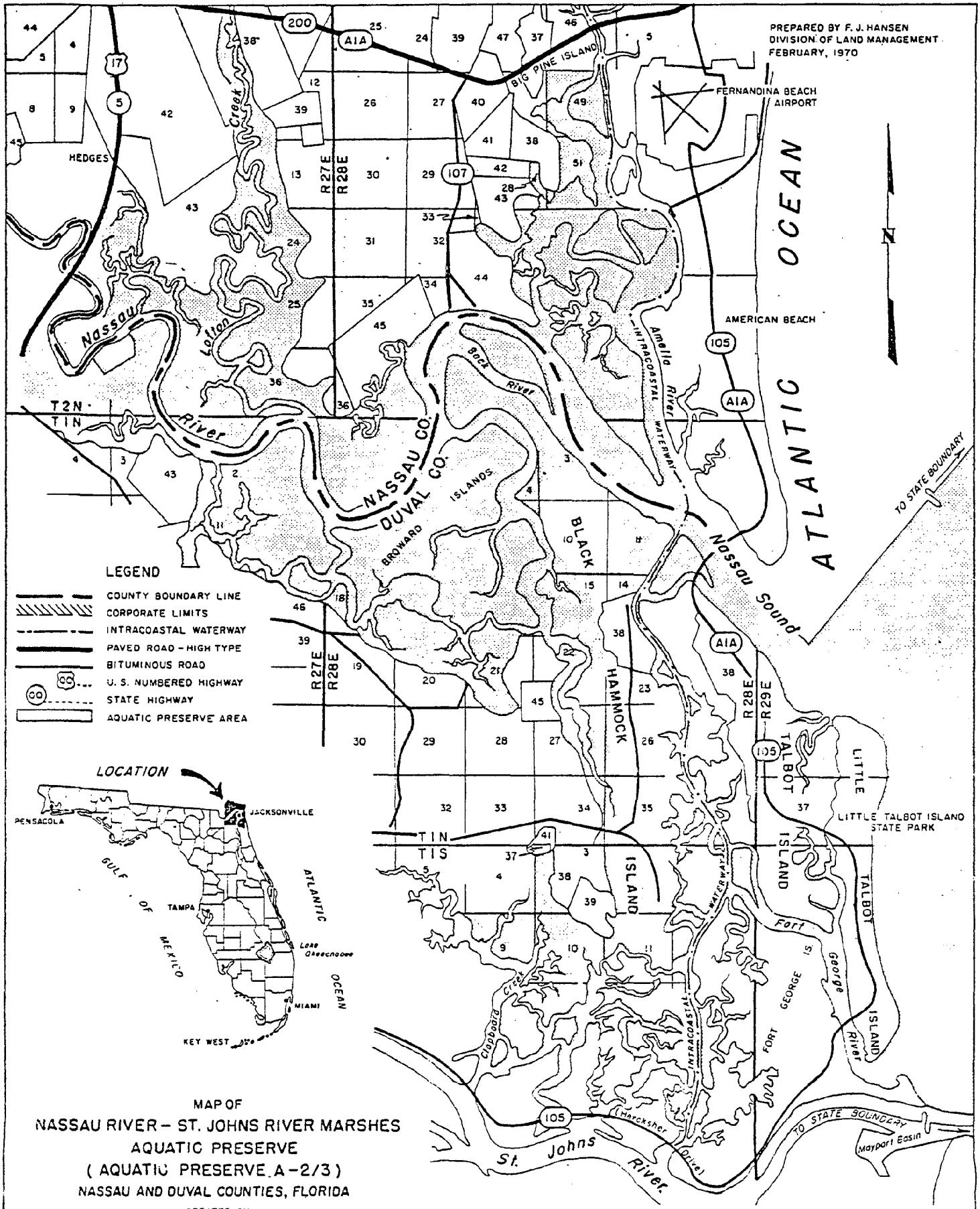
Chapter I

INTRODUCTION

This plan addresses the management of the aquatic preserves (Nassau River-St. Johns River Marsh and Fort Clinch State Park) (Figures 1 and 2). The preserve is bordered by two incorporated cities, Fernandina Beach and Jacksonville. The Fort Clinch State Park Aquatic Preserve, located on the northern end of Amelia Island in Nassau County, surrounds Fort Clinch State Park and includes portions of the St. Mary's River on the north, the Amelia River on the west and the Atlantic Ocean on the east (Figure 1). This preserve encompasses approximately 9,000 acres of surface water area. The much longer Nassau River-St. Johns River Marsh Aquatic Preserve extends south from A1A and east from State Road 17 in Nassau County, to the St. Johns River in Duval County. Portions of the Nassau, Amelia and Fort George Rivers are also located within these boundaries (Figure 2). This preserve encompasses an area of approximately 57,000 acres.

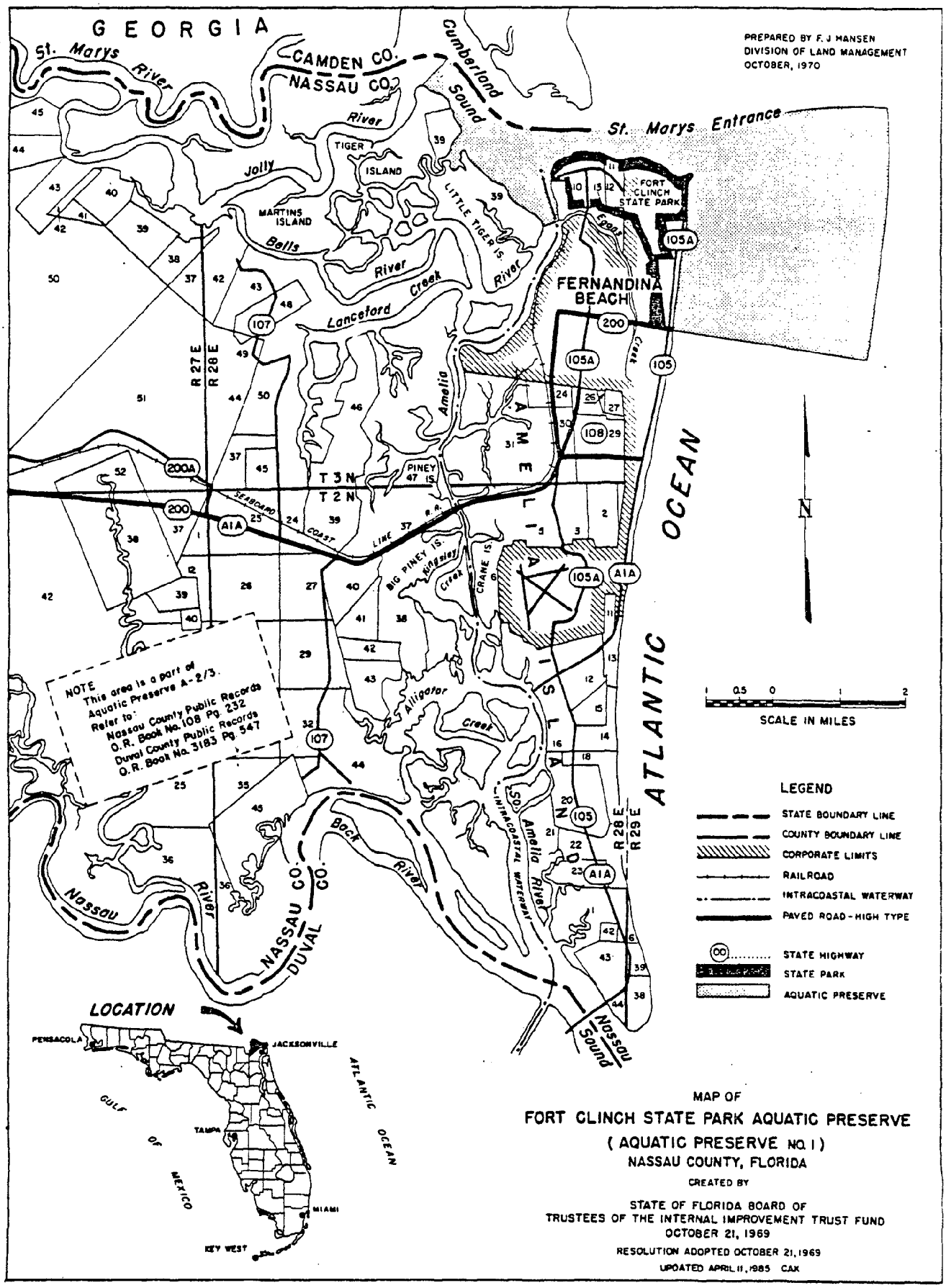
On October 21, 1969, the Governor and Cabinet, sitting as the Trustees of the Internal Improvement Trust Fund, adopted Report #2 of the Interagency Advisory Committee on Submerged Lands Management, which recommended that Fort Clinch State Park Aquatic Preserve be designated as an "aesthetic" preserve and that the Nassau River-St. Johns River Marshes Aquatic Preserve be designated as a

Figure 1



MAP OF
NASSAU RIVER – ST. JOHNS RIVER MARSHES
AQUATIC PRESERVE
(AQUATIC PRESERVE A-2/3)
NASSAU AND DUVAL COUNTIES, FLORIDA
CREATED BY
STATE OF FLORIDA BOARD OF
TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND
OCTOBER 21, 1969
RESOLUTION ADOPTED OCTOBER 21, 1969

Figure 2


GEORGIA
St. Marys River
CAMDEN CO.
NASSAU CO.
Cumberland Sound
St. Marys Entrance
PREPARED BY F. J HANSEN
DIVISION OF LAND MANAGEMENT
OCTOBER, 1970
TIGER ISLAND
Jolly River
MARTINS ISLAND
Bells River
LITTLE TIGER IS.
Egan's Creek
FORT CLINCH STATE PARK
105A
FERNANDINA BEACH
200
105
Lanceford Creek
Amelia River
Amelia Creek
R 27 E
R 28 E
R 29 E
T 3 N
T 2 N
PINEY IS.
108
200A
A1A
SEABOARD COAST LINE R.R.
BIG PINEY IS.
Gillsey Creek
CRANE IS.
AMELIA ISLAND
ATLANTIC OCEAN
N
NOTE
This area is a part of Aquatic Preserve A-2/3.
Refer to:
Nassau County Public Records O.R. Book No. 108 Pg. 232
Duval County Public Records O.R. Book No. 3183 Pg. 547
Alligator Creek
INTRACOASTAL WATERWAY
Back River
Nassau River
NASSAU CO.
DUVAL CO.
Nassau Sound
SCALE IN MILES
LEGEND
STATE BOUNDARY LINE
COUNTY BOUNDARY LINE
CORPORATE LIMITS
RAILROAD
INTRACOASTAL WATERWAY
PAVED ROAD - HIGH TYPE
STATE HIGHWAY
STATE PARK
AQUATIC PRESERVE
LOCATION
PENSACOLA
JACKSONVILLE
TAMPA
MIAMI
KEY WEST
GULF OF MEXICO
ATLANTIC OCEAN
MAP OF
FORT CLINCH STATE PARK AQUATIC PRESERVE
(AQUATIC PRESERVE NO. 1)
NASSAU COUNTY, FLORIDA
CREATED BY
STATE OF FLORIDA BOARD OF
TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND
OCTOBER 21, 1969
RESOLUTION ADOPTED OCTOBER 21, 1969
UPDATED APRIL 11, 1985 CAK

"biological" preserve. This plan proposes reaffirmation of these designations.

Within this preserve boundary is located some 1,602 acres of uplands (predominately tree islands and high marsh) that were purchased by the state in 1978 under the Environmentally Endangered Lands Program and subsequently designated as the Nassau Valley Marshes State Reserve. Due to the close proximity and ecological relationship of these uplands with the preserve, authorization was granted in 1986 by the Board of Trustees of the Internal Improvement Trust Fund to incorporate these lands into the aquatic preserve management program (see Appendix E).

The extensive salt marshes of the aquatic preserve are punctuated by numerous tidal creeks and channels and are bordered on the east by barrier islands. The barrier islands are old beach-dune complexes with a north-south orientation. These islands include Black Hammock, Fort George, Long and Little Talbot Islands in Duval County and Amelia Island in Nassau County. Some of the islands have dune ridges that exceed 30 to 40 feet in elevation.

The source of freshwater input is primarily surface water drainage from the St. Marys, Nassau and St. Johns Rivers which empty into the Atlantic Ocean. Significant drainage also flows into the Intracoastal Waterway or into streams and sloughs connecting with it. Tidal influence in waterways often extends far upstream, particularly during droughts when the cumulative net flow is reversed. The St. Marys and St. Johns Rivers also drain areas outside of Duval and Nassau Counties. When this is considered, the drainage from about

12,000 square miles, equivalent to about 20 percent of the area of Florida, flows along the boundary of Nassau County in the St. Marys River and through Duval County in the St. Johns River (USGS, 1972).

The climate in this region is between the humid continental and subtropical climates of the southeast (COE, 1980). The rainy season occurs from June through October and the average annual rainfall is 51.52 inches (USGS, 1972). The mean annual temperature is 69.5 °F.

These environmentally sensitive preserves are dominated by saltmarshes which occur in nearly unbroken pure stands. Saltmarshes produce very high levels of primary plant production and frequent tidal flushing ensures the continuous transport of nutrients in and out of the estuary. The numerous tidal creeks are important nursery grounds for commercially valuable fish species. Oyster bars, tidal flats and beaches are also intricate parts of this dynamic system The entire region is an important area for wintering waterfowl and other migratory birds.

Due to the current limitation of onsite staff resources, the management program in these aquatic preserves will be restricted in the scope of operations. However, the program will fill the minimum need for active management in the preserve and should provide the framework for future program growth. The administrative support for this management program will be provided by the Department of Natural Resources Division of Recreation and Parks' Bureau of Historic and Environmental Land Management (BHELM) in Tallahassee, known as the "central office". Field personnel support will be through the Florida

Park Service, Division of Marine Resources and the BHELM staff, when available.

Initially, development of the resource inventory will be heavily dependent on LANDSAT satellite imagery, DOT aerial photography, and existing scientific and other literature. As the program proceeds and onsite managers are present, the experience and additional resource information will likely result in modifications to the program and plan, which are both designed to accommodate such changes or at least identify areas needing improvement.

This plan is divided into chapters according to their management application. Chapter II cites the authorities upon which this management program and plan are built. Chapter III (Major Program Policy Directives) highlights the major policy areas that are within this plan. Chapter IV presents a brief resource description and references the appendices which contain more detailed information on the resources.

Chapter V presents the management objectives of both the on-site managers, who actually work in the preserve, and the administrative staff in Tallahassee.

Chapter VI addresses how this plan will interface with local, regional, state, and federal agencies and programs; as well as its relevance to non-government organizations, interest groups, and individuals.

Chapters VII through IX address the various uses, from public to private to commercial. Chapters X and XI address the use of the aquatic preserve for

scientific research and environmental education, respectively.

Chapter XII is an internal management improvement section identifying problems and needs in the progressive improvement of this aquatic preserve management plan.

This plan was written by the Department of Natural Resources (DNR), Division of Recreation and Parks, Bureau of Historic and Environmental Land Management staff. Funding for the plan was provided by a coastal management grant (CM-78) through the U.S. Department of Commerce's National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management, and the Florida Department of Environmental Regulation (DER), Office of Coastal Management.

Chapter II

MANAGEMENT AUTHORITY

The primary management authorities available to the staff for implementing management directives affecting aquatic preserves are found in Chapters 258 and 253, Florida Statutes (F.S.). These authorities clearly establish the proprietary management overview role of the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund and are variously referred to as the "Trustees" or the "Board". Furthermore, all management responsibilities assigned to the Trustees by this plan may be fulfilled directly by the Governor and Cabinet or indirectly via staff or agents of the Trustees, pursuant to delegations of authority, management agreements, or other legal mechanisms. All subsequent references to the Board or Trustees should be presumed to potentially include staff and designated agents, in addition to the Governor and Cabinet. The staff of the Bureau of Historic and Environmental Land Management (BHELM) (acting as "agents" for the Trustees) is able to review all requests for uses of, or directly affecting, state-owned sovereign- ty submerged lands within aquatic preserves. The review and subsequent staff comments are primarily designed to evaluate the environmental consequences of any proposed use of state-owned submerged land. The review is conducted within the confines of the criteria contained in the "maintenance" provisions for aquatic preserves in Chapter 258, F.S.

Formal review comments are provided to the Department of Natural Resources (DNR), Division of State Lands by the Bureau of Historic and Environmental

Land Management for inclusion in the comments and recommendations accompanying agenda items for Trustees consideration. This mechanism allows the Trustees, sitting as owners of the land, to evaluate public interest and project merits within the context of environmental impact upon the preserve.

BACKGROUND

In many respects, the authorities supporting aquatic preserve planning and management are the cumulative result of the public's awareness of the importance of Florida's environment. The establishment of the present system of aquatic preserves is a direct outgrowth of public concern with dredge and fill activities rampant in the late 1960's.

In 1967, the Florida Legislature passed the Randall Act (Chapter 67-393, Laws of Florida), which set up procedures regulating previously unrestricted dredge and fill activities on state-owned submerged lands. That same year the legislature also provided statutory authority (Section 253.03, F.S.) for the Trustees to exercise proprietary control over state-owned lands. In 1967, this governmental focus on protecting Florida's productive estuaries from the impacts of development led to the establishment of a moratorium by the Governor and Cabinet on the sale of submerged lands to private interests. In that same year, this action was followed by the creation of an Interagency Advisory Committee on submerged lands management. In late 1968, that Committee issued a report recommending the establishment of a series of aquatic preserves. Twenty-six separate waterbodies were addressed in the original recommendation.

Also in 1968, the Florida Constitution was revised, declaring in Article II, Section 7, the State's policy of conserving and protecting the natural resources and scenic beauty of the state. That constitutional provision also established the authority for the Legislature to enact measures for the abatement of air and water pollution.

It was not until October 21, 1969 that the Governor and Cabinet acted upon the recommendations of the Interagency Advisory Committee and adopted, by resolution, 18 of the waterbodies as aquatic preserves. Other preserves were similarly adopted at various times through 1971.

Prior to the October 1969 action by the Governor and Cabinet, the Legislature had created the Boca Ciega Aquatic Preserve. Subsequent Legislative action in 1972, 1973 and 1974, created the Pinellas County, Lake Jackson and Biscayne Bay Aquatic Preserves, respectively.

In 1975, the Legislature established a Florida Aquatic Preserve Act (Codified in Chapter 258, F.S.), thereby bringing all existing preserves under a standardized set of maintenance criteria. Additional acts were passed subsequent to the 1975 action, such as the addition of the Cockroach Bay Aquatic Preserve in 1976 and the Gasparilla Sound-Charlotte Harbor Aquatic Preserve to the system in 1978.

The Charlotte Harbor Aquatic Preserve Management Plan, approved by the Trustees on May 18, 1983 was the first management plan for an aquatic preserve. The following aquatic preserves have approved plans: Estero Bay,

September 6, 1983; North Fork--St. Lucie - May 22, 1984; Loxahatchee River--Lake Worth Creek - June 12, 1984; and Indian River Lagoon - January 22, 1985.

The State Lands Management Plan, adopted on March 17, 1981, by the Trustees, contains specific policies. The Plan also establishes policies concerning spoil islands, submerged land leases, "Outstanding Native Florida Landscapes", unique natural features, submerged grassbeds, archaeological and historical resources, and endangered species. All of these issues provide management guidance to the aquatic preserve program.

ADMINISTRATIVE RULES

Chapters 16Q-21 and 16Q-20, Florida Administrative Code (F.A.C.), are two administrative rules directly applicable to the DNR's/Trustee's actions regarding allowable uses of submerged lands, in general, and aquatic preserves specifically. Chapter 16Q-21, F.A.C. controls activities conducted on sovereignty submerged lands, and is predicated upon the provisions of Sections 253.03 and 253.12, F.S. The stated intent of this administrative rule is:

"(1) To aid in fulfilling the trust and fiduciary responsibilities of the Board of Trustees of the Internal Improvement Trust Fund for the administration, management and disposition of sovereignty lands;

(2) To insure maximum benefit and use of sovereignty lands for all the citizens of Florida;

(3) To manage, protect, and enhance sovereignty lands so that the public may continue to enjoy traditional uses including, but not limited to, navigation, fishing, and swimming;

(4) To manage and provide maximum protection for all sovereignty lands, especially those important to public drinking water supply, shellfish harvesting, public recreation, and fish and wildlife propagation and management;

(5) To insure that all public and private activities on sovereignty lands which generate revenues or exclude traditional public uses provide just compensation for such privileges; and,

(6) To aid in the implementation of the State Lands Management Plan."

Chapter 16Q-20, F.A.C. addresses the aquatic preserves and derives its authority from Sections 258.35, 258.36, 258.37, and 258.38, F.S. The intent of this rule is contained in Section 16Q-20.01, F.A.C., which states:

"(1) All sovereignty lands within a preserve shall be managed primarily for the maintenance of essentially natural conditions, the propagation of fish and wildlife, and public recreation, including hunting and fishing where deemed appropriate by the board and the managing agency.

(2) The aquatic preserves which are described in Section 258.39, 258.391, 258.392, and 258.393, F.S., Chapter 85345, Laws of Florida, and in Section 16Q-20.02, F.A.C., were established for the purpose of being preserved in an essentially natural or existing condition so that their aesthetic, biological and scientific values may endure for the enjoyment of future generations.

(3) The preserves shall be administered and managed in accordance with the following goals:

(a) Preserve, protect, and enhance these exceptional areas of sovereignty submerged lands by reasonable regulation of human activity within the preserves through the development and implementation of a comprehensive management program;

(b) To protect and enhance the waters of the preserves so that the public may continue to enjoy the traditional recreational uses of those waters such as swimming, boating, and fishing;

(c) To coordinate with federal, state, and local management programs, which are compatible with the intent of the Legislature in creating the the preserves;

(d) To use applicable federal, state, and local management programs, which are compatible with the intent and provisions of the act and these rules, to assist in managing the preserves;

(e) To encourage the protection, enhancement or restoration of the biological, aesthetic, or scientific values of the preserves, including but not limited to the modification of existing manmade conditions toward their natural condition, and discourage activities which would degrade the aesthetic, biological, or scientific values, or the quality, or utility of a preserve, when reviewing applications, or when developing and implementing management plans for the preserve;

(f) To preserve, promote, and utilize indigenous life forms and habitats, including but not limited to: sponges, soft coral, hard corals, submerged grasses, mangroves, salt water marshes, fresh water marshes, mud flats, estuarine, aquatic and marine reptiles,

game and nongame fish species, estuarine, aquatic and marine invertebrates, estuarine, aquatic and marine mammals, birds, shellfish and mollusks;

(g) To acquire additional title interests in lands wherever such acquisitions would serve to protect or enhance the biological, aesthetic, or scientific values of the preserves.

(h) To maintain those beneficial hydrologic and biologic functions, the benefits of which accrue to the public at large."

OTHER MANAGEMENT AUTHORITIES

Other Department of Natural Resources management authorities applicable to aquatic preserves include fisheries and marine mammal management and protection, and beach and shore preservation programs outlined in Chapters 370 and 161, F.S., respectively. Land acquisition programs conducted under the Environmentally Endangered Lands authorities of Chapter 259, F.S. or the Conservation and Recreation Lands Program authorized by 253, F.S., will enhance the protection of the natural resources within the aquatic preserves.

Chapter 403, F.S., is an important adjunct to Chapter's 253 and 258, F.S. This governs, in part, the State's regulatory programs affecting water quality and biological resources. The Department of Environmental Regulation

(DER), through a permitting and certification process, administers this program. Section 253.77, F.S., as amended by the Warren S. Henderson Wetlands Protection Act of 1984, requires that any person requesting use of state-owned land shall have approval of the proposed use from the Trustees before commencing the activity. An interagency agreement between DNR and DER provides an avenue for staff comments on potential environmental impacts of projects in aquatic preserves through the DER permitting process. Additionally, the DER has designated, by administrative rule, a series of waterbodies with stringent use criteria called "Outstanding Florida Waters" (OFW). The inclusion of all aquatic preserve waters within this classification greatly enhances the protective provisions of Chapter 258, F.S. As the designated "306" Coastal Zone Management Agency, the DER also provides a source of funding for data collection and planning in areas such as the Northeast Florida area, as well as being the state agency responsible for implementing the "federal consistency" provisions of the federal Coastal Zone Management Act.

The DER's administrative rules of primary significance to the aquatic preserve management program include Chapters 17-3, 17-4 and 17-12, F.A.C. These rules are based upon the authorities contained in Chapter 403, F.S. Chapter 17-3, F.A.C. addresses water quality standards and establishes the category of "Outstanding Florida Waters", while Chapters 17-4 and 17-12, F.A.C. address permit requirements.

In December, 1982 a Memorandum of Understanding (MOU) between the DER, DNR, and the U.S. Army Corps of Engineers (COE) was executed. This MOU clearly

establishes a process whereby the proprietary concerns of the Trustees, stated in Chapter 253, F.S. can be integrated into the DER/COE joint permit processing system.

Other opportunities for environmental review and input into activities potentially affecting aquatic preserves are afforded by the Department of Community Affairs (DCA), and the Department of State, Division of Archives, History, and Records Management (DAHRM). The Executive Office of the Governor also provides a mechanism for public input into federal projects via the State clearinghouse process.

The DCA is statutorily responsible for administering the "Development of Regional Impact" (DRI). The DRI program, authorized by Section 380.06, F.S. was established by the Legislature to provide a review and monitoring procedure for those development projects potentially affecting more than one county.

Chapter 267, F.S. establishes the state policy regarding preservation and management of Florida's archaeological and historical resources. This responsibility is legislatively assigned to the DAHRM, which holds title to those cultural resources located on state-owned lands. This also applies to sovereignty submerged lands, including aquatic preserves.

The Department of Health and Rehabilitative Services, under their public mandate, administers two programs directly affecting the aquatic preserve management program. These programs are (1) septic tank regulation, usually

administered by county health departments and (2) arthropod (mosquito) control programs, usually implemented through local mosquito control districts. Each of these programs holds the potential for creating significant impacts upon the aquatic preserves. Establishment of close working relationships between the aquatic preserve staff and the Department of Health and Rehabilitative Services will be a necessary element of the aquatic preserves management program.

Each of the above referenced programs may provide an effective means of protecting aquatic preserves and their ecologically sensitive resources. Appendix A contains a compendium of the appropriate statutes and administrative rules.

Chapter III

MAJOR PROGRAM POLICY DIRECTIVES

This plan contains a number of management policy issues that are discussed either generally or definitively. This section highlights those major policy areas that comprise the basic thrust of this management effort. Adoption of these policies will provide specific staff direction for implementing the day-to-day aquatic preserve management program. Major program policy directives are:

(A) Manage all submerged lands within these aquatic preserves to ensure the maintenance of essentially natural conditions to ensure the propagation of fish and wildlife, public recreation opportunities, and aesthetics.

(B) Prohibit the disturbance of archaeological and historical sites within the aquatic preserve, unless prior authorization has been obtained from the Trustees and DAHRM, and such disturbance is part of an approved research design or authorized project.

(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.

(D) Protect and, where possible, enhance threatened and endangered species habitat within the aquatic preserve.

(E) Prohibit development activities within the aquatic preserve that adversely impact upon saltmarshes and other valuable submerged habitat, unless a prior determination has been made by the Board of overriding public importance with no reasonable alternatives, and adequate mitigation measures are included.

(F) Prohibit the trimming and/or removal of saltmarsh vegetation and other natural shoreline vegetation within the aquatic preserve, except when necessitated by the pursuit of legally authorized projects and local protection ordinances.

(G) Provide research and educational opportunities for scientists and other interested researchers within the framework of a planned research program in the aquatic preserve.

(H) Acquire, where feasible, privately owned submerged lands located within the boundaries of the aquatic preserve pursuant to the authorities contained in Section 253.02(4), F.S.

(I) Prohibit the drilling of oil and gas wells, the mining of minerals, and dredging for the primary purpose of obtaining upland fill within the aquatic preserve.

(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(2), F.S.

(K) Prohibit storage of toxic, radioactive, or other hazardous materials within the aquatic preserve.

(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.

(M) Limit pesticide and biocide use within the aquatic preserve to those that are approved by the Environmental Protection Agency (EPA) for wetland and aquatic application.

(N) Prohibit the construction of new deep water ports within the aquatic preserve boundaries.

(O) 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.

(P) Manage state-owned spoil islands within the aquatic preserve as bird rookeries and wildlife habitat areas.

(Q) Encourage public utilization of the aquatic preserve, consistent with the continued maintenance of its natural values and functions.

(R) Develop a well coordinated aquatic preserve management mechanism that recognizes and utilizes local government programs and authorities.

(S) Require, through the efforts of DER and the water management districts, the maintenance of the naturally high water quality of the estuary and ensure the natural seasonal flow fluctuations of freshwater into the estuary.

(T) Apply the management criteria contained in the adopted Tri-River System Plan to all subsequent legislative additions of land to the aquatic preserve.

(U) Encourage the assistance of federal, state, and local government agencies in implementing the aquatic preserve management plans, especially in the areas of protection of natural and cultural resources and the enforcement of applicable resource laws and ordinances.

(V) Prohibit marinas in Class 1 or 2 Resource Protection Areas.

(W) Identify and document any problems caused by fishing activities and report them to the Marine Fisheries Commission.

Chapter IV

RESOURCE DESCRIPTION

These aquatic preserves are a unique Florida representative of the "Sea Islands" usually associated with southern Georgia. Characterized by a chain of sandy barrier islands, occasional inlets, and a combination of sounds, rivers and extensive coastal marshland, this area is an important natural resource for Nassau and Duval Counties. The busy commercial and naval ports of Jacksonville, Mayport and Fernandina Beach in Florida, and St. Marys and King's Bay in Georgia, are accessed by maintained channels in the St. Johns and St. Marys Rivers. Two other inlets, on the Nassau and Fort George Rivers, bisect the aquatic preserve. The network of tidal creeks, channels and waterways receive daily tidal inundation. Nutrient exchange between the ocean and river-transported detritus makes the salt marshes a significant primary producer and nursery ground for commercial and recreational fish species in the area. The sandy beaches of Fort Clinch State Park and Little Talbot Island attract thousands of vacationers yearly. The marshes and the coastal hammocks on the uplands are a part of the Atlantic flyway providing wintering and stopover areas for many migratory bird species.

The major problems in the continued health of this area include development on barrier islands, and pollution from large industrial complexes, from boat and barge traffic associated with the commercial ports (potential oil spills for example), and from sewage treatment plants surrounding the aquatic preserve.

Detailed information on the resources (e.g., species lists, water quality information, archaeological and historical site information, life histories, geological background, supporting maps, and cultural resource information) is located in Appendices C and D. The resource information presented in this chapter is intended to be generally descriptive of the major management functions and resources of the area surrounding the aquatic preserve.

A. Geological Features and Landforms

The barrier islands, marshes, channels and tributaries of the TRS Aquatic Preserve are considered to be the southern extension of the St. Marys Meander Plain. From the St. Johns River to the Santee River in South Carolina, the coast is known as the "Sea Islands". This name is derived from the barrier chain which is separated from the mainland by meandering tidal creeks resulting from fluvial and tidal sedimentation in derelict lagoons or coastal-parallel marshes between beach ridges (White, 1970).

The topography of the area is composed of ancient marine terraces which were formed in the Pleistocene when the sea was relatively stationary at varying levels higher than present sea level (Anderson, 1972). Each time the sea level dropped, a part of the sea floor was left exposed as a level plain or terrace. The terraces tend to be parallel to the present Atlantic shoreline and become progressively higher from east to west (Kojima and Humt, 1980). Over time, the level plains of the terraces were modified or destroyed by stream erosion. Sand dunes on the barrier islands were formed by sand deposited and shaped by a combination of wind, waves, and tidal currents. As

the wind-blown sand was trapped by vegetation, dune ridges formed. The dunes eventually became stabilized by salt-tolerant vegetation.

The islands absorb much of the energy from tides and waves and allow sediments from the mainland rivers to be deposited in the sheltered areas behind the islands. Deposition is an ongoing process, but the resultant increases in marsh elevation are just about offset by rising sea levels (Johnson et al., 1974).

B. Community Associations.

The plant communities of the TRS Aquatic Preserve are a major factor in the continued health and productivity of the natural systems in the preserves. This section will also reference some of the major animal species associated with these plant communities. The major community associations recognized in the preserve are salt marsh, oyster bars, tidal flats and tidal beaches. Each community is presented separately although in reality these communities are sometimes mixed or overlap. Final subsections address the animal life and endangered species within the aquatic preserves.

1. Salt Marsh. The salt marsh habitat predominates in these aquatic preserves. Typical of north Florida and south Georgia, these shallow, sheltered salt marsh areas behind barrier islands are crisscrossed with numerous sediment-laden tidal creeks and channels. The inflowing rivers contribute dissolved organic nutrients (e.g., phosphates and nitrates) and detrital material to the marshes. The incoming tides bring in other nutrients of marine origin. Tides and currents circulate the material within the

marshes creating year-round high primary productivity (the building of plant tissues upon which all consumer organisms are ultimately dependent). Outgoing tides carry broken down plant material from the marshes, thereby enriching the nearshore environment. The salt marsh ecosystem has been the focus of intensive study in many areas (Kurz and Wagner, 1951; Teal, 1959, 1962; Odum, 1961; De la Cruz, 1973).

Zonation of plant species within the salt marsh is dependent on elevation, depth of tidal flooding and salinity. In the TRS Aquatic Preserve, the dominant species are smooth cordgrass (Spartina alterniflora), in the regularly flooded or low marsh (zone between mean low water and mean high water), and black needlebrush (Juncus roemerianus), in the high marshes (between mean high water and mean high water spring tide). Other commonly occurring species include salt meadow hay (Spartina patens), saltgrass (Distichlis spicata), big cordgrass (Spartina cynosuroides) and glasswort (Salicornia virginica). Groundsel trees (Baccharis halimifolia) are the most abundant transition zone species (DeMort, 1984).

Another highly productive zone associated with the salt marshes is the tidal mud flat which lies between the mean low water and mean low water spring tide. It supports a rich algal flora, dominated in this area by sea lettuce (Ulva lactuca) and benthic diatoms such as Gyrosigma, Surirella, and Navicula. Lying on the surface layers of the sediments, algal growth is rapid and continues throughout the year. The amount of energy transformed by algal photosynthesis is a significant contribution to the total primary production of the salt marsh ecosystem (Pomeroy, 1959). This zone is discussed in more detail in a later section.

The animal life of the salt marsh is rich and diverse (Table I). It includes primary consumers that feed on vascular plant detritus and fresh algae, such as amphipods, fishes, shrimp, crabs, clams, oysters, snails and worms. Animals like the rice rat and cotton mouse nest within the marsh, but others, such as the raccoon, marsh rabbit and opossum come down to the marshes to feed during low tides. Avian species like clapper rails, willets, red-winged blackbirds, seaside sparrows, and marsh wrens nest in the salt marshes. Herons, egrets, ibis, wood storks and other wading birds feed on mud flats and at the edges of the marshes. Numerous species of commercially and recreationally important fishes either spawn in the marsh or live there for a large part of their life cycles.

2. Oyster Bars. Oyster bars are common in the low-energy, sedimentary environment characteristic of the continuous strands of salt marsh occurring behind the barrier islands of the aquatic preserve. Typically, oysters colonize subtidal and intertidal portions of the estuarine system. The oyster reefs are stable islands of substrate in an otherwise muddy environment and they can affect local turbidity levels through the processes of filtration and biodeposition. As the oyster reef grows and traps sediment, it eventually becomes colonized by Spartina (Bahr, 1983).

The extensive surface area of an oyster reef provides essential habitat for many animals, especially sessile suspension-feeding epifauna like barnacles and polychaetes. The crevices also provide a refuge for motile invertebrates such as mud crabs and amphipods. One of the functions of the reef inhabitants in a salt marsh ecosystem is to mineralize organic carbon and release nitrogen and phosphorous in forms usable by the primary producers (phytoplankton and benthic algae).

Table I

ANIMAL LIFE COMMONLY ASSOCIATED WITH SALT MARSH GRASS COMMUNITIES

WITHIN THE TRS AREA

Mammals

marsh rabbit
rice rat
raccoon
bobcat
river otter

Fishes

lady fish
Atlantic menhaden
sea catfish
spot
mummichog
silverside
striped mullet
spadefish
pinfish
spotted sea trout
red drum
weakfish
croaker spot
northern kingfish
jack crevalle
lookdown
Florida pompano
pigfish grunt
threadfin herring
southern fluke
summer flounder
bluefish
butterfish
mojarra
sheephead minnow
striped killie

Birds

great blue heron
great egret
snowy egret
little blue heron
tricolored heron
cattle egret
green-backed heron
black-crowned night heron
white ibis
wood stork
green-winged teal
ring-necked duck
hooded merganser
osprey
northern harrier
clapper rail
black-bellied plover
wilson's plover
semipalmated plover
American oystercatcher
willet
spotted sandpiper
ruddy turnstone
western sandpiper
least sandpiper
dunlin
short-billed dowitcher
marsh wren
seaside sparrow

Reptiles

diamondback terrapin
spotted turtle

ANIMAL LIFE COMMONLY ASSOCIATED WITH SALT MARSH
GRASS COMMUNITIES WITHIN THE TRS AREA (Continued)

Invertebrates

little grey barnacle
marsh periwinkle
clam worm
fan worm
salt marsh snail
hard-shelled clam or quahog
blue crab
fiddler crab
penaeid shrimp

City of Jacksonville. Appendices for Water Quality Assessment in the Jaxport Area with Analysis and Plan for the Estuarine Marsh System. 1984.

Predators on the community include the blue crab, mud crab, sheepshead minnow, raccoon, and numerous wading birds such as the American oystercatcher and boat-tailed grackle. Table II lists commonly occurring species.

Oysters are especially susceptible to chemical pollution and high levels of turbidity. Dredging activities can drastically increase the natural sediment loads and deplete dissolved oxygen levels. In the aquatic preserve system, high coliform levels have closed all shellfish harvesting areas in Nassau County. In Duval County, open shellfish harvesting areas include parts of Sawpit Creek and the Fort George River, and all of Simpson Creek.

3. Tidal Flats. Tidal flats in the TRS Aquatic Preserve consist of intertidal (between high and low tide marks) mud and sand flats associated with the sounds, river mouths, channels, and creeks. The ongoing processes of accretion and erosion associated with the barrier island beaches and the unmaintained inlets of the Nassau and Fort George Rivers, continually reshape the boundaries of the tidal flats in these areas. Tidal flats found along the more protected tidal creeks and channels in the salt marshes are more stable features.

In areas of high physical energy, such as inlets, sediments tend to be composed of coarse sand and shell debris, which is generally inhospitable to nearly all species of benthic macrofauna (Peterson and Peterson, 1979). In the more protected, shallow flats behind the inlets and in the mud flats associated with the salt marsh community, sediments are stable enough to support a substantial benthos.

Table II

ANIMALS COMMONLY ASSOCIATED WITH THE

OYSTER REEF COMMUNITY

Invertebrates

blue crab
mud crab
mussel
ivory barnacle
amphipod
lepton
shore shrimp

Birds

American oystercatcher
boat-tailed grackle
fish crow
ruddy turnstone
dunlin

Mammals

raccoon

City of Jacksonville. Appendices for Water Quality Assessment in the Jaxport Area with Analysis and Plan for the Estuarine Marsh System. 1984.

Bahr, L.M. and W.P. Lanier. The Ecology of Intertidal Oyster Reefs of the South Atlantic Coast: A Community Profile. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. FWS/OBS - 81/15. 105pp. 1983.

Bacteria present in the sediments efficiently convert dead organic matter to inorganic nutrients which are then available to support primary (plant) and secondary (animal) production. Algae are very abundant in and on the sediments of intertidal flats where they are important primary producers. The intertidal zone is a harsh environment that can subject marine organisms to dessication from the sun and wind. Most organisms have adapted to this by burrowing (protozoans, polychaetes, amphipods, bivalves) or by feeding on the flats only during periods of tidal inundation (crabs, gastropods, shrimp, fish). Birds are the most conspicuous predators in this habitat. These are represented by waders, such as herons and egrets; probers like plovers, sandpipers and dowitchers; and aerial-searching birds such as terns and gulls. Table III lists animals commonly associated with this habitat.

4. Tidal Beaches. The white sand beaches on the Atlantic side of the barrier islands in the aquatic preserve are important recreational and ecological resources. Along with coastal dunes, the beaches help to protect the islands from sea winds, salt spray, and storm tides and allow the establishment of forest vegetation (Johnson et al., 1974). In the process of absorbing these natural forces, the beaches are constantly being reshaped. Generally, the longshore movement of sands in this area causes beach erosion on the north and accretion on the south. These dynamic processes and the added stresses of dessication and shifting sands, allow only the hardiest plants to survive. These conditions create a gradient or zonation of vegetation from mean high tide toward the interior of the island.

The beaches (above the point of wave action) are typically vegetated with grasses and vines such as sea oats (Uniola paniculata), railroad vine (Ipomoea

Table III

ANIMALS COMMONLY ASSOCIATED WITH TIDAL FLATS

Invertebrates

- Amphipods
- polychaete worms
- horseshoe crabs
- blue crabs
- fiddler crabs
- bivalve molluscs
- gastropod molluscs

Birds

- American oystercatcher
- semipalmated plover
- black-bellied plover
- ruddy turnstone
- willet
- least sandpiper
- western sandpiper
- sanderling
- common tern
- least tern
- royal tern
- black skimmer
- herring gull
- ring-billed gull
- laughing gull
- fish crow
- great blue heron
- little blue heron
- great egret
- snowy egret

Fishes

- striped anchovy
- bay anchovy
- Atlantic menhaden
- Atlantic spadefish
- spotted seatrout
- spot
- silversides
- Atlantic croaker
- white mullet
- threadfin herring
- pigfish
- summer flounder
- southern flounder
- bighead searobin
- red drum
- lookdown
- northern puffer
- Atlantic needlefish
- inshore lizardfish

City of Jacksonville. Appendices for Water Quality Assessment in the Jaxport Area with Analysis and Plan for the Estuarine Marsh System. 1984.

Peterson, C.H., and N.M. Peterson. The ecology of intertidal flats of North Carolina: A community profile. U.S. Fish and Wildlife Service, Office of Biological Services. FWS/OBS-79/39. 73pp. 1979.

pescaprae), beach morning glory (Ipomoea stolonifera), sea purslane (Sesuvium portulacastrum), and camphorweed (Heterotheca subaxillaris). Most species exist at, or just above the sand, from dune crest inland, protected by sea oats. This pioneer zone stabilizes the loose sand and allows additional wind blown sand to become trapped, thereby enhancing dune formation.

This seemingly hostile environment provides important habitat for a variety of animal life. Organic matter from the ocean, especially macroscopic algae, is acted upon by bacteria in the beach sands. The bacteria are, in turn, eaten by nematodes, flatworms, protozoa and amphipods. In the high energy, unvegetated zone of the beaches, permanent residents are primarily burrowing marine life such as ghost shrimp, polychaetes, and sea cucumbers. Many other more motile species, including fish, occupy the beach area when it is covered with water. At low tide, shorebirds actively feed on the many burrowing organisms. The upper beach is an important nesting area for the threatened least tern and the Atlantic loggerhead turtle. Table IV lists the animals commonly associated with this habitat.

5. Deep Water Areas. These areas within the TRS Aquatic Preserve include natural inlets and river mouths, channels, rivers, creeks, and sounds. These waterways ensure that adequate tidal flushing and tidal exchange occur throughout the study area. The deeper waters also allow many commercially and recreationally important fish and shellfish access to protected nursery and feeding grounds. The endangered manatee uses these deeper waters during migration and for feeding and loafing purposes.

6. Animal Life. The richness of the animal life of the TRS Aquatic Preserve

Table IV

ANIMALS COMMONLY ASSOCIATED WITH TIDAL BEACHES

Birds

American oystercatcher
semipalmated plover
Wilson's plover
black-bellied plover
ruddy turnstone
willet
least sandpiper
western sandpiper
semipalmated sandpiper
sanderling
common tern
least tern
royal tern
black skimmer
herring gull
ring-billed gull
laughing gull
fish crow

Reptiles

Atlantic loggerhead turtle

Invertebrates

ghost shrimp
mole crabs
polychaete worms
razor clams
acorn worms
sea cucumbers
gastropods
sand dollars
brittle stars
horseshoe crabs
copepods
nematodes
flatworms
amphipods

Fishes

silversides
killifish
flounder
lizard fish

Johnson, A.S., H.O. Hillestad, S.F. Shanholtzer and G.F. shanholtzer. An Ecological Survey of the Coastal Region of Georgia. National Park Service. Scientific Monograph Series, No. 3. 233pp. 1974.

area is important to its designation as an aquatic preserve. The area is valuable for recreational fishing and serves as a nursery area for fish commercially caught in the Atlantic Ocean. Other species not directly important to commercial fishing, but necessary to its ultimate food chain, also depend on this estuary. The islands, tidal flats and salt marshes provide a refuge for species visiting this area during migrations, for daily feeding purposes and during times of environmental stress (i.e., drought, storms, development activities). These wildlife include an extensive list of endangered species, migratory waterfowl, colonial waterbirds, invertebrates and vertebrates. Salt water fish species and other animal species lists and information can be found in Appendix C.

The encroachment of human activities such as the intracoastal waterway, maintained inlets, spoil islands and other dredge and fill areas, bridges, causeways and roads, have changed the animal life of the aquatic preserve.

7. Endangered Species. The combination of climate, diverse vegetation and habitats, and waterbodies in the aquatic preserve system has resulted in the survival of endangered birds, reptiles, and fish. The highly publicized manatee is one of the most notable endangered mammals found in the area. Manatees make seasonal migrations along the eastern coastal waterways, including the lower St. Johns River and the Intracoastal Waterway (ICW) in the TRS Aquatic Preserve. In the vicinity of Fernandina Beach, manatees congregrate in the spring around the warm water outfalls from ITT Rayonier and the American Container Corporation. Another significant aggregation occurs at the intersection of the ICW and the St. Johns River in Duval County. The high density of industrial and commercial boat traffic between the Port of

Jacksonville and the mouth of the St. Johns River has contributed to high manatee boat/barge mortality rates in northeast Florida (Kinnaird, 1983). There are currently no protected areas, under Chapter 16N-22 of the Florida Manatee Sanctuary Act, in this aquatic preserve. Activities in the preserve should be managed to guarantee the health and safety of manatees (see Chapter V-2d) and all other endangered animals. Table V provides a list of other endangered animals known to occur within this lagoon.

C. Archaeological and Historical Resources.

The coastal area of northeast Florida has over 100 identified sites of historical and archaeological significance. These sites attest to the appeal that an area with productive marshes and offshore waters, and numerous inlets and natural ports has to its inhabitants.

The earliest occupation of the area dates back to approximately 3500 B.C. It has been postulated that rises in sea level expanded coastal lagoons and initiated a trend toward the utilization of saltwater shellfish. The period of greatest occupation probably started around 500 B.C., as the tendency toward exploitation of saltwater rather than freshwater shellfish continued (Rudolph and Gresham, 1980).

The early inhabitants were the Timucuan Indians who occupied southeastern Georgia and northeastern Florida. Of these eastern Timucuan tribes, the best known were the Saturiwa, occupying the lower course of the St. Johns River and the coastal area from the mouth of the St. Marys to below St. Augustine (Deagan, 1978). Subsistence was based on horticulture, shellfish collecting,

Table V

SPECIES OF THE NASSAU RIVER-ST. JOHNS RIVER MARSH

AND FT. CLINCH STATE PARK AQUATIC PRESERVE

WHICH ARE CLASSIFIED AS ENDANGERED, THREATENED, OR OF SPECIAL CONCERN

ENDANGERED

Reptiles

Atlantic Ridley turtle	(*Lepidochelys kempii*)

Birds

Wood stork	(*Mycteria americana*)
Arctic peregrine falcon	(*Falco peregrinus tundrius*)

Mammals

West Indian manatee	(*Trichechus manatus latirostris*)
Right whale	(*Balaena glacialis*)

THREATENED

Reptiles

Atlantic loggerhead turtle	(*Caretta caretta caretta*)

Birds

Eastern brown pelican	(*Pelecanus occidentalis carolinensis*)
Least tern	(*Sterna antillarum*)
Bald eagle	(*Haliaeetus leucocephalus*)

SPECIES OF THE NASSAU RIVER-ST. JOHNS RIVER MARSH AND

FT. CLINCH STATE PARK AQUATIC PRESERVE

WHICH ARE CLASSIFIED AS ENDANGERED, THREATENED, OR OF SPECIAL CONCERN
(continued)

SPECIES OF SPECIAL CONCERN

Birds

American oystercatcher	(Haematopus palliatus)
Little blue heron	(Florida caerulea)
Reddish egret	(Dichromanassa rufescens)
Snowy egret	(Egretta thula)
Tricolored or Louisiana heron	(Egretta tricolor)

Fish

Atlantic sturgeon	(Acipenser oxyrhynchus)

Reptiles

American alligator	(Alligator mississippiensis)

- Florida Game and Fresh Water Fish Commission. Rare and Endangered Biota of Florida. P.C.H. Pritchard, Series Ed., Vol. 1-6. University Presses of Florida, Gainesville, 1978.

- Florida Game and Fresh Water Fish Commission. Endangered and Potentially Endangered Fauna and Flora in Florida. October, 1984.

- Florida Natural Areas Inventory. Tallahassee, Florida. 1984.

and hunting and gathering. Food remains from midden deposits in the area indicate that mullet, sheepshead, black drum, and catfish were the most utilized fish. Shellfish included oysters, clams, mussels, and whelks (ESE, 1984).

The St. Johns River was originally discovered and settled by the French in 1562 and Fort Caroline was established at St. Johns Bluff in 1564. Within a year, the Spanish had captured the fort and established their supremacy in Florida. They erected many missions in the area in attempts to Christianize the Timucuans. This intensive European contact exposed the Timucuans to disease and by 1650, their population was severely decimated. In the latter 1600's, the missions were frequently raided by the British and the Guale Indians aligned with them. British rule in Florida lasted from 1763 to 1783 and ushered in the Second Spanish Period (1783-1821). The Spanish land grant system resulted in more intensive development in the area and ports in Jacksonville and Fernandina became important commercial centers.

During the Civil War, Confederate fortifications were constructed at St. John's Bluff, Yellow Bluff, and north Amelia Island (Fort Clinch). Fort Clinch was captured by Federal forces and remained under their command for the duration of the war.

D. Water Resources.

Water is the one resource that most directly affects the habitability and healthiness of the aquatic preserves for the plants and animals naturally

adapted to living there. The St. Johns River, the St. Marys River, the Nassau River, the Intracoastal Waterway, and numerous tributary channels and tidal creeks form the drainage network for Nassau and Duval Counties. These waterways drain 35 percent, 24 percent, 23 percent, and 18 percent of the two counties, respectively (USGS, 1972). When drainage areas beyond the county borders are included, the St. Johns and St. Marys Rivers drain a combined area of over 12,000 square miles. The potential for pollution transport into the aquatic preserves is therefore very high.

Moving from north to south, river inlets within the aquatic preserve include the St. Marys, Nassau, Fort George and St. Johns. The St. Marys inlet lies at the entrance to Cumberland Sound at the mouth of the river between Cumberland Island, Georgia, and Amelia Island, Florida. It is an important passageway for commercial, recreational and naval vessels, providing access to St. Marys Harbor, Georgia, Fernandina Harbor (via the Amelia River, Florida), and the U.S. Navy Submarine Support Base at Kings Bay, Georgia. The inlet was stabilized by twin stone jetties which were under construction from 1881 to 1927 and a navigable depth of 41 feet is maintained by the Corps of Engineers. The north and south jetties extend out 3.6 and 2.1 miles, respectively. The jetties changed sediment transport patterns and the shoreline both accreted and eroded. More recently (1945 to 1974), the northern shoreline of Amelia Island receded landward, while the southern shoreline showed almost unbroken stability over that same period (COE, 1985).

Two unimproved inlets lie between the St. Marys and the St. Johns Rivers; the Nassau River Inlet, between the southern tip of Amelia Island and the northern tip of Little Talbot Island, and the Fort George Inlet, between the southern

end of Little Talbot Island and Wards Bank (an extensive sand bank separating the Fort George and St. Johns Rivers). The inlets have been subject to significant shoaling problems and are navigable only by small craft (Kojima and Hunt, 1980).

The St. Johns River entrance is a major navigation channel between the ocean and port facilities situated along both banks of the lower 24 miles of the river. The maintained depth of 40 feet permits a variety of deep draft vessels, particularly associated with petroleum products, phosphate shipments and naval activities at Mayport, to use the river extensively. In 1977, there were over 6500 commercial vessel movements on the channel (COE, 1980). Two jetties, 2.7 and 2.1 miles long, north to south respectively, were created to stabilize the inlet. The jetties have caused the erosion of the southern end of Little Talbot Island and a northward migration of the Fort George Inlet (Kojima and Hunt, 1980).

Water in the channels and waterways within the preserve is nearly always brackish to saline. The extent to which the tidal influence is felt upstream varies with rainfall, tides, winds and evapotranspiration. Within the aquatic preserve area, maximum flow reversal occurs at distances that are upstream of the preserve boundaries (USGS, 1972). The danger inherent in this phenomenon is that the reverse flow may carry pollutants upstream to a point where water is being withdrawn for uses for which pollution cannot be tolerated.

Waters within the aquatic preserve are subject to pollution from the manufacturing sector (primarily paper and allied products) and from domestic sewage and stormwater runoff. The Fernandina Beach sewage treatment plant has

a design capacity of one million gallons per day (MGD) and provides secondary treatment. It is currently operating above design capacity but new construction will increase capacity to 1.75 MGD. Effluent is discharged into the Amelia River. The Amelia Island Waterworks, Inc. is a privately owned utility initially established to service the Amelia Island Plantation. The plant has a design capacity of .6 MGD and average daily flows of .477 MGD. The plant provides primary treatment and the effluent is disposed of through spray irrigation on the Amelia Island Plantation golf course. The concentration of nutrients in the groundwater, which may move laterally through the soil and discharge to marshes, is not expected to be significant enough to adversely impact these surface water systems (ESE, 1984). Capacity will be expanded in 1985 to 1.5 MGD and will provide secondary treatment. Pending approval, the effluent will be discharged into the Intracoastal Waterway or into Nassau Sound. Since Nassau Sound is classified as Class II waters, tertiary treatment of wastewater will probably be required. A second plant may be constructed on the south end of Amelia Island by 1986 or 1987. If constructed, effluent from this plant will be discharged into the Nassau River (Nassau County, 1984). In addition, there are 2 package treatment plants on Amelia Island that discharge into the Amelia River.

In Duval County, there are no effluent discharges within the boundaries of the aquatic preserve, but seven sewage treatment plants or package plants are located just south of the boundary on the St. Johns River. Moving from west to east toward Mayport, the following plants discharge secondarily treated effluent into the St. Johns River: Beacon Hills and Harbor with a design capacity of 0.836 MGD and an average daily flow of 0.220 MGD; Buccaneer Services with 0.650 MGD design capacity and an approximate daily flow of 0.35

MGD; four package plants including the U.S. Coast Guard, a marina, and two restuarants; and the U.S. Naval facility at Mayport which has an industrial section with a 0.288 MGD design capacity and an unknown average daily flow and a domestic discharge section with a 1.8 MGD design capacity and a 1.2 MGD average daily flow (Deuerling, pers. comm.)

Industrial activity in the area, though outside of aquatic preserve boundaries, can affect water quality within the preserve depending on currents and tidal flow. Discharges from industries in Duval and Nassau Counties are currently in compliance with Florida Department of Environmental Regulation standards (Newell, pers. comm.). These industries include two pulp mills in Fernandina Beach (discharging into the Intracoastal Waterway) and several power plants and chemical manufacturing plants located upstream on the St. Johns River. Compliance by the pulp mills and power plants is particularly important since manatees are attracted to the artificial warm water discharges at these plants.

Waters within the aquatic preserves are designated as Class II (shellfish propagation or harvesting) and Class III (recreation - propagation and management of fish and wildlife) by the DER. In Nassau County, Class II areas include portions of Alligator Creek, Nassau River and Creek, and South Amelia River. Due to chronically high levels of fecal coliform bacteria, all formerly approved shellfish harvesting areas have been reclassified as Prohibited (Poole and Barnett, 1984). In Duval County, Class II waters include parts of the Ft. George River, the Intracoastal Waterway and tributaries, Nassau River and Creek, and Pumpkinhill Creek. Harvested shellfish species include the eastern oyster and the northern hard clam or

quahog. Continual monitoring of bacterial and chemical pollution will be used to temporarily or, in some cases, permanently reclassify these areas.

E. Cultural.

The U.S. Census population for Nassau and Duval Counties for 1970 and 1980, with percent increase, was 20,626 to 32,894 - 59.5%, and 528,865 to 571,003 - 8.0%, respectively (Terhune, 1984). In Nassau County, most of the population is in unincorporated areas of the County, but the largest portion of the growth is concentrated on Amelia Island. In the incorporated City of Fernandina Beach, population has increased 19%, from 9,140 in 1970 to 10,841 in 1980 (Nassau County, 1984). The population in the consolidated City/County of Jacksonville increased 2.5%, from 540,920 in 1980 to 554,378 in 1983. Most of Duval County's population is concentrated in areas west of the aquatic preserve and in the beaches area south and east of the preserve. Uplands in Duval County within the aquatic preserve include Big and Little Talbot Islands, which are currently protected by the State, and privately owned Black Hammock and Fort George Islands.

Fort George Island has experienced tremendous growth pressures in the last few years. The Fort George Island Development of Regional Impact (DRI) proposes a 1400 unit development on the Island. The resultant increase in population is expected to be 2,295 people including residents, tourists and other vacationers. Two marinas on the north and east side are proposed and traffic on the Mayport Ferry is expected to increase. The loss of about 7.7 acres of saltmarsh and associated wetlands is anticipated (Fairfield, 1982). The

development of the marinas may require that DNR create Prohibited Shellfish Areas in their immediate vicinity (Poole, 1985).

The Amelia Island South DRI proposes a residential/resort community of 1,575 dwelling units and a resort hotel on 441.0 acres, which includes 29.3 acres of wetlands (ESE, 1984).

The newly constructed King's Bay Naval Base in Camden County, Georgia, across Cumberland Sound from Nassau County, is expected to add approximately 2,750 people to Nassau County by the year 2,000 (Nassau County, 1984). These growth pressures affect water resources and wildlife and increase the potential for environmental degradation.

Chapter V

RESOURCE MANAGEMENT

A. Introduction

The main objective of the resource management plan in the aquatic preserve is to protect the resources of the aquatic preserves for the benefit of future generations (Section 258.35, F.S.). The aquatic preserves are directed toward the maintenance of the existing or essential natural conditions. This part of the management plan addresses the policies and procedures which both onsite and administrative personnel will pursue. The onsite management will involve DNR's field personnel assigned to the aquatic preserve. The adminis- trative management will involve Division of Recreation and Parks' personnel (both in the field and in Tallahassee) and Division of State Lands' personnel, cooperating in the review of applications for use of state-owned lands and related activities surrounding the preserve. These personnel will be interacting with various government and non-government entities, interest groups, and individuals.

B. Onsite Management Objectives

The onsite management objectives are reflected in the activities that the field personnel become involved in (i.e., observation, research, public interaction, emergency responses, etc.) to protect and enhance the resources within the aquatic preserve. Other activities, such as the interaction with

other government and non-government entities, are covered in more detail in Chapter VI (Management Implementation Network). The field personnel's duties are, with respect to management of the various uses of the aquatic preserve, addressed in more detail in Chapters VII through XI. The field personnel will generally be involved in all management activities concerning the tri river system.

1. Plant Communities

The communities of aquatic and wetland plants within the Preserve perform five major functions vital to the health and productivity of the estuarine system:

a. they tend to stabilize geologic features in the face of dynamic forces (i.e., currents, tides, winds, and waves), which often act in concert to both erode and deposit;

b. they create, from recycled nutrients and solar energy, the organic material that fuels the estuarine food web which supports the area's fisheries, endangered species, migratory waterfowl, colonial waterbird nesting colonies, raptors, marine mammals, and marine and estuarine invertebrates;

c. they provide protected fisheries habitat for spawning and juvenile development;

d. they provide roosting and nesting habitat for water birds; and,

e. they physically buffer estuarine and riverine waters from contaminated and channelized runoff from uplands within the estuarine watershed and, in some cases, buffer the uplands from storm waves and winds.

The management objectives for plant communities will be to maintain and enhance these functions. Because these plant communities are critically important to the well-being of the Preserve, a program to work toward the protection and restoration of those communities now damaged or destroyed by human activities should be developed.

Management Policy

a. Field Familiarization and Documentation. Field personnel will become familiar with the plant species and communities present in the aquatic preserve, and locations of their occurrences.

b. Literature Familiarization. Field personnel will assemble a working library of existing pertinent literature concerning the species and communities present in the aquatic preserve. Staff will become familiar with the ranges, life histories, ecological requirements, productivity, importance to water quality, contribution to landform stabilization, wildlife habitat provision, fisheries habitat provision, and fisheries food production of the plant communities within the aquatic preserves.

c. Preparation of Guidelines for Management of Endangered Species. Field

personnel, based on their field observations and literature reviews, will develop maps (using 7.5 minute quadrangles) showing the locations of threatened and endangered plant species within the aquatic preserve. A set of management guidelines for each species, outlining the habitat requirements and the methods to sustain and/or restore these habitats will be developed. Field personnel, in the course of documenting the occurrence of threatened and endangered animals, will develop maps showing the locations and types of plant communities used by these animals for nesting, roosting, feeding, resting, spawning, etc. Literature information and personal observations will then be used to develop guidelines for maintaining (or restoring if necessary) the "critical habitat" required by each species.

d. Monitoring of Plant Communities for Natural Changes. Field personnel will become familiar with the use of aerial photography and LANDSAT imagery, for the study and monitoring of plant communities (historically and at the present time) and will use this remote sensing in conjunction with field observations to monitor and document natural changes such as:

1. freeze damage to, and recovery of, salt marsh communities:
2. wind and wave damage to salt marsh and beach communities from storms and hurricanes;
3. accretion-related seaward extension of salt marsh and beach communities;
4. erosion-related landward retraction of salt marsh and beach communities;
5. depositional burying of salt marsh and beach communities;

6. invasions of exotic plant species and revegetation by native species after exotic plant removal projects;
7. pathogen damage to and recovery of plant communities.

e. Identification of Areas and Communities in Need of Restoration. Field personnel will, as time permits, systematically survey the aquatic preserve to determine the location, nature, and extent of environmental damages from human activities and assess the possibility of restoring each of the sites according to whether the site is publicly or privately owned, and the cost and effort required.

f. Protection of Plant Communities. Field personnel shall protect the plant communities from the various uses of sovereign lands within the aquatic preserve according to the following guidelines.

1. Field personnel in their biological reports shall not recommend for approval any proposed use of sovereignty submerged lands when the plant communities in the proposed use area appear to be jeopardized.

    i. Removal of salt marsh vegetation shall only be permitted for access from the mean high water line to a dock or pier. The destructive clearing of salt marshes in sovereignty lands shall be strictly prohibited.
    ii. Salt marsh communities shall not be removed or shaded to such an extent as to cause the death of a significant area of the community. They shall not be subjected to unacceptable

turbidity, decreased light penetration, or propeller damage.

2. Field personnel shall be notified of applications for uses of submerged lands within the aquatic preserve by the Bureau of Historic and Environmental Land Management central office. No applications will be approved within Class 1 and 2 Resource Protection areas (see section B(6) of this chapter) without a thorough review by the field personnel. The field personnel will inspect the site, assess the potential impacts to the plant communities, and then convey their recommendations to the central office as required.

3. Field personnel will initiate various educational programs and supplement existing educational programs designed to increase public awareness of the damage that recreational, private and commercial uses can inflict on salt marsh and beach communities.

4. Field personnel will develop an exotic plant control and removal plan after monitoring the rate and extent of invasion by exotic species,

5. In cooperation with the Northeast Florida Regional Planning Council, field personnel will familiarize themselves with the results of a study under the Coastal Energy Impact Program, in assessing the potential impacts of an oil tanker spill or drilling rig accident on the natural resources of the aquatic preserves.

g. Restoration of Plant Communities. Field personnel will consult with professionals in the wetlands restoration/revegetation field to determine the advisability of using healthy areas of salt marsh vegetation as a stock source to restore damaged areas. They will develop guidelines for restoring salt marshes in the aquatic preserve.

Field personnel will identify easily accessible salt marsh communities within the aquatic preserve where a high density of salt marsh seedlings such as smooth cordgrass or black needle rush could serve as a nursery stock source for transplanting to restoration sites. Field personnel will consult with professionals in the wetlands restoration/revegetation field concerning proven procedures for transplanting and nurturing salt marsh species, and will develop guidelines for restoring these communities in the aquatic preserve.

In the event that plant restoration is required as the result of a permit application with DER, or as a result of any other process, the field personnel will be responsible for monitoring the restoration activity. This might include advising the individuals involved in the actual restoration work on the best techniques under the available restoration guidelines. The field personnel will monitor the success of the restoration project after the work is completed.

h. Identification of Research Needs. Field personnel will identify research needs concerning plant communities within the aquatic preserve with special emphasis given to data needs that would increase the capability of field personnel to manage plant communities under environmental stress, and to

determine threshold tolerances for plant community health and diversity in relation to degraded environmental conditions.

i. Coordination with Other Researchers. Field personnel will become familiar with research projects being conducted within the aquatic preserve by state and federal agency biologists and non-government researchers. Water quality research issues, as they affect plant communities, should also be closely followed. This familiarization should lead to a better understanding of both agencies' personnel and a better awareness of the data findings and uses. The research liaison will also be addressed in Chapter X (Scientific Research).

2. ANIMAL LIFE

The richness of the animal life of the aquatic preserves' area is important to its designation as a protected area. The fish, shrimp, and crabs within the preserve, both in the salt marshes and offshore, are valuable resources on which recreational and commercial fisheries depend. Large areas of undisturbed salt marshes are excellent habitat for many types of wildlife, including an extensive list of endangered species, migratory waterfowl, colonial waterbirds, invertebrates and vertebrates.

The management objective for animal life within the aquatic preserve will be the protection through preservation of habitats and living conditions in the most natural condition possible.

Management Policy

a. Field Familiarization and Documentation. Field personnel will become familiar with the major animal species in each habitat in the aquatic preserve. This identification process will include the location, number, season of sighting, weather conditions and any other factors which may be necessary to build a working knowledge of the species, and their interaction and occurrence in the aquatic preserve.

b. Literature Familiarization. The field personnel will assemble a working library of existing literature concerning the major animal species and communities within the aquatic preserve. The field personnel will become familiar with life histories, ecological requirements, position in the community, habitat and other factors necessary for sound management.

c. Preparation of Guidelines for the Management of the Endangered Species Within the Aquatic Preserve. The field personnel will become familiar with the guidelines of the Florida Game and Fresh Water Fish Commission, U. S. Fish and Wildlife Service, Department of Natural Resources' Division of Marine Resources, National Marine Fisheries Service, Marine Fisheries Commission and any other applicable agencies and non-government organizations involved in the management of endangered species. These guidelines will be used in conjunction with the field familiarization, documentation, and mapping to develop management guidelines for each endangered species within the aquatic preserve. Special guidelines shall be developed and implemented for the management of areas within the aquatic preserve that are identified as critical habitat for endangered species.

d. Manatee Management. When applications for use of submerged lands within the preserve or adjacent upland activities will affect a manatee sanctuary or manatees known to use an area (see Chapter IV-B7), field personnel will encourage notification of the State Manatee Coordinator. Field personnel will work with the coordinator in the practice and procedures of the following activities.

i. Monitor the preserve for manatee activities and maintain a manatee sighting map for the preserve. This mapping will take special note of large seasonal aggregations. A manatee reporting and data collection system will be established and will make use of other government personnel and private individuals where possible.

ii. Identify and map shallow water and narrow areas where manatee boat/barge collisions are more likely.

iii. Identify areas for additional manatee sanctuaries and special channel marking and slow speed zones.

iv. Applications for use of submerged lands will be reviewed for design and operation that are least dangerous and disruptive to manatees. Approved uses within manatee use areas should require manatee caution signs and any other requirements that will guarantee manatee health and safety.

v. The creation of new marinas and multiple slip residential docking facilities should be prohibited in manatee sanctuaries having designated idle, slow speed or no entry zones and severely limited in identified manatee use areas.

vi. The creation of canals and basins within or contiguous to manatee

sanctuaries having designated idle, slow or no entry zones shall be prohibited.

vii. Schedule and monitor activities within manatee use areas during seasons of lowest use.

viii. Assist in public awareness education efforts.

e. Monitoring Changes in Animal Populations. Field personnel will study and monitor changes in animal species that are caused by natural phenomena, such as:

i. freezes;

ii. storms and hurricanes;

iii. changes in habitat due to changes in plant types;

iv. changes in habitat due to water quality changes; and

v. geologic or hydrologic changes including erosion, estuarine current flow changes, and any other physical changes.

f. Protection of Animal Life From Human Uses of the Aquatic Preserve. Field personnel, during the process of resource impact analysis in the review of use applications in or affecting the preserve, shall consider the protection of animal species. The review shall also consider the potential effects of the proposed use on the plant communities as they function as habitat for the animal life and uses that may cause a disturbance in the natural activities and functions of the animal life (e.g., air pollution, excessive noise or bright lights affecting a bird rookery). The field personnel should be notified of any proposed activities (e.g., seismic

testing, mammal capture by permit) within the aquatic preserve that might affect the well-being of animal life and should be involved in planning the activity so as to cause the least amount of stress on animal life.

g. Identification of Research Needs. The field personnel in the course of their duties shall identify research needs required to improve the management of animal life in the aquatic preserve. This identification process is more fully described in Chapter XII (Identified Program Needs).

h. Coordination with Other Researchers. Field Personnel will become familiar with research projects conducted within the aquatic preserve by state and federal agency biologists and non-government researchers. This familiarization should lead to a better understanding of both agencies' personnel and a better awareness of the data findings and uses. The research liaison will also be addressed in Chapter X (Scientific Research).

3. GEOLOGIC FEATURES

The management of geologic features will require that the field personnel become aware of the natural geologic features and the changes, both human and natural, which affect these features within the aquatic preserve to better enable a review of applications for state-owned land uses that might affect these features. These geologic features will include inlets, islands, shoals, beaches, shorelines, embayments, and channels. The overall objective of the management of these features is to allow the naturally dynamic system to operate without man's influence or interference. Active management in this

area shall include the review of proposed uses that might affect the geologic features within the aquatic preserve. The majority of these reviews will probably concern bulkheads, bridges and channels as they might affect state-owned lands. The objective in the placement of bulkheads on lands upland of the aquatic preserve shall be that the natural contour and drainage be altered to the least amount practicable. The use of rip rap with salt marsh plants or other suitable native plantings would be preferable to bulkheads within the preserve. Bulkheads are not allowed within the preserve, except as stated in Sections 258.42(2), and 258.44 F.S. and in accordance with the management objectives of the preserve.

Existing bridges and causeways within the aquatic preserves' river system have resulted in losses of salt marsh habitat. Future proposed bridge locations will be reviewed in light of these potential impacts. Causeways restrict natural flushing and create unnatural circulation patterns.

Maintenance dredging of existing channels should also be carefully studied to remove conditions that require perennial maintenance and environmental disturbances. New channels also have the potential to adversely impact the aquatic preserves, with varying influences in each preserve, depending on channel location.

The field personnel shall also be involved in the review of project proposals submitted to other agencies, such as the U.S. Army Corps of Engineers, the Department of Environmental Regulation, the Department of Transportation or the Water Management Districts, and shall formally review and comment on any

permit application that impacts the aquatic preserve. These projects shall be reviewed jointly with those agencies' personnel whenever possible. The field personnel will review these projects on behalf of the aquatic preserve and its resources.

4. ARCHAEOLOGICAL AND HISTORICAL SITES

Archaeological and historical sites have several characteristics which must be recognized in a resource management program.

i. They are a finite and non-renewable resource.

ii. Each site is unique because individually it represents the tangible remains of events which occurred at a specific time and place.

iii. While these sites uniquely reflect localized events, these events and the origin of particular sites are related to conditions and events in other times and places. They also preserve traces of past biotic communities, climate, and other elements of the environment that may be of interest to other scientific disciplines.

iv. These sites, particularly archaeological sites, are very fragile because their significance is derived not only from the individual artifacts within them, but especially from the

spatial arrangement of those artifacts in both horizontal and vertical planes.

Administering Agency.

The management of the archaeological and historical sites is authorized and administered by the Division of Archives, History and Records Management (DAHRM) in the Florida Department of State. The management authority for this area of management is presented in Chapter II (Management Authority).

Management Policy.

The management policy presented here is one of conservation, as recommended by the DAHRM and subject to that agency's changes. Their policy is as follows:

1. The field personnel and all other agencies planning activities within the aquatic preserve shall coordinate closely with DAHRM in order to prevent any unauthorized disturbance of archaeological and historical sites that may exist on the affected tract. DAHRM is vested with the title to archaeological and historical resources abandoned on state lands and is responsible for administration and protection of such resources (Section 267.061(1)(b), F.S.). It is illegal to destroy or otherwise alter sites on state lands without a permit from DAHRM (Section 267.13, F.S.). Therefore, agencies planning activities should coordinate their plans with DAHRM at a sufficiently early stage to preclude inadvertent damage or destruction to these resources.

2. The nature of these sites' fragility and vulnerability to looting and other destructive forces requires that the location of these sites not be widely known, if the location is known at all. In many instances DAHRM will have knowledge of the known and expected site distribution in an area. Special field surveys for unknown areas may be required by DAHRM to identify potential endangerment of a proposed activity to these archaeological and historical sites. This will be especially necessary in the case of activities contemplating ground disturbance over large areas.

3. In the case of known sites, activities that are expected to alter or damage these sites shall alter their management or development plans as necessary, or make special provisions so as not to disturb or damage such sites prior to professionally acceptable and authorized mitigation.

4. If in the course of a management activity, or as a result of development or the permitting of dredge/fill activities, it is determined that valuable historic or archaeological sites will be damaged or destroyed, DAHRM reserves the right to require salvage measures to mitigate the destructive impact of such activities on such sites (Section 267.061(1)(b), F.S.). Such salvage measures shall be accomplished before DAHRM would grant permission for site destruction.

5. Excavation of archaeological sites in the near future is discouraged. Archaeological sites within the aquatic preserve should be left undisturbed for the present, with particular attention devoted to preventing site looting by "treasure hunters".

6. Field personnel will note suspected sites for future surveys by DAHRM. Cooperation with other agencies in this activity is also encouraged by DAHRM. The DAHRM will help inform the field personnel about the characteristics and appearance of these sites.

7. Any discovery of instances of looting or unauthorized destruction of these sites will be reported to the DAHRM so that appropriate action may be initiated. The Florida Marine Patrol and other enforcement personnel of DNR shall provide enforcement assistance to DAHRM and make arrests or investigate cases of looting or other unauthorized destruction of archaeological sites. The field personnel will follow the above management policy and become familiar with the personnel involved with this task in DAHRM and their procedures for identifying suspected sites.

5. WATER RESOURCES

Responsible management of water resources for the protection of human health and recreational enjoyment of aquatic preserve waters, as well as for the protection and enhancement of the preserves' plant and animal communities is,

without a doubt, the most critical aspect of aquatic preserve management. Research to understand how human activity can alter or detrimentally affect the dynamic characteristics of the preserves' various habitats can be approached confidently after monitoring data has been used to model the effects of naturally occurring variations on the same habitat. Only a single toxic substance may be necessary to initiate irreparable ecological damage and change in the water resources of the aquatic preserve estuarine ecosystem.

Management Policy

The successful management of the water resources of the aquatic preserve depends heavily on other government agencies (i.e., DER and the Water Management District) charged with regulating water quality and quantity. The objective of the water resources management shall be to maintain the naturally high water quality and to ensure the natural seasonal fluctuations of fresh water into the estuary. Sources of water resources data from non-government agencies, are dependent on or may be found among colleges, universities, scientific foundations and private consultants working in the TRS area. These various entities have interests at many different levels and areas within the riverine and estuarine system. The aquatic preserve management program will manage the water resources through coordination with these various entities. The field personnel will not conduct water sampling, but through the review of these data from other entities and from their own field observations, they will be able to identify water resource problems in the aquatic preserve.

a. Familiarization with the Jurisdiction, Personnel, and Monitoring Programs

of Government Agencies and Other Entities. Field personnel will become thoroughly familiar with the jurisdiction, personnel and monitoring programs of other agencies, institutions and corporations involved in studying, monitoring, regulating and managing water resources within the aquatic preserve and the drainage basins which provide fresh water to this preserve.

Those agencies known to be working or having potential activities affecting the preserve are listed below; others may be added as they are identified.

1. Florida Department of Environmental Regulation
2. City of Jacksonville, Department of Health, Welfare and Bio-environmental Services
3. County Health Department
4. St. Johns River Water Management District
5. U. S. Geological Survey
6. U. S. Fish and Wildlife Service
7. Northeast Florida Regional Planning Council
8. City of Jacksonville Planning Department
9. Florida Game and Fresh Water Fish Commission
10. Florida Department of Natural Resources Marine Research Laboratory
11. University of North Florida
12. Jacksonville University
13. Florida Institute of Technology
14. Florida Medical Entomology Laboratory
15. U. S. Environmental Protection Agency
16. Jacksonville Electric Authority

17. Florida Inland Navigation District
18. Marine Fisheries Commission
19. Florida Oceanographic Society
20. National Marine Fisheries Service
21. Fairfield Communities, Inc.

b. Monitoring of Water Resources by Cooperative Data Collection and Review. Field personnel will: 1. promote coordination among involved agencies in planning monitoring programs and in evaluating monitoring data; and 2. monitor water resources within the preserve by reviewing the data collected and compiled by those agencies as it applies to the aquatic preserve and its resources.

c. Review of Permit and Lease Application for Aquatic Preserve Uses and Watershed Activities that would affect the Preserve Water Resources. Field personnel will review sovereign land lease applications, development of regional impact reviews, and DER/COE permit applications in cooperation with other agencies as necessary, and as outlined in Chapter V (C) for their potential impact on the water resources of the aquatic preserve.

d. Familiarization with and Monitoring of Activities and Users which Regularly Contribute Pollutants to Preserve Waters. Field personnel will become familiar with the activities and users which regularly or potentially contribute pollutants to the waters of the aquatic preserve. This monitoring will be accomplished directly by field observations and indirectly by review of other entities' water resources data. Field personnel will encourage and

coordinate with other agencies involved with water resources monitoring to consider more detailed field monitoring in areas of the preserve where the incidence of polluting activities is found to be high. These monitoring activities will also include the monitoring of freshwater releases into the preserves and their effect on the environment.

These activities will also be applicable to Chapter X (Scientific Research), and the coordination through Chapter VI (Management Implementation Network). The field personnel's onsite presence will be complemented by their reliance on other agencies and entities for data and regulation. The field personnel will have the ability to visually monitor water resource crises and phenomena as they occur and when they affect other resources.

6. CUMULATIVE IMPACT ANALYSIS

Cumulative Impacts are the sum total of major and minor changes or effects upon a natural system. Taken singularly these effects may not constitute a notable change in the condition of the natural system, but as these single changes or uses accumulate, their combined impact may result in a substantive environmental disturbance or degradation of the natural system.

The review of proposed uses in the aquatic preserve from the perspective of cumulative impact analysis requires a thorough knowledge of the natural system and the various interactions and dynamics within that system. This aquatic preserve management program will initiate development of a cumulative impact analysis program. The evaluation of cumulative impacts shall include the

following criteria from Chapter 16Q-20 F.A.C.:

"(1) The number and extent of similar human actions within the preserve which have previously affected or are likely to affect the preserve, whether considered by the Department under its current authority or which existed prior to or since the enactment of the Act; and,

(2) The similar activities within the preserve which are currently under consideration by the department; and

(3) Direct and indirect effects upon the preserve and adjacent preserve, if applicable, which may reasonably be expected to result from the activity; and

(4) The extent to which the activity is consistent with management plans for the preserve, when developed; and

(5) The extent to which the activity is permissible within the preserve in accordance with comprehensive plans adopted by affected local governments, pursuant to Section 163.3161, F.S., and other applicable plans adopted by local, state and federal governmental agencies.

(6) The extent to which the loss of beneficial hydrologic and biologic functions would adversely impact the quality or utility of the preserve; and

(7) The extent to which mitigation measures may compensate for adverse impacts."

The availability of onsite reserve staff who are familiar with the distinctive characteristics of this system, coupled with their ability to access LANDSAT imagery and mapping, and other data sources, is the key to development of a successful cumulative impact analysis program. As cumulative impacts are identified for specific areas and/or resources, they will become an integral part of the project analysis and decision-making process.

7. MANAGEMENT OF ENCROACHMENTS

The management of encroachments in the preserve will concern the unauthorized placement of structures or other illegal uses in the aquatic preserve. These encroachments might also include illegal activities associated with an approved use (e.g., extension of a dock, construction of boat houses, extension of an approved channel).

The management policy for the field personnel, after identification of a suspected illegal encroachment, will involve a reporting procedure and the monitoring of the remedial action. After a field identification of suspected encroachments, field personnel will notify the central office to verify the title of the property and research the possibility of the use being an approved activity. Due to the extensive areas involved in the aquatic preserve, this will be a progressive activity depending on the field personnel's eventual familiarization with the preserve and the approved uses. The potential for unauthorized activities in such an extensive area may possibly require some type of mapping and recording system to assist the field personnel in their monitoring.

The management action for verified illegal encroachment will be developed by the agencies specifically involved (i.e., DNR, DER). The field personnel will assist, as necessary, with field evaluations or other support activities. The final action will be monitored by the field personnel, at the direction of the Trustees to the central office. The procedures followed in these applications will be decided on a case by case basis.

C. RESOURCE MAPPING AND RESOURCE PROTECTION AREAS

The efficient description and location of resources within such a large area requires the use of remote sensing techniques. This work will be done in conjunction with DNR's Marine Research Laboratory's Assessment of Fishery Habitat Loss Study in the area's river systems. Marine Research Laboratory personnel have developed resource and habitat identification mapping through the use of LANDSAT (satellite) imagery and aerial photography.

The vegetation and land use mapping done in this study will become the basis for the development of a Resource Protection Area management system in the aquatic preserves. This mapping system will identify and classify various resources within the aquatic preserves that require protection by the management program. This mapping system will also give acreage totals for each land use and vegetation classification in the preserves. The vegetation portion of the mapping will be augmented over time by wildlife and fisheries information (endangered species, bird rookeries, etc.), archaeological and historical site information and other resource factors deemed crucial to the continued health and viability of the aquatic preserves.

The onsite managers will supplement this mapping with the above information to develop and update a Resource Protection Area (RPA) mapping program. The RPA mapping system is based on three levels of resource classification. The Class 1 level will contain resources of the highest quality. Uses proposed for these areas will receive the most rigorous review. The Class 1 level will include one or more of the following: saltwater marsh, beaches, oyster bars, archaeological and historical sites (upland and submerged), endangered species habitat, colonial waterbird nesting sites, and other appropriate factors.

The Class 2 areas will be defined as those areas containing the resources of Class 1, but in a transitional condition compared to Class 1. These resources will either be building toward Class 1 status or declining to Class 3 status. Class 2 areas will require careful field review as to the specific area's sensitivity to each proposed use. In some respects, these areas may be as sensitive or more sensitive to disturbances as Class 1 areas. The resources of Class 2 will include: beaches undergoing restoration, saltwater marsh colonizing new lands, and other resources of Class 1 type that fit in the Class 2 condition.

Class 3 areas will be characterized by the general absence of the attributes of the above two classes. Class 3 areas may have small localized Class 1 or 2 areas within them. Class 3 will generally have deep water areas or areas with no significant vegetation or wildlife attributes. Nearshore and bottom areas significantly modified by man will be designated Class 3.

These RPA maps will require periodic revisions as the onsite managers learn

more about the resource's reactions to man's uses. Scientific research and other data additions may also require modification of this system. Natural changes will also require modification of this classification system. Periodic checking by LANDSAT satellite imagery will become useful for remote sensing monitoring as its use is more fully developed.

The RPA maps will become a planning tool for both onsite and central office staff. More detailed field review will still be required to supplement this information on a case by case basis, as necessary.

The initial development, as well as periodic review, will require the support and assistance of the many other resource regulating and managing agencies, as well as local and regional government entities. Support will also be requested from the colleges, universities, foundations and other interest groups and individuals.

The RPA mapping will use the USGS 7.5 minute quadrangle map format for vegetation and these maps, after validation by field truthing, will be placed in Appendix D of the aquatic preserve management plan. It is recognized that mapping at this scale may not adequately define small areas which do not qualify for the RPA class level assigned to a general area.

D. ADMINISTRATIVE MANAGEMENT OBJECTIVES

This section of the chapter addresses the role of the central office, in the aquatic preserve management planning and implementation process. The central

office's role is generally interpreted within the context of coordinating activities with the field personnel. This coordination linkage is important to many program aspects, including project review and evaluation, local contact initiation, administrative rule development, contractual services and conflict resolution, not to mention the routine support (payroll, operating expenses, etc.) usually extended by the central office to the onsite managers. All program activities identified within this context are designed to protect and enhance the environmental, educational, scientific, and aesthetic qualities of the natural systems of the aquatic preserve.

1. Objectives

Specifically, the following administrative objectives are an essential part of the aquatic preserve management program.

a. To ensure a comprehensive, coordinated review and evaluation of proposed activities potentially affecting the environmental integrity of the aquatic preserve.

b. To serve as the link between aquatic preserve field personnel and state agencies and programs which originate in Tallahassee.

c. To serve as the primary staff in the development of administrative rule additions, deletions, and revisions.

d. To serve as the administrative staff for contractual agreements and services.

e. To establish and maintain a conflict resolution process.

f. To review all existing and past activities as to their affect on the environmental integrity of the aquatic preserve.

2. Project Review and Evaluation

A major element in the administration of an aquatic preserve management system is the establishment of a thorough project review process. It is the program intent that the central office staff review all proposed activities requiring the use of state-owned lands within the preserve.

Sections 258.42 through 258.44, F.S., establish the legal context within which all proposed uses of the aquatic preserve must be evaluated.

Essentially, these sections require that projects be basically water dependent or water-enhanced, not contrary to the lawful and traditional uses of the preserve, and not infringing upon the traditional riparian rights of the upland property owner.

The primary mechanism through which proposed uses are reviewed is accomplished by participation in the state lands management process as established by Chapter 253, F.S., and modified by Chapter 258, F.S. The central office was administratively designated, on October 4, 1982, as an agent of the Trustees, for the purposes of evaluating the environmental consequences of proposed uses of state-owned lands within aquatic preserves.

In conducting the environmental evaluations, the central office staff will rely heavily upon the most current, readily available data such as Department of Transportation (DOT) aerial photography, LANDSAT imagery, DER biological reports, and other data resources (see Appendices C and D). If a proposed

activity is legally consistent with the maintenance criteria outlined in Section 258.42 F.S. and Chapter 16Q-20, F.A.C., and is generally of negligible environmental concern, then the project review will likely be conducted in its entirety by the central office staff, utilizing the generalized environmental data.

The field personnel will be requested to conduct a more detailed environmental assessment of the project if the central office staff, during the course of the preliminary application review, determines that the requested use of state-owned lands may have a significant effect upon the environmental integrity of the preserve. Copies of all applications received will be provided to the field personnel for project monitoring and assessment of the possible cumulative impacts.

Field personnel will be encouraged to establish direct communication links with the various regulatory and management agencies for purposes of obtaining advance notification of projects potentially affecting the preserve. All environmental review and assessments, however, will be channeled through the central office unless other arrangements have been previously cleared with the central office.

While the State Lands Management Program authorized by Chapters 253 and 258, F.S. and Chapters 16Q-20 and 16Q-21, F.A.C. is expected to be the primary management implementation vehicle for the aquatic preserve, it is by no means the only vehicle. Section 253.77, F.S., as amended, and the December, 1982 Memorandum of Understanding between the COE, DER and DNR provide direct access

to DER's permitting process for DNR. The Development of Regional Impact (DRI) and other regional or state level review processes represent other implementation mechanisms. The basic review approach and the evaluation relationship between the field personnel and the central office staff will be the same as the case involving the State Lands Management program.

One aspect of the aquatic preserve review and evaluation program is the identification of proposed activities that are either generally or specifically prohibited. Immediately upon review of such project applications, the central office staff will notify the Division of State Lands (or other program managers) that the proposed activity is legally unapprovable for the stated reasons. For those proposals which are subject to denial due to their adverse environmental impacts, even though the activity may be permissible, Section 258.42, F.S., specifically provides that:

"(1) No further sale, lease, or transfer of sovereignty submerged lands shall be approved or consummated by the trustees except when such sale, lease, or transfer is in the public interest.

(2) The trustees shall not approve the waterward relocation or setting of bulkhead lines waterward of the line of mean high water within the preserve except when public road and bridge construction projects have no reasonable alternative and it is shown to be not contrary to the public interest.

(3) (a) No further dredging or filling of submerged lands shall

be approved by the trustees except the following activities may be authorized pursuant to a permit:

1. Such minimum dredging and spoiling as may be authorized for public navigation projects.

2. Such minimum dredging and spoiling as may be authorized for creation and maintenance of marinas, piers, and docks and their attendant navigation channels.

3. Such other alteration of physical conditions as may, in the opinion of the trustees, be necessary to enhance the quality or utility of the preserve or the public health generally.

4. Such other maintenance dredging as may be required for existing navigation channels.

5. Such restoration of land as authorized by S. 253.124(8) F.S. (This statutory authorization was repealed pursuant to the provisions contained in the Warren S. Henderson Wetlands Protection Act of 1984, Chapter 84-79, Laws of Florida.)

6. Such reasonable improvements as may be necessary for public utility installation or expansion.

7. Installation and maintenance of oil and gas transportation facilities, provided such facilities are properly marked with marine aids to navigation as prescribed by federal law.

(b) There shall, in no case, be any dredging seaward of a bulkhead line for the sole or primary purpose of providing fill for any area landward of a bulkhead line.

(c) There shall be no drilling of gas or oil wells. However, this will not prohibit the state from leasing the oil and gas rights and permitting drilling from outside the preserve to explore for oil and gas if approved by the board.

(d) There shall be no excavation of minerals, except the dredging of dead oyster shells as approved by the Department of Natural Resources.

(e) There shall be no erection of structures within the preserve, except:

1. Private docks for reasonable ingress or egress of riparian owners;
2. Commercial docking facilities shown to be consistent with the use or management criteria of the preserve; and
3. Structures for shore protection, approved navigational aids, or public utility crossings authorized under subsection (3)(a).

(f) No wastes or effluents shall be discharged into the preserve which substantially inhibit the accomplishment of the purposes of this act.

(g) No nonpermitted wastes or effluents shall be directly discharged into the preserve which substantially inhibit the accomplishment of the purposes of this act."

Generally, applicants desirous of appealing staff recommendations will have to follow those appellate procedures outlined in the appropriate authorizing statutes. In the case where applications requesting the use of state-owned lands are denied, three appellate procedures are available to the applicant. Depending upon the type of application submitted, an applicant may:

a. Ask the Governor and Cabinet to overturn an application decision rendered by the Executive Director of Department of the Natural Resources (or his designee) under a delegation of authority;
b. Request an Administrative Hearing under the procedures outlined in Chapter 120, F.S.; or
c. Appeal the action of the Board of Trustees of the Internal Improvement Trust Fund to the District Court of Appeals.

3. Liaison Between Field Personnel and Other Interested Parties

One of the most important aspects of the field personnel's job is to establish a mutually beneficial communication link with pertinent interest groups. The central office staff will assist in initially identifying and contacting

governmental bodies, special interest groups and interested individuals requiring aquatic preserve program coordination.

When requested by the onsite managers, the central office staff will assist in arranging for specialized management expertise not generally available locally. This may include, for example, such things as arranging for DAHRM to conduct a detailed cultural resource assessment for certain areas of the the preserve.

Chapter VI

MANAGEMENT IMPLEMENTATION NETWORK

This chapter of the management plan will address the various relationships of aquatic preserve management to the different government agencies and programs, non-government entities, interest groups, and individuals within the aquatic preserve area. The activities of both field personnel and central office staff as they relate to these other organizations will be presented.

A. FEDERAL

Many federal agencies have property interests, land and wildlife management programs, research activities, construction activities, and regulation programs existing or potentially existing within the aquatic preserves. The objective of the aquatic preserve management program will be to complement the various activities wherever possible. The field personnel will assist those federal agencies in areas where they have common goals. The field personnel and central office staff will also review the federal activities as to their effect on the objectives of the aquatic preserve management. This review shall be coordinated through the DER's Office of Coastal Management for the purposes of enforcing the provisions of the Federal Coastal Zone Management Act of 1972, as amended.

1. United States Fish and Wildlife Service. The aquatic preserve program will be involved in the review of proposed preserve uses in conjunction with the Fish and Wildlife's Division of Ecological Services in Vero Beach. This division reviews dredge and fill requests and other federal level permitting under the Fish and Wildlife Coordination Act.

Another management program in which the field personnel could possibly interact with the Fish and Wildlife Service is the protection and recovery of endangered species and bird rookeries within the aquatic preserve. Field personnel will become involved in using available recovery techniques for this purpose, as necessary.

2. U.S. Army Corps of Engineers. The U.S. Corps of Engineers (COE) is charged with providing technical guidance and planning assistance for the Nation's water resources development. The COE also provides supervision and direction to many engineering works such as harbors, waterways and many other types of structures. Their major responsibility, as it applies to the aquatic preserve, is the protection of navigable waters, pollution abatement and maintaining water quality and the enhancement of fish and wildlife.

The COE activities in the TRS include their involvement with the DER in the dredge and fill permitting process, technical oversight of channel, inlet and canal maintenance, and evaluating requests for new channels, canals and other such public works projects. The field personnel will become familiar with the various programs, policies and procedures as they apply to the aquatic preserve.

The field personnel and central office staff will also review activities proposed by the COE for conformance to the objectives of the aquatic preserves' management plan. This involvement should begin in the early stages of project planning in order to facilitate the best protection of the aquatic preserve possible.

3. U.S. Geological Survey. The U.S. Geological Survey (USGS) under the Department of the Interior has the responsibility to perform surveys, investigations, and research pertaining to topography, geology, and the mineral and water resources of the United States. USGS also publishes and disseminates data relative to those preceding activities. In the past, the USGS has conducted many studies on various resources in the region.

The field personnel and central office staff will become familiar with these studies and the data results as they apply to their management activities.

4. U.S. Environmental Protection Agency. The U.S. Environmental Protection Agency (EPA), in cooperation with state and local governments, is the federal agency responsible for the control and abatement of environmental pollution. The six areas of pollution within which the EPA is concerned are air, water, solid waste, noise, radiation and toxic substances. The DER is the state agency responsible for handling most of these programs on a state level in lieu of a federal program. Within the aquatic preserve, the field personnel will assist the EPA in planning field activities where there are common goals.

5. U.S. Coast Guard. The U.S. Coast Guard is the federal agency involved in

boating safety, including search and rescue when necessary. The Coast Guard is also charged with the permitting of structures which affect navigation and boating safety. These structures include bridges, causeways, aerial utilities and other structures which may be in conflict with navigational uses. The field personnel, in conjunction with the central office staff, will also review projects which the Coast Guard may be evaluating for permits.

6. National Marine Fisheries Service. The National Marine Fisheries Service (NMFS) under the U.S. Department of Commerce is active in the TRS area in recording commercial fish landings. The NMFS also has enforcement officers in the area checking for illegal fishery activities. The field personnel will work with these personnel whenever they have common goals within the aquatic preserve.

B. STATE

Many state agencies have programs which affect the resources or regulate activities within the aquatic preserve. There are also other DNR programs that are within or affect the Nassau and Duval Counties Aquatic Preserves. This section will describe the interactions and relationships of these various agency programs and how they relate to aquatic preserve management.

1. Department of Environmental Regulation. The Department of Environmental Regulation (DER) is the state agency in charge of state-wide regulation of water quality. The DER is also the local contact in the aquatic preserves area for the initiation of dredge and fill applications in conjunction with the COE

and DNR. With respect to water its regulatory authority over quality and dredge and fill, the DER is one of the most important agencies to the management of the aquatic preserve. The DER normally regulates other forms of pollution, such as air, noise, wastewater and hazardous waste, which is important to the future of the preserve. In Duval County certain regulatory authority for permitting of point source pollution from industrial and domestic effluents has been delegated by the DER to Duval County's Biological and Environmental Services.

The field personnel will become familiar with the water quality, dredge and fill, and other regulatory programs that are important to the aquatic preserve. The field personnel will develop a close working relationship with local DER staff and Duval County Biological and Environmental Services and become familiar with their programs that are in common with the objectives of the aquatic preserve management program. The field personnel should open the most efficient line of communication with the local offices to receive the permit applications as soon as possible to improve the response time within the review process.

The DER, Office of Coastal Management is charged with coordinating activities related to coastal management in the state and reviewing federal actions for consistency with the State Coastal Management Program, Section 380.20, F.S. The central office staff will maintain a close relationship with the Office of Coastal Management for assistance in the review of federal actions, data and research needs, and other program support.

2. Department of Community Affairs. The Department of Community Affairs

(DCA) is responsible for reviewing Developments of Regional Impact (DRI). DRI's are major developments that have impacts on a scale which is greater than county level and require a regional review from neighboring local governments and state agencies. Both the central office staff and field personnel of the aquatic preserve program will be involved in reviewing DRI's. The field personnel should receive notice of a DRI through the central office staff and will proceed with the field review. The central office staff will coordinate the field review findings and work with the other state agencies in Tallahassee in the review of the DRI.

3. Department of Natural Resources. The aquatic preserve management program is associated with several other Department of Natural Resource (DNR) programs in the area.

DNR's Marine Research Laboratory in St. Petersburg, under the Division of Marine Resources, has several programs and projects within the TRS which will benefit the aquatic preserve program. The Marine Lab is presently studying fishery habitat losses in the TRS. The Resource Protection Area mapping, which will be used in the management of these aquatic preserves, was created as a product of that fishery habitat loss study. The data from this project, when it is completed, will be incorporated into this management plan. The Marine Lab staff is also involved in manatee protection programs and is the headquarters of the State Manatee Coordinator.

The field personnel will become familiar with these studies and programs, and

will consult the Marine Lab for their data needs whenever possible.

The Division of Marine Resources also handles the permitting for the collection of certain marine species and use of certain chemicals. The field and central office staff will become familiar with this permitting process and request notification of these permits within the aquatic preserve.

The Marine Patrol, under DNR's Division of Law Enforcement, also operates in the TRS-Aquatic Preserve. The field personnel will become familiar with their programs and operation, and will call on the Marine Patrol for law enforcement support as required.

The Division of State Lands within the DNR is charged with overseeing uses, sales, leases or transfers of state-owned lands. The aquatic preserve staff will interact with State Lands in all transactions concerning submerged lands within the aquatic preserve. These would include the potential acquisition of privately titled submerged lands or contiguous uplands important to the integrity of the preserve. This relationship is more fully described in Chapter V(C).

The Division of Resource Management, through the Bureau of Geology and Aquatic Plant Research and Development, is responsible for various programs potentially affecting the aquatic preserve. Staff will establish communication links with this Division to ensure that adequate consideration is given to potential impacts upon the preserve that may result from the conduct of their various programs.

The Division of Recreation and Parks, in addition to administering the Aquatic Preserve Management Program under the Bureau of Environmental Land Management, manages 1 state recreation area (Amelia Island), 3 state parks (Big Talbot Island, Little Talbot Island, and Fort Clinch), 3 state historic sites (Fernandina Plaza, Kingsley Plantation, and Yellow Bluff Fort), and 1 state reserve (Nassau Valley). Within the boundaries of each of these recreation, historic and botanical areas, unique upland and aquatic habitats are preserved. This is important for the maintenance of the habitats themselves and their preservation as examples of unique environments in Florida. The aquatic preserve program will work closely with these programs as they relate to aquatic preserve management objectives.

4. Marine Fisheries Commission (MFC).

The MFC was established as a rulemaking authority pursuant to Section 370.027, F.S. The seven members are appointed by the governor and are delegated full rulemaking authority over marine life (subject to approval by the Trustees), with the exception of endangered species. This authority covers the following areas: a) gear specifications, b) prohibited gear, c) bag limits, d) size limits, e) species that may not be sold, f) protected species, g) closed areas, h) quality control codes, i) seasons, and j) special considerations related to eggbearing females and oyster and clam relaying. The field personnel and central office staff will become familiar with and enforce the rules of the MFC.

The MFC is also instructed to make annual recommendations to the Trustees

regarding Marine fisheries research priorities. The field and central office staff will use these recommendations to direct research efforts within the aquatic preserve.

5. Florida Game and Fresh Water Fish Commission. (GFWFC) The GFWFC's Environmental Services office in Vero Beach sends biologists into the area to review projects which may have potential impacts on local fish and wildlife habitat as necessary. The central office will use the GFWFC's assistance in their review process, when possible, and in developing fish and wildlife management for the aquatic preserve.

The GFWFC has enforcement officers working in this area. The field personnel will interact with these officers where there are common goals.

The GFWFC is also the state coordinator of the Endangered Species in Florida. The field personnel and central office staff will work with GFWFC personnel in developing program needs in this area.

6. Department of Transportation. (DOT) The DOT has an office in Jacksonville and the field personnel and the central office will work with the resident engineer on anticipated projects having possible impacts on the aquatic preserve. The field personnel and administrative staff will review any major highway or bridge projects that may be proposed in the future.

7. Department of State. The Division of Archives, History and Records Management (DAHRM) in the Department of State will have a close working

relationship with the field personnel and central office staff in the protection of archaeological and historical sites. The field personnel will be directed by DAHRM, through the central office, in any activities or management policy needs for these sites.

8. Health and Rehabilitative Services. (HRS) Both the central office staff and field personnel will establish communication and coordination linkages with HRS and their locally conducted programs of septic tank regulation and mosquito control. Although mosquito control serves a useful public function, the effects of pesticides (adulticides and larvacides) in the waters of the preserve are a primary concern. Additionally, the central office staff will become involved in future meetings and management programs developed by the Governor's Working Group on mosquito control. Subsequent policy recommendations coming out of this group will be evaluated for applicability to the ongoing aquatic preserve management program.

C. REGIONAL

The regional level of the management implementation network as it applies to the TRS Aquatic Preserves will include the St. Johns River Water Management District, the Northeast Florida Regional Planning Council, and the Florida Inland Navigation District. These organizations have activities that are broader than the local government, but are on a smaller scale than the state level.

1. Water Management District. The St. John's River Water Management District

has jurisdiction over Nassau and Duval Counties, as well as other northeast Florida counties. The water management district administers permitting programs for the local consumable use of water, storm water discharges, and dredge and fill type activities.

This includes the withdrawal and use of water from rivers, streams, and wells. The types of water uses they permit in the TRS area include irrigation and public water supply. The field personnel will become familiar with the review and permitting procedures as they might apply to water supply in this basin. The water management district is also involved in various studies on water supply and management, and other related research that may be of use to aquatic preserve management.

?. Northeast Florida Regional Planning Council. The Northeast Florida Regional Planning Council (NEFRPC) serves as a regional planning body for the local governments of Duval and Nassau Counties as well as other northeast Floirda counties. Among its duties, the NEFRPC:

a. aids local governments with planning expertise;

b. is the regional representative for the Development of Regional Impact (DRI) review process;

c. serves as a regional clearinghouse for state and federal projects and programs; and

d. conveys information from the local governments to the state and federal levels.

The field personnel will become familiar with the various projects, programs, and data sources that the NEFRPC has within its administration that may effect or prove useful to the aquatic preserve program.

The DRI review of projects which affect the aquatic preserves will be reviewed by the central office staff, with the field personnel's field review, when necessary. DRI's for large marinas, large subdivisions on the uplands above the preserve, and commercial or industrial developments will require a field review by the field personnel as to their effect on the aquatic preserve.

3. Florida Inland Navigation District (FIND). The FIND is a multi-county district sponsor of the Intracoastal Waterway from Nassau County south to Dade county. FIND is also responsible for providing and maintaining spoil areas (spoil islands) to the Corps of Engineers for the dredging and maintenance of the Waterway. FIND presently holds title to channel and spoil easements throughout the TRS. Field personnel and the central office will work closely with the FIND on future dredging proposals.

D. Local Governments.

This section will address the relationship of the aquatic preserve management program to the various local government agencies, special districts and their programs. The local governments are the incorporated cities and counties that

surround the aquatic preserve. The aquatic preserves span Nassau and Duval Counties. The incorporated City of Fernandina Beach and the consolidated City of Jacksonville border this area. Unicorporated communities include Nassauville, Hedges, Amelia City, Franklintown, Mayport, and Cedar Point. The special districts for mosquito control and their relationship to aquatic preserve management, are also presented.

The field personnel will be the local liaison for the aquatic preserve to these local government entities to assist them in modifying their policies and practices to conform to the objectives of the aquatic preserve's management plan, and to exchange information and expertise for mutual benefits.

1. Relationship to local management plans. Local (municipal and county) governments are required by the Local Government Comprehensive Planning Act of 1975 (Section 163.3161, F.S.) [as amended by Chapter 85-55, Laws of Florida, to the Local Government Comprehensive Planning and Land Development Regulation Act] to update their local plans and (among other requirements adopt land development regulations and improve coastal management protection. The coastal management element of the LGCP along with the land use and conservation elements establishes long range plans for orderly, and balanced development, with particular attention to the identification and protection of environmental resources in the planning area. Conformance with the criteria, policies and practices of a local government comprehensive plan is required for all development with the local governmental jurisdication.

The intent of the aquatic preserve management program and this plan is to guide local governments during their comprehensive planning toward developing

local plan criteria and standards to be consistent with the objectives of the aquatic preserve program. Field personnel will become acquainted with local planning efforts and local officials and lend assistance for this purpose. In addition, the central office and field personnel will encourage and assist local officials in preparation of marina elements in their local plans to comply with aquatic preserve rules for commercial docking facilities as specified in Chapter 16Q-20.04(5)(d)(4), F.A.C.

2. Relation to local development codes. The local zoning and development codes (e.g., building codes) provide the major local regulation that defines what an owner can do on a particular parcel of property. The zoning prescribes the allowable uses and the intensity of those uses. Certain uses along an aquatic preserve can potentially have a profound effect on a preserve.

This section will operate in conjunction with the preceding section on local management plans. The field personnel will become familiar with the local zoning, development codes and their potential effects on the nearby aquatic preserve. The field personnel will assist local planning and zoning officials in identifying areas where changes in zoning would better conform to the objectives of the aquatic preserve management. The field personnel might also offer to assist local planning and zoning officials in the review of proposed subdivisions upland of the preserve.

3. Suggested policies and practices in support of Aquatic Preserve Management. This section will address any other policy or practice not

covered in the two preceding sections. These policies and practices might include local government ordinances; recreation problems where a park is in or near an aquatic preserve, or any other problem as it might relate to local governments. The field personnel will offer assistance or information to local officials or will coordinate with other agencies to help solve these problems as they occur. The field personnel will work with county personnel on enforcement of local ordinances. The field personnel will also comment, through the central office, on any local practice that is identified as endangering the well-being of the aquatic preserve.

4. Special Districts (Drainage, Inlet and Mosquito Control). The special districts are taxing districts established to correct mosquito control problems. The Amelia Island Mosquito Control District operates in Nassau County. There are no special districts in Duval County and mosquito control is handled by the Department of Health, Welfare and Bio-environmental Services.

These districts may not have official comprehensive management plans, but they do have management policies and program statements that are similar to such a plan. The field personnel will become familiar with these policies and the activities of these districts and will monitor their effect on the aquatic preserve. For example, the field personnel might recommend identifying areas that should not receive mosquito spraying or other alternative management because of remoteness to inhabited areas and possible, but unnecessary damage to the resources of the aquatic preserve.

E. Other Entities

This section will apply to the numerous entities that have an interest in the aquatic preserve but are non-governmental agencies. This will include, but not be limited to, the environmental interest groups (i.e., Audubon Society, Sierra Club and The Nature Conservancy), the scientific organizations, the fishing and sports interest groups (i.e., Florida League of Anglers, Organized Fishermen of Florida), the universities that may have research activities in the preserve (i.e., University of North Florida, Jacksonville University), and any other interest groups or individuals. The relationship of these entities to aquatic preserve management might include the coordination of activities, such as scientific research, environmental education, management of rookeries or other natural areas, or numerous other possible activities. A worthwhile aquatic preserve management process will depend on the continued support and help of these interest groups in all of the aquatic preserves. The field personnel will be active in communicating the aquatic preserve management process and activities to the various groups and consulting with them for their help in their areas of expertise.

Chapter VII

PUBLIC USES

This chapter addresses the public use of the aquatic preserve. The public in this case shall refer to the general public or those persons without riparian rights. The "Florida Aquatic Preserve Act of 1975" (Section 258.35, F.S.) allows for the lawful and traditional public uses of the aquatic preserve, such as sport fishing, boating and swimming (as adapted from Section 258.43(1), F.S.). These and other traditional uses that do not involve a commercial intent or the use of a riparian right to place a structure in the preserve, and do not degrade or otherwise destroy the preserve will be considered public uses. This section will be further divided into consumptive and non-consumptive uses as applicable to each resource.

A. Consumptive Uses.

Consumptive uses involve the removal of resources from the preserve. These uses include fishing, hunting, shellfishing, and other related activities. They also include the unintentional removal of resources such as boat damage to salt marshes. The management of these uses (see Chapter V. Resource Management, Section B: Onsite Management Objectives) will include the observation and monitoring of the effects of these uses on the resources. The field personnel will periodically assess the impacts through the use of the Marine Research Laboratory's LANDSAT capabilities for habitat losses or disturbance in the TRS

area plus any other studies or data sources that might become available. This management will also include the protection of the resources from unlawful or excess practices of these uses. The legality of these uses will be controlled by existing applicable state laws and local ordinances. Field personnel will, for example, become familiar with and will enforce rules adopted by the Marine Fisheries Commission. These will include regulations on fishing gear, bag and size limits, closed areas, seasons, etc.

Consumptive uses will also be monitored for their effect on other resources (e.g., bird rookeries, salt marshes, oyster bars, archaeological and historical sites). The field personnel will also be sensitive to additional enforcement needs (i.e., the need for additional enforcement staff during nesting seasons).

B. Non-consumptive Uses.

These uses are those which do not generally remove resources from the preserve. Examples of these uses include swimming, diving, boating, bird-watching, and other related activities. The management practices involved with these uses will be the same as those previously described under Section A., except that these uses are not generally controlled by law. The guiding principle in these cases will be whether or not the activity causes a disruption of the preserves' resources (e.g., destroys salt marshes, disturbs rookeries). Only in the event of these disruptions will the field personnel become involved. Some of these uses may possibly be involved in environmental educational (Chapter XI) programs.

Chapter VIII

PRIVATE NON-COMMERCIAL USES

This section will apply to those private, non-commercial, uses which are associated with riparian land ownership. The management of the aquatic preserve recognizes the traditional riparian rights of upland property owners. The right of ingress, egress, boating, swimming, fishing, and other incidental uses of sovereignty lands, historically allowed for the placement of certain structures, such as docks, within the preserve. This right to make any preemptive use of sovereign lands is a qualified one and can only be exercised with the prior consent of the Board after a finding that such uses willnot impair public uses, or destroy or damage areas of environmental significance. The review of proposed activities will require the interaction of the Resource Protection Area mapping with administrative and possible field review and later monitoring by field personnel as projected by Chapter V., Section B.

Private non-commercial uses shall be designed to avoid critical Resource Protection Area (Class 1 and 2) and shall be designed to reduce the use's impact to the preserve in general. Individual applications for these private non-commercial uses shall be reviewed by the applicable Resource Protection Area Map and criteria. In addition, private dock proposals will be reviewed by the criteria described in Section 16Q-20.04(5), F.A.C., of the revised General Aquatic Preserve Rule.

Bulkheads should be placed, when allowed, in such a way as to be the least destructive and disruptive to the vegetation and other resource factors in each area. Approved uses which do disrupt or destroy resources on state-owned lands will require mitigation. This mitigation will include restoration by the applicant or other remedy which will compensate for the loss of the affected resource to the aquatic preserve.

Dredging within the aquatic preserve shall be held to a minimum. Dredging proposals shall be reviewed according to the procedures in Chapter V depending on the proposed activities location within the RPA. Proposals within Class 1 areas (Chapter V (B)[6]) will be scrutinized to the maximum extent in order to find the best practicable method of development and location if that use is acceptable in that particular area of the preserve. The mitigation of lost or disturbed resources shall be required. There shall be no dredging allowed in Class 1 or 2 areas or in nearby areas if it will adversely impact these areas.

The location of proposed multiple docking facilities, such as for condominium developments, shall be based on the marina siting criteria described in Section 16Q-20.04(5), F.A.C. of the revised General Aquatic Preserve Rule.

Authorization of such facilities will be conditioned upon receipt of documentation evidencing the subordination of the riparian rights of ingress and egress for the remainder of the applicant's shoreline for the life of the proposed docking facility. Boat ramps and travel lift platforms or other similar launching facilities, with associated temporary mooring facilities, will be encouraged over permanent wet storage facilities. Non-residential docking facilities (commercial) are addressed in Chapter IX.

The use of seaplanes within this preserve is seen as a non-traditional use. Applications for seaplane use within the preserve will be reviewed on a case by case basis. These uses will only be recommended where such use will not affect resource protection areas or natural values of the preserve, not effect endangered species habitat, can be utilized in a safe manner, and will not preempt traditional uses within the proposed use area.

Chapter IX

COMMERCIAL USES

This section addresses the variety of traditional and non-traditional (i.e., new uses to this area) commercial uses which might occur within, or adjacent to, the aquatic preserve. Among the traditional uses in this area are utility crossings, power plants, marinas and yacht clubs, ferry services, commercial fishing, boat and barge traffic associated with commerce and industry, deep water port facility, and boats (i.e., sportfishing, diving) for hire. Non-traditional uses in this area which have also occurred in other areas of this or other states include oil and gas transportation facilities, and other such commercial uses.

A. TRADITIONAL COMMERCIAL USES.

1. Utility Crossings. There are at present time both aerial and underwater utility crossings in the aquatic preserve. Future proposals should be designed so the preserve is crossed by the least destructive method in the least vulnerable areas according to the RPA maps (see Chapter V[B]). Increased or additional use of any existing utility crossings is preferable, if their condition at the time of the proposal is acceptable. The field personnel should eventually develop a utility crossing plan for all areas with anticipated utility crossing needs to allow for clear and advance planning, for placement of these crossings in the best environmental location possible. The utility crossing plans, when completed, will become a part of this plan.

Crossings should be limited to open water areas to minimize disturbance to salt marshes, oyster bars, or other critical habitat areas.

2. Commercial Fishing. The management of the aquatic preserve shall not include the direct management of commercial fishing activities. Field personnel will monitor these activities and assess their affects on the preserve only in conjunction with the Division of Marine Resources and as part of a cooperative effort with that division. The field personnel will also notify the requisite authority in the event of illegal activities (Chapter 370, F. S. or by special act). The field personnel, along with other agencies and divisions' programs and studies, will monitor fishing activities within the aquatic preserve with respect to the need to manage access of boats in certain areas, prevention of salt marsh destruction and other needs of the aquatic preserve as they are associated with commercial fishing activities. After problems associated with commercial fishing activities are identified and documented, the findings will be presented to the Marine Fisheries Commission. It is the authority of the Commission and the Florida Legislature to regulate commercial fishing within the aquatic preserve.

3. Marinas. The locating of marinas and their related uses will be a major concern of aquatic preserve management. Marinas represent a use with many potential impacts on the preserve's resources. The siting policy of Section 16Q-20.04(5), F.A.C. of the revised General Aquatic Preserve Rule shall be used for siting marinas in the aquatic preserve.

4. Deep Water Port Facilities. There are no major ports within the aquatic preserve boundaries, but several are located immediately upstream or adjacent to the aquatic preserve. Access to these ports is through portions of the aquatic preserve waters which are therefore affected by maintenance dredging, boat traffic and associated impacts, and potential pollution from accidental cargo leakage. These ports include St. Marys, Kings Bay and Fernandina, associated with the St. Marys River, and Mayport and Jacksonville on the St. Johns River. New activities and maintenance work will be reviewed as to their effect on the preserves. New port facilities within the preserve boundaries shall be prohibited.

5. Other Water Dependent Marine Commercial Activities. Presently there exists one licensed terminal facility located west of Ft. Clinch at the confluence of the intercoastal waterway and Egan Creek. This water dependent, marine commercial facility has been in operation since 1911 as a menhaden processing plant with associated commercial structures including three large deep water docks and warehouse facilities. These docks are immediately adjacent to the federally maintained channel. Expansions, modifications or change to water dependent existing commercial activity should not be discouraged provided the expansion, modification or change is not inconsistent with the plan, as determined on a case by case analysis.

6. Ferry Services. Toll Ferry services run regularly across the St. Johns River between the town of Mayport and State Highway 105 on Fanning Island. Ferry services require careful planning of the route and operating schedule to avoid disturbing wildlife or other resources within the preserve.

7. Other Docking. Any other type of commercial docking, not mentioned in the preceding sections, will follow the marina siting policy as stated in Section 16Q-20.04(5), F.A.C. of the revised General Aquatic Preserve Rule.

8. Power Plants. In Duval County, power plants on the St. Johns River are located upstream of the aquatic preserve and probably do not significantly impact it. There are no power plants in Nassau County.

Power plants have the potential for causing major changes in the air quality, water quality, and plant and animal life of the aquatic preserve. For these reasons, additional power plants are incompatible with the purposes of this aquatic preserve. The location of proposed power plants upstream of a preserve should also be evaluated as to the effects on the downstream preserve.

B. NON-TRADITIONAL COMMERCIAL USES

1. Other Uses. Any other use that qualifies as a commercial use of state-owned submerged lands not mentioned above will require a review for its anticipated impact on the aquatic preserve and the best location for the activity compatible to the Resource Protection Areas within the preserve.

2. The Nassau River-St. Johns River Marsh and Fort Clinch area could potentially have proposals for aquacultural development in the future. These

uses may include floating structures or other new techniques now being used in aquaculture. The location and type of impacts to the resources will require careful examination. If there is not sufficient data available for a valid evaluation, a small scale test of the use might be possible in a selected area.

Chapter X

SCIENTIFIC RESEARCH

The field personnel attached to the Nassau River, St. Johns River Marshes and Fort Clinch State Park Aquatic Preserve should serve as the area coordinators of scientific research in the preserves. Scientific research, and any other type of research or testing within the aquatic preserve, should require the clearance of both the field personnel and the central office staff before these activities can proceed. Certain activities could be detrimental to the resources of the preserve and should be carefully reviewed before allowing them to occur. Factors including location, species procedures, and time of year, should be carefully reviewed for the possible disturbance or effect of the research on the other resources of the aquatic preserve. The field personnel will be aware of the possibility of working with other government agencies, colleges, universities, research foundations and government programs to fill the data needs of the aquatic preserve (see Chapter V and XII). The field personnel will assist in the selection of possible test sites and other research needs within the preserve.

Chapter XI

ENVIRONMENTAL EDUCATION

The aquatic preserve should be used to enhance environmental educational programs at every opportunity. The goal of maintaining the aquatic preserve for the benefit of future generations can begin to be realized through the use of aquatic preserves for environmental education. Through education, the youth of Nassau and Duval Counties can acquire a knowledge of the natural systems and an appreciation for the aquatic preserve program. Such appreciation helps to ensure the future protection and support of the aquatic preserves.

The field personnel will, through their normal activities in the aquatic preserve, select good examples of habitats and resources within these aquatic environments for use during educational group tours. This might include the development of environmental educational boat or canoe tours through the preserves. Other educational activities might also include prepared presentations for specific interest or user groups such as sport (boating, diving, fishing, etc.), civic and conservation groups and the development of a brochure outlining the major points of management within the preserve. These brochures could then be circulated to the various user groups.

The field personnel should also prepare programs on the value of management activities of the aquatic preserve for presentation to interested groups of all ages. Educating the public about aquatic preserve management is the key to the success and future of the preserve.

Chapter XII

IDENTIFIED PROGRAM NEEDS

This chapter of the management plan will address the various internal program needs that are expected to be identified during management activities. Meeting these needs will correct or generally relieve some stress on the preserve or the personnel involved in the management of the aquatic preserve. These needs may, in some cases, require legislative or administrative rule changes or acquisition of critical areas by the state. The need to identify problem areas and adjust the management plan in a manner that will positively address these problems and management needs is an essential element of any good management program. Both field personnel and central office staff will continually monitor the management plan implementation process and specifically identify observed program needs and problems. The areas to be considered include, but are not limited to:

A. acquisition of additional property,
B. boundary problems,
C. legislative needs,
D. administrative rule changes,
E. data needs,
F. resource protection capabilities, and
G. funding and staffing needs.

Staff will annually develop an implementation status report that will contain a summary of identified management needs and suggested measures to be taken in meeting these needs.

A. Acquisition of Additional Property

There are areas both within and upland of the aquatic preserve that are in public ownership under the jurisdiction of various local, state and federal agencies. Many of these lands contain important resources, such as bird rookeries, archaeological or historical sites, endangered species habitat, and freshwater source wetlands. The protection of these areas is necessary to the wilderness preserve designation areas. Formal management agreements, memoranda of understanding, etc., that will ensure the compatible management of these areas will be developed. Other areas within or adjacent to the preserve that are in private ownership should be closely examined to determine the advisability of bringing them into public ownership. The acquisition of these lands might act as a buffer to critical resources, prevent development of sensitive areas, allow the restoration of areas adversely affected by previous development or allow removal of disrupting uses within a preserve. The field personnel, during normal management activities, should be aware of significant upland areas and sovereign land conveyances which, if developed, would compromise the integrity of the aquatic preserve. The field personnel will keep a running record of these areas and will prioritize these areas for possible public acquisition.

B. Boundary Problems and Systems Insufficiencies

The boundaries of the aquatic preserve are often artificial delineations of the natural systems within and surrounding the preserves. A variety of scientific studies are presently being conducted both within and outside of the preserve boundaries, and their results could conceivably suggest a change in these boundaries. These changes may include the extension of the present boundaries in some areas or the exclusion of other areas. The field personnel, in their normal management activities, will be sensitive to the possible need for boundary modifications. Potential boundary changes and acquisition projects might include areas upstream of the present boundary in the streams flowing into the preserves, previously conveyed sovereign lands, or other areas not presently within the preserve. Any boundary change will require legislative approval.

Some initial considerations for boundary modification include the addition of marshes lying south of the St. Marys River, east of S.R. 107, west of the Intracoastal Waterway and contiguous with the existing aquatic preserve boundary near A1A.

Another consideration would extend current aquatic preserve boundaries to include all of Nassau Sound and that portion of the Amelia River lying between the Intracoastal Waterway and south of Amelia Island.

C. Legislative Needs

Management needs could conceivably involve changes in the legislation pertaining to aquatic preserve or changes in the other statutes upon which

aquatic preserve management is based. These changes may include boundary realignments or the strengthening of certain management authorities.

D. Administrative Rule Changes

Administrative rules are statements addressing the organization, procedures and practices used in the implementation of aquatic preserve management plans and policies. This process includes identifying problems within the Department of Natural Resources, as well as other agencies, that affect the management of the preserve.

E. Data (Information) Needs

The field personnel and central office staff will note data needs and promote research or other means to fulfill them. Data needs in the near future could possibly be supplied by such ongoing projects as the U.S. Geological Survey's and St. John's River Water Management District's studies, Department of Environmental Regulation water quality monitoring or by the research of other agencies. The field personnel will be aware of data needs as they interact with the various levels of government and with other entities. These data needs might include additional mapping, ownership information, water quality data or any other data. The major suppliers of data will probably be other public agencies that are conducting programs in and around the preserve. Other potential sources of data are the colleges and universities that have, in the past, conducted research projects in the area.

F. Resource Protection and Enforcement Capabilities

The protection of the preserve's resources depends on the Florida Marine Patrol, in addition to field personnel. These protection needs might also require additional enforcement support from local government or other state agencies. The need for additional manpower, authority, equipment or vehicles for this task will be identified.

The field personnel will become familiar with the staff capabilities of both the Department of Natural Resources and the other agencies with enforcement responsibilities in the preserve. Annually, staff should fully assess the effectiveness of the protective and enforcement capabilities of these combined agencies.

G. Funding and Staffing Needs

The present aquatic preserve management program has been minimally implemented with funds from a variety of sources and programs. The writing of this management plan was funded through a grant from the U. S. Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, and through the "Coastal Zone Management Act of 1972", as amended.

In order for the management program proposed in this plan to function and succeed, the program must have its own funding and staffing. The workload required by this program is too much for an interim staff from other agencies

to handle in addition to their other obligations. Funding and staffing needs are critically important to the success of the aquatic preserve program.

The management of the Nassau River-St. Johns River Marshes and Fort Clinch Aquatic Preserves would be integrated into the management program and needs of other BHELM management programs in the area. A proposed budget given these needs has been estimated at $90,000 for staff, equipment, office and expenses for the first year. The proposed staff would include one biologist and a ranger.

85-SL383

REQUEST: Authorization to administratively include the Nassau Valley Marshes State Reserve as part of the Nassau River-St. Johns River Marshes Aquatic Preserve for purposes of Section 253.034 management plan development and implementation.

NASSAU COUNTY: Multiple Agency Management Lease No. 745-9006

APPLICANT: Division of Recreation and Parks

LOCATION: Section 1, Township 1 North, Range 27 East; Section 19, Township 2 North, Range 27 East; Sections 5 and 6, Township 1 North, Range 28 East; Sections 17, 36, 46, 47, 48 and 49, Township 2 North, Range 28 East; Sections 63 and 64, Township 3 North, Range 28 East; Sections 14 and 24, Township 1 South, Range 28 East; and, Sections 18 and 19, Township 1 South, Range 29 East, all in Nassau County

CONSIDERATION: N/A

STAFF REMARKS: The subject property was acquired by the State, in 1978, through a purchase under the Environmentally Endangered Lands (EEL) program and a subsequent donation fron Houdaille Industries, Inc. This property is predominately salt marsh with scattered tree islands, and lies adjacent to the Nassau River-St. Johns River Marshes Aquatic Preserve.

In June, 1984, this property was assigned to the Division of Recreation and Parks and to the Game and Fresh Water Fish Commission for joint management under the provisions of Multiple Agency Management Lease No. 745-9006. This management lease designated the Division of Recreation and Parks as the primary management agency, with the Game and Fresh Water Fish Commission providing management recommendation and assistance. It also stipulated that management of the subject property would "...emphasize the original management concept as approved by the Board at the time of acquisition and which established the primary purpose for which this tract was acquired."

The original management concept that accompanied the Nassau River Valley Marshes EEL acquisition emphasized the natural interrelationship of this property with the adjacent estuarine and riverine environments. Specifically, this property was acquired to: (1) maintain estuarine productivity; (2) preserve wildlife values; (3) preserve wilderness and aesthetic values; (4) protect areas approved for commercial shellfishing; (5) maintain storm tide protection function; and, (6) preserve historic and archaeological resources.

Due to the natural character of this property and its symbiotic relationship with the aquatic preserve, staff is of the opinion that this property should be incorporated into the aquatic preserve for purposes of management plan development and implementation. The management plan for the Nassau River-St. Johns River Marshes Aquatic Preserve is currently nearing completion and will be presented to the Trustees for adoption during early 1986. Approval of this item will allow staff to expand the aquatic preserve management plan to include this property, and subsequently, adoption of the Plan by the Trustees will satisfy the planning requirement of Section 253.034, Florida Statutes. The Game and Fresh Water Fish Commission concurs in this request.

(See Attachment 2, Pages 1-2)

RECOMMEND APPROVAL

State of Florida

Department of Natural Resources

Interoffice Memorandum

NOTICE OF BOARD ACTION

TO: Bureau of State Lands Management ☐

Bureau Land Acquisition ☐

Bureau of Appraisal ☐

Bureau of Survey and Mapping ☐

FROM: Judy Howard, Agenda Coordinator
Division of State Lands

ITEM # 2. Nassau Valley State Reserve/
Nassau River - St. Johns River
Marshes Aquatic Preserve

CABINET MEETING DATE: January 21, 1986

ACTION: Approved w/o objection

Members:

	Present	Absent
GOVERNOR	✓	
SECRETARY OF STATE	✓	
ATTORNEY GENERAL	✓	
TREASURER	✓	
COMPTROLLER	✓	
COMMISSIONER OF AGRICULTURE	✓	
COMMISSIONER OF EDUCATION	✓	

THE ABOVE ACTION WAS TAKEN ON SUBJECT DIVISION OF STATE LANDS' AGENDA ITEM AT TODAY'S MEETING. WILL YOU PLEASE SEE THAT THE INFORMATIN IS PROVIDED TO APPROPRIATE STAFF FOR FURTHER PROCESSING/HANDLING OF THE MATTER AND THAT THE FORMAL ACTION AS NOTED IS MADE A PART OF THE BUREAU'S MASTER FILE.

PLEASE CONTACT ME IMMEDIATELY IF YOU HAVE ANY QUESTIONS RELATING TO THE ITEM'S ACTION AS NOTED (488-9120). THANK YOU FOR YOUR COOPERATION AND HELP.

DNR 60-007
3/84

FLORIDA GAME AND FRESH WATER FISH COMMISSION

ROBERT M. BRANTLY, Executive Director
F.G. BANKS, Assistant Executive Director

FARRIS BRYANT BUILDING
620 South Meridian Street
Tallahassee, Florida 32301
(904) 488-1960

July 18, 1985

Mr. Jim Stevenson, Chief
Bureau of Environmental Land Management
Department of Natural Resources
Marjorie Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, FL 32303

Dear Jim:

I am writing to confirm the fact that I have discussed the matter of the Nassau Marshes tract with Dr. Egbert. The Commission has no objection to the status of the Nassau Marshes tract being changed from Environmental Land to an Aquatic Preserve, as long as hunters, fishermen and other members of the public can continue to use the area.

Sincerely,

Frank H. Smith, Jr., Chief
Bureau of Wildlife Land Management

W201/sr
WLD 8-7-2
cc: Dr. Allan Egbert
Mr. Frank Montalbano

NASSAU VALLEY - FT. CLINCH

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