YELLOW RIVER MARSH

AQUATIC PRESERVE MANAGEMENT PLAN

1991

DEPARTMENT OF NATURAL RESOURCES

YELLOW RIVER MARSH

AQUATIC PRESERVE MANAGEMENT PLAN

(ADOPTED)

SEPTEMBER 12, 1991

Tom Gardner

Executive Director

Department of Natural Resources

This plan was prepared by
the Bureau of Submerged Lands and Preserves
Division of State Lands

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Copies of the legal description of the Yellow River Marsh Aquatic Preserve, as well as copies of Chapters 253 and 258, F.S., and Chapter 18-21, F.A.C., may be obtained from:

Bureau of Submerged Lands and Preserves
Department of Natural Resources
3900 Commonwealth Blvd.
Mail Box 125
Tallahassee, FL 32399

EXECUTIVE SUMMARY

The Yellow River Marsh Aquatic Preserve is recognized as an exceptional water resource of Florida. This scenic preserve is fringed by forested wetlands and freshwater marsh with sandy bottoms and grassbeds occurring below the mean high water line. The preserve includes parts of the Yellow River, the swiftest flowing river in Florida, and Blackwater and East Bay. The preserve provides food and habitat for numerous fish, reptiles and amphibians, birds, mammals and benthic invertebrates. Several designated species are known to occur in the preserve.

The preserve is part of the Pensacola Bay System, which is a top Surface Water Improvement Management (S.W.I.M.) priority. Residential development occurring along the preserve's upland boundary is increasing, consequently, the preserve is impacted by human activities. Water quality has deteriorated in recent years from raw sewage discharge, septic tank leachate, and stormwater runoff. The preserve is used extensively for recreational and commercial fishing, however, the once productive oyster beds of the area are no longer viable. Loss of submerged aquatic vegetation is also a serious concern.

The Yellow River Marsh Aquatic Preserve borders land owned by the paper company, Champion International Corporation, Eglin Air Force Base, and numerous private land holders. Land owned by the federal government is mostly undeveloped but may be a threat to the preserve due to the storage of hazardous materials which may leach into the groundwater.

Submerged lands are selected as aquatic preserves based upon their outstanding biological, aesthetic, and/or scientific values. Yellow River Marsh Aquatic Preserve was designated as such in 1970 for the primary purpose of preserving the biological resources in the area and maintaining these resources in an essentially natural condition. The preserve encompasses approximately 16,435 acres of state-owned submerged lands in Santa Rosa County, Florida.

The main objective of the resource management program for Yellow River Marsh Aquatic Preserve is to protect the preserve's natural resources for the benefit of future generations. The management of the preserve will be directed toward the maintenance of essentially natural conditions. On site management activities include actions by field personnel to protect plant communities, animal life, geologic features, archaeological sites, and water resources of the preserve. Management activities will also focus on cumulative impacts and encroachments.

The Yellow River Marsh Aquatic Preserve has been divided into several management areas. The classification of each management area is based upon the resource value of submerged lands associated with existing and future land uses on the adjacent uplands. The intent of these management areas is to make potential development activities and uses of the preserve compatible with resource protection goals. The major uses of this preserve are recreational and commercial fishing, boating, swimming, commercial navigation, and adjacent land uses and their attendant facilities (e.g. docks etc.). Maintaining the continued health of the preserve involves minimizing adverse impacts from all uses within and adjacent to the preserve.

This management plan describes public and private uses that are allowable pursuant to statutory direction and other applicable authorities of the aquatic preserve. These uses are subject to the approval of the Board of Trustees or their designee through a delegation of authority. Approval is normally predicated upon demonstration that the proposed use is environmentally sound, and in the opinion of the Board, necessary for the public.

Various federal, state, regional, and local organizations oversee laws and regulations which apply to all of the lands and waters within the aquatic preserve. One of the aquatic preserve management program's objectives, therefore, is to compliment agency programs whenever it is in the preserve's interest. Both field personnel and central office staff will coordinate extensively with many agencies to assure effective management and protection.

To enhance management and protection of the aquatic preserve, research and education programs will be developed. These programs will operate in close coordination with similar programs established in the area. Research and education needs for the aquatic preserve are defined.

The management of the preserve and protection of the resources included within its boundaries will be enhanced by continually identifying and resolving additional management needs. Field staff will develop and submit an annual status report that will identify new management needs and issues, and define additional goals and objectives for resource management as necessary.

CHAPTER I

INTRODUCTION

The Yellow River Marsh Aquatic Preserve encompasses approximately 16,435 acres of the Yellow River, Blackwater Bay, and East Bay located in the western panhandle of Florida. The area consists of a nearly pristine portion of the river/bay system which was recognized as an outstanding resource and designated an aquatic preserve on April 9, 1970, by the Florida Legislature. Additionally, the Yellow River was designated as an "Outstanding Florida Water" on March 1, 1979. The boundary of the preserve comprises all sovereignty submerged lands of the designated river and bay, including associated tidal lands, islands, sand bars, swamps and floodplain forest. Figures 1 and 2 represent the statewide aquatic preserve system and gross boundaries of the Yellow River Marsh Aquatic Preserve.

The aquatic preserve is a vital component in the Pensacola Bay System because it has been the least impacted by development and pollution. The unspoiled forested wetlands, the over 2,000 acre marsh, and the submerged grassbeds provide excellent habitat for fish and wildlife. As a result, recreational and commercial fishing are major activities in the aquatic preserve.

The adjacent uplands are largely used for residential and agricultural purposes. Such uses confirm the need for an integrated management program by state, regional, and local governments to accomplish a goal of long term resource protection for the preserve.

This management plan developed for Yellow River Marsh Aquatic Preserve is only one of many steps that will be necessary to accomplish this goal. It is intended primarily to serve as a useful guide to the manager and others in maintaining the natural integrity of the preserve. As more information is learned about this preserve and ambient conditions analyzed, management strategies outlined in this plan may need to be adjusted.

The process of developing this management plan involved collecting an inventory of resource information, coordinating with other plans that have been developed for the area, and identifying resource problems and management issues relating to the present and future uses of the preserve and adjacent uplands. Supporting policies were developed to be consistent with statutory authority and the overall intent of the Aquatic Preserve Program for helping to ensure that the submerged land resources of the river/bay system remain for future generations to enjoy.

Fourteen management plans, covering 21 of the 42 designated aquatic preserves in the state, have been adopted by reference into the existing aquatic preserves rule, Chapter 18-20, Florida Administrative Code (F.A.C). This management plan will be subsequently incorporated into rule following its approval by the Board of Trustees of the Internal Improvement Trust Fund.

Specifically, this plan is divided into chapters according to their management application:

Chapter II cites the statutory authorities upon which this resource management program and plan are built.

Chapter III provides a description of the Yellow River Marsh Aquatic Preserve and details the physical and biological components of the preserve as well as any cultural resources. Additional information includes the current and future uses of this preserve and use of the adjacent uplands.

Chapter IV delineates various management areas within the preserve. These areas are defined by taking into account the biological resources, the physical parameters, and the aesthetic values, in conjunction with the use of the adjacent uplands.

Chapter V discusses specific needs and issues particular to the Yellow River Marsh Aquatic Preserve. Management initiatives have been developed in addressing each need and/or issue.

Chapter VI outlines site-specific goals, objectives, and tasks required to meet the management needs of the preserve for resource management, resource protection, research and environmental education.

Chapter VII identifies local, regional, state, and federal agencies, their authorities and program, and how they relate and assist in protection and management of this preserve. It also identifies non-governmental organizations, interest groups, and individuals that can assist in management.

Chapter VIII projects future staffing and fiscal needs necessary for providing effective management and protection of the preserve, as well as supporting research and environmental education.

Chapter IX outlines a monitoring program for recording and reporting resource changes, and establishes a tracking system for detailing the progress and accomplishments in resource management.

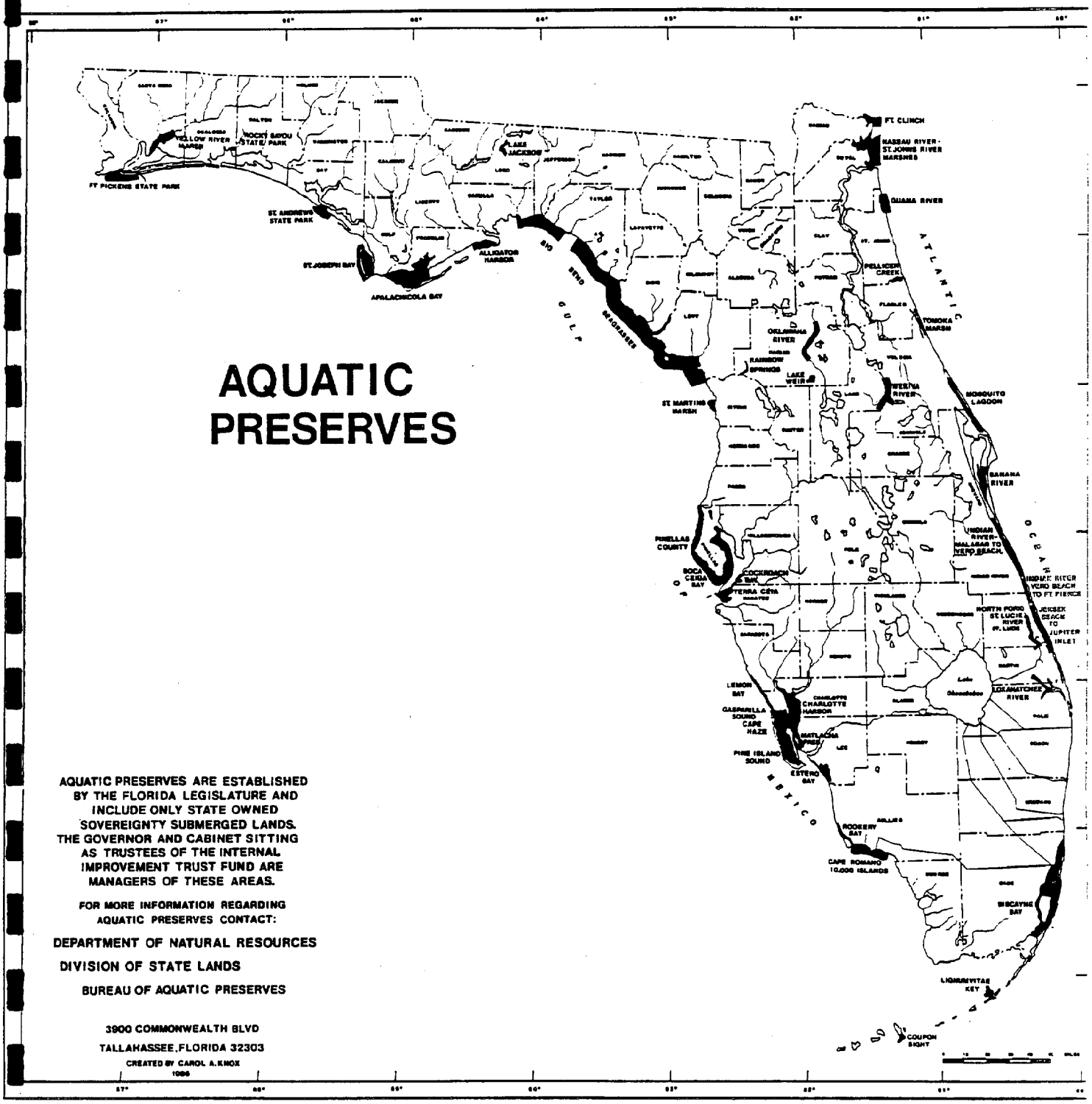
AQUATIC PRESERVES
AQUATIC PRESERVES ARE ESTABLISHED BY THE FLORIDA LEGISLATURE AND INCLUDE ONLY STATE OWNED SOVEREIGNTY SUBMERGED LANDS. THE GOVERNOR AND CABINET SITTING AS TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND ARE MANAGERS OF THESE AREAS.
FOR MORE INFORMATION REGARDING AQUATIC PRESERVES CONTACT:
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF STATE LANDS
BUREAU OF AQUATIC PRESERVES
3900 COMMONWEALTH BLVD
TALLAHASSEE, FLORIDA 32303
CREATED BY CAROL A. KNOX
1986
FT PICKENS STATE PARK
YELLOW RIVER MARSH
ROCKY BAYOU STATE PARK
ST ANDREWS STATE PARK
ST JOSEPH BAY
APALACHICOLA BAY
ALLIGATOR HARBOR
LAKE JACKSON
BIG BEND
GULF
WAGGASSES
ST MARTINS MARSH
OKLAWAHA RIVER
RAINBOW SPRINGS
LAKE WEIR
FT CLINCH
NASSAU RIVER - ST JOHNS RIVER MARSHES
GUANA RIVER
PELICAN CREEK
TOMOKA MARSH
ATLANTIC
OCEAN
MOSQUITO LAGOON
BANANA RIVER
INDIAN RIVER - MALABAR TO VERO BEACH
PINELLAS COUNTY
BOCA CIEGA BAY
COCKROACH BAY
TERRA CEIA
NORTH FORK ST LUCIE RIVER
JUPITER INLET
LOXAHATCHEE RIVER
LEMON BAY
CHARLOTTE HARBOR
GASPARILLA SOUND
CAPE HAZE
MATLACHA PASS
PINE ISLAND SOUND
ESTERO BAY
MEXICO
ROOKERY BAY
CAPE ROMANO
10,000 ISLANDS
BISCAYNE BAY
LIGNUMVITAE KEY
COUPON BIGHT

Figure 1

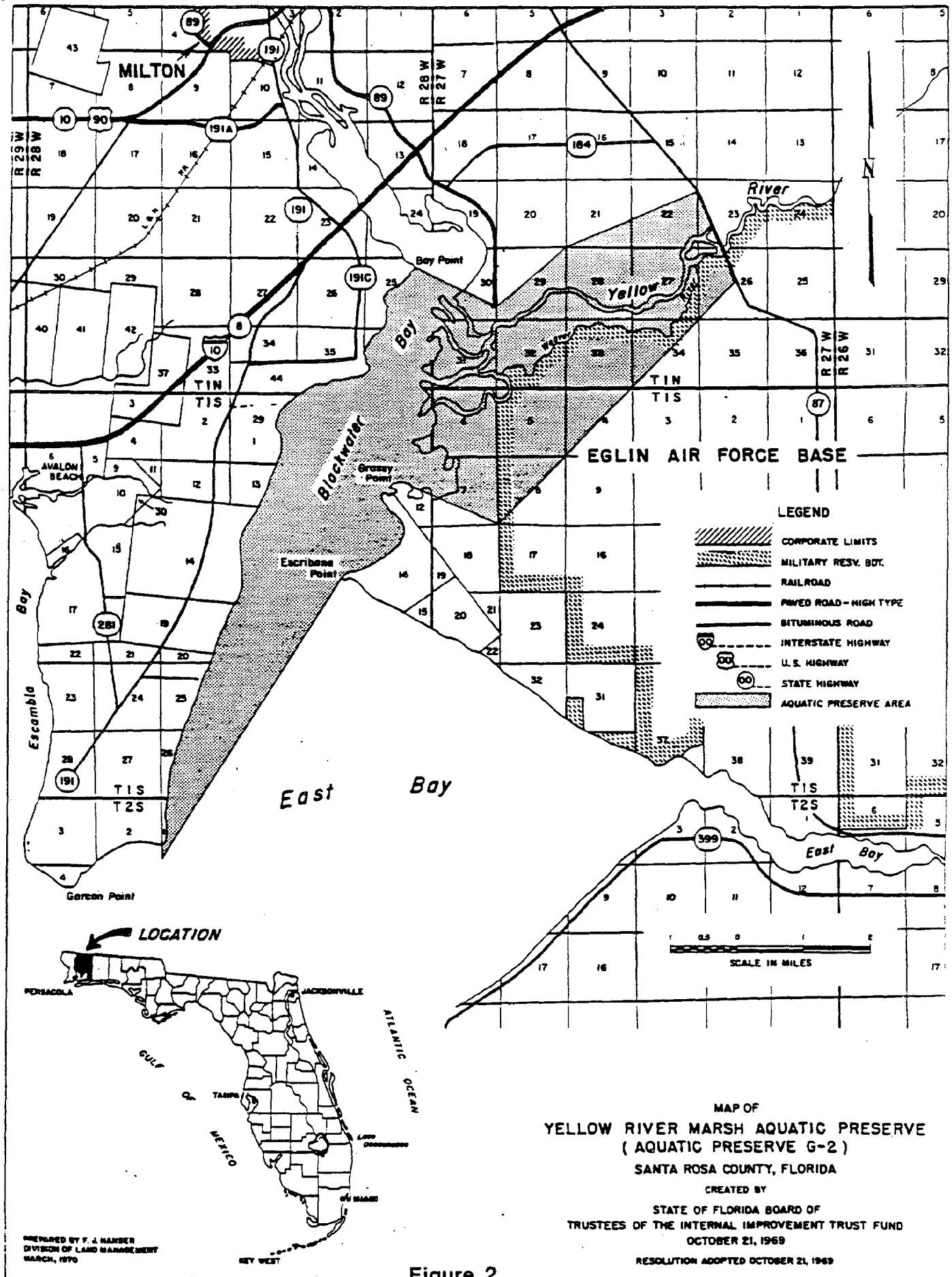
MILTON
EGLIN AIR FORCE BASE
Bay Point
Blackwater Bay
Grassy Point
Escribano Point
East Bay
Yellow River
Escambia Bay
Garcon Point
AVALON BEACH
LEGEND
CORPORATE LIMITS
MILITARY RESV. BDY.
RAILROAD
PAVED ROAD - HIGH TYPE
BITUMINOUS ROAD
INTERSTATE HIGHWAY
U.S. HIGHWAY
STATE HIGHWAY
AQUATIC PRESERVE AREA
SCALE IN MILES
LOCATION
PENSACOLA
JACKSONVILLE
TAMPA
KEY WEST
GULF OF MEXICO
ATLANTIC OCEAN
PREPARED BY F. J. HARPER
DIVISION OF LAND MANAGEMENT
MARCH, 1970
MAP OF
YELLOW RIVER MARSH AQUATIC PRESERVE
(AQUATIC PRESERVE G-2)
SANTA ROSA COUNTY, 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

CHAPTER II

MANAGEMENT AUTHORITY

A. STATUTORY AUTHORITY

The fundamental laws providing management authority for the Yellow River Marsh Aquatic Preserve are contained in Chapters 258 and 253, Florida Statutes (F.S.). These statutes establish the proprietary role of the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund, as Trustees over all sovereignty submerged lands. In addition, these statutes empower the Trustees to adopt and enforce rules and regulations for managing all sovereignty submerged lands, including aquatic preserves.

In particular, Sections 258.35-258.46, F.S., enacted in 1975 by the Florida Legislature represent the **Florida Aquatic Preserves Act.** These statutes set forth a standardized set of management criteria for all designated aquatic preserves, and represent the primary laws governing use of sovereignty submerged lands within aquatic preserves.

The Legislative intent for establishing aquatic preserves is stated in Section 258.36, F.S.: **"It is the intent of the Legislature that the state-owned submerged lands in areas which have exceptional biological, aesthetic, and scientific value, as hereinafter described, be set aside forever as aquatic preserves or sanctuaries for the benefit of future generations."** This statement along with the other applicable laws clearly mark the direction for management of aquatic preserves. Management will emphasize the maintenance of essentially natural conditions, and will include only sovereignty submerged lands and lands leased by the state and specifically authorized for inclusion as part of a preserve.

Management responsibilities for aquatic preserves may be fulfilled directly by the Board of Trustees or by staff of the Division of State Lands of the Department of Natural Resources through delegation of authority. Other governmental bodies may also participate in the management of aquatic preserves under appropriate instruments of authority issued by the Board of Trustees. The Division staff, however, serve as the primary managers who implement provisions of the management plans and rules applicable to the aquatic preserves. Staff evaluate proposed uses or activities in the preserve, and assess the possible impacts on the natural resources. Project reviews are primarily evaluated in accordance with the criteria in Sections 258.35-258.46, F.S., (Florida Aquatic Preserves Act), Chapter 18-20, F.A.C., (Rules of Florida Aquatic Preserves), and for consistency with this plan.

Staff comments on proposed uses are submitted for consideration in developing recommendations to be presented to the Board of Trustees. This mechanism provides a basis for the Board of Trustees to evaluate public interest and project merits within the context of potential environmental impacts upon the aquatic preserves. Any activity located on sovereignty submerged lands will require a consent of use, a lease or easement, or other approval from the Board of Trustees. Consent of use may be granted on small projects from the Division of State Lands in accordance with the authority delegated by the Board of Trustees.

BACKGROUND

The laws supporting aquatic preserve management are the direct result of the public's awareness and interest in protecting Florida's aquatic environment. The rampant dredge and fill activities that occurred in the late 1960's had a stimulating effect on this widespread concern.

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

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. That constitutional provision also established the authority for the Legislature to enact measures for the abatement of air and water pollution. Then late in 1968, the IAC issued a report recommending the establishment of twenty-six aquatic preserves.

On October 21, 1969, the Governor and Cabinet acted upon the recommendations of the IAC and adopted, by resolution, eighteen of the water bodies as aquatic preserves. Other preserves were individually adopted at various times through 1989.

B. ADMINISTRATIVE RULES GOVERNING AQUATIC PRESERVES

Chapters 18-20 and 18-21, F.A.C., are the two administrative rules directly applicable to the uses of aquatic preserves specifically, and submerged lands in general.

1. CHAPTER 18-20, F.A.C.

Chapter 18-20, F.A.C. (Appendix A), specifically addresses aquatic preserves and is supplemental to the rules found in Chapter 18-21, F.A.C. Chapter 18-20, F.A.C., 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 18-20.001, 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 73-534, Laws of Florida, Sections 258.39, 258.391, 258.392, and 258.393, Florida Statutes, future aquatic preserves established pursuant to general or special acts of the legislature, and in Rule 18-20.002, Florida Administrative Code, were established for the purpose of being preserved in 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) to 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 agencies to aid in carrying out the intent of the Legislature in creating 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, and 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 man-made conditions towards 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 preserves;

(f) to preserve, promote, and utilize indigenous life forms and habitats, including but not limited to: sponges, soft coral, hard corals, submerged grasses, mangroves, saltwater marshes, freshwater marshes, mudflats, estuarine, aquatic and marine reptiles, game and non-game 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 preserve;

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

2. CHAPTER 18-21, F.A.C.

Chapter 18-21, F.A.C., controls activities conducted on sovereignty submerged lands in general and is predicated on 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 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;

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

C. RELATIONSHIP TO OTHER APPLICABLE PLANS AND PROGRAMS

The State Comprehensive Plan, established by Chapter 187, F.S., provides long-range policy guidance for the orderly social, economic and physical growth of the state. As such, the State Comprehensive Plan provides direction for the management of the physical resources within the state. The goals, objectives and policies set forth in this aquatic preserve management plan are designed to be consistent with the goals and policies of the State Comprehensive Plan pertaining to the water resources, coastal and marine resources, and natural systems.

The Conceptual State Lands Management Plan, adopted on March 17, 1981, and amended by the Board of Trustees on July 7, 1981 and March 15, 1983, contains specific policies concerning spoil islands, submerged land leases, "Outstanding Native Florida Landscapes," unique natural features, seagrass beds, archaeological and historical resources, and endangered species. These policies provide some of the fundamental direction for formulating management plans and policies of the Aquatic Preserves Program.

A management plan has been adopted for the Pensacola Bay System (which includes the preserve) under the guidance of the Surface Water Improvement and Management Act. This plan will focus on existing pollution problems and methods to resolve them, in addition to prevention of further pollution. It is being implemented by the Northwest Florida Water Management District (NWFWMD).

The Local Government Comprehensive Plan (LGCP) for Santa Rosa County is required by the Local Government Comprehensive Planning and Land Development Regulation Act to have a comprehensive management plan with elements relating to different governmental functions (e.g., housing, physical facilities, conservation, land use, coastal zone protection, etc.). These plans, in effect, are intended to guide the future development of the county. Recent statutory amendments require these plans to be updated and for cities and counties to adopt land development regulations and to conform to the criteria, policies, and practices of their comprehensive plan.

The intent of the Aquatic Preserve Program, and this plan, is to guide county governments during their planning process towards developing local plan criteria and standards that will be consistent with the objectives of the program. Santa Rosa County's Comprehensive Plan has not been officially adopted by the Department of Community Affairs, however, draft copies of the coastal element have been reviewed by Bureau staff for compliancy with aquatic preserve rules.

** Refer to Chapter VII for other applicable management authorities.

CHAPTER III

RESOURCE DESCRIPTION

A. LOCATION AND BOUNDARIES

The Yellow River Marsh Aquatic Preserve is located in southern Santa Rosa County. The preserve includes the Yellow River from Highway 87, southwesterly to Blackwater Bay, and Blackwater and East Bays south to White Point at East Bay.

There are two major population centers near the preserve: the incorporated municipality of Milton, with a 1987 population of 7,219; and an unincorporated urban area called Bagdad with an approximate population of 900. Milton is also the county seat of Santa Rosa County.

The two largest land holdings adjacent to the preserve are those of Eglin Air Force Base and Champion International Corporation. Eglin AFB manages much of its lands, especially the low-lying wetlands, as the Eglin Wildlife Management Area. Champion International Corporation, a paper company, owns extensive timberlands adjacent to the preserve. Due to equipment limitations, the company has not at this time expressed an interest in logging the boggy lands that support bottomland hardwoods. The remaining uplands are generally rural and residential, comprised mainly of farmland, rangeland, forested land, and single-family homes. Golden Bay Properties, Inc. owns much of the wetlands adjacent to White Point, the southern tip of the preserve.

B. PHYSIOGRAPHY AND GEOLOGY

The preserve lies in the physiographic region known as the Gulf Coastal Lowlands, the low lying area of southern Santa Rosa County (Soil Conservation Society, 1980). The coastal lowlands consist of relatively undissected, nearly level plains divided by coastal terraces formed during the sea level invasion and recession of the Pleistocene Epoch (Wolfe et al., 1988). The largest unbroken terrace area in westernmost Florida is Garcon Peninsula, which extends southward between the mouths of the Escambia and Yellow Rivers, separating Escambia Bay from East Bay. The soils in the Gulf Coastal Lowlands are predominantly moderately well drained to very poorly drained and are nearly level. Elevation ranges from sea level to 30 feet above sea level (Soil Conservation Society, 1980).

In general, a thick sequence of sand, clay, and gravel extend from the surface to as much as 1,000 feet. This layer is known as the sand-and-gravel aquifer, and supplies the

drinking water for the western panhandle of Florida. The sand-and-gravel aquifer is recharged primarily by rainwater. The water of this aquifer is low in mineral content (soft water). Because of its close proximity to the land surface, the aquifer, or groundwater, is highly susceptible to contamination from human activities. The aquifer ranges in age from Miocene to Recent. It seems likely that the materials in the sand-and-gravel aquifer were deposited in an environment similar to that of the present-day Mississippi River delta. This is suggested by the rapid facies changes, the absence of fossils, and the abundance of sand and gravel. These sediments were probably deposited by a network of streams whose channels were constantly shifting back and forth across the surface of the delta. In this environment, clay was deposited in quiet pools or in abandoned channels while gravel was being laid down by swiftly flowing streams nearby. Discontinuous layers of hardpan (iron rock) occur throughout the aquifer (Musgrove et al., 1965).

Below the sand-and-gravel aquifer lies the limestone and coquina beds of the Floridan aquifer. The Floridan aquifer is much more extensive and supplies the drinking water for the rest of Florida, as it is more accessible in areas other than the panhandle. In addition to the fossil coquina beds, much of the limestone of the Floridan aquifer is composed of foraminiferans, corals, bryozoans, ostracods, echinoids, mollusks, and other fossils. The water of the Floridan aquifer has a higher mineral content than the sand-and-gravel aquifer, causing it to be harder than water from the sand-and-gravel aquifer (Musgrove et al., 1965).

C. CLIMATE

Santa Rosa County has a humid-temperate climate. Summer has long, hot, humid days. Average summer temperature is 80 degrees Fahrenheit. Clouds and afternoon thundershowers help relieve the heat and humidity of summer days. Winter is mild and short, but is punctuated by periodic invasions of cold air masses from the north. The average winter temperature is 54 degrees F. The Gulf of Mexico tempers the cold of winter, and causes cool sea breezes to move across the land on summer days (Soil Conservation Society, 1980).

The growing season is approximately 300 days. Rainfall averages 65 inches a year, the greatest amount occurring during the summer months. Snow is rare, falling about one year in ten. Late summer and early fall may bring severe tropical disturbances, with heavy rains and winds up to 200 miles per hour (Soil Conservation Society, 1980). Hurricane Frederic passed through the area in 1975, with winds in excess of 100 mph. In 1985, the area was struck by three late season storms: Hurricanes Elena and Kate, and Tropical Storm Juan.

D. HYDROLOGY

The circulation of water from the oceans to air to land and back is known as the hydrologic cycle. Several authors have noted the lack of baseline hydrological data for the Pensacola Bay System as a whole, especially Blackwater Bay and East Bay. In Santa Rosa County, the most common form of precipitation is rainfall. Rain which is not taken up by plants or which does not evaporate either infiltrates the land as groundwater or flows over the land as runoff to join creeks, streams, and rivers.

Yellow River

The Yellow River has its headwaters in Covington County, Alabama, in the Conecuh National Forest, at the confluence of Hog Foot and Limestone Creeks. The river enters Florida near Laurel Hill and flows southwesterly through Okaloosa County. The Yellow River is joined by its major tributary, the Shoal River, five miles below Crestview. The river empties into Blackwater Bay along the boundaries of Eglin Air Force Base.

The Yellow River drains 1,365 square miles, of which only 115 are in Santa Rosa County. The average flow entering Blackwater Bay is about 2,500 cubic feet per second. In Santa Rosa County the main channel flows through a heavily wooded, swampy floodplain about two miles wide (Musgrove et al., 1965). In Okaloosa County and Alabama, the river cuts through the Western Highlands province, characterized in some areas by bluffs as high as 40 feet.

The Yellow River's drainage basin is the highest in Florida and subsequently the river flows swifter than other rivers in Florida. Much of its drainage basin is in the Western Highlands physiographic province, which is outside of the preserve. The river is narrow, with clear tan water and a sand bottom, resulting in a "yellow" appearance. It has a few springs but is fed primarily by rainfall runoff (Florida Department of Natural Resources, 1989a).

Blackwater Bay and East Bay

Blackwater Bay and East Bay are relatively small, shallow, estuarine tidally influenced water bodies. Blackwater Bay covers 10 square miles and has an average depth of 6 feet whereas East Bay covers 44 square miles and has an average depth of 8 feet. Numerous small bayous, creeks, and ditches drain into the bays. The surface water hydrology is influenced primarily by freshwater inputs from the Blackwater, Yellow, and East Rivers, and their tributaries, and tidal exchange from the Gulf of Mexico (Teehan and Barnett, 1989). The bays exhibit chiefly low energy diurnal tides with a single high and low stage occurring each lunar day. The

average tidal range is 1.6 feet. The diurnal nature of the tides, along with the low tidal amplitude, results in limited flushing. Little and Quick (1976) estimated that 19% of the Pensacola Bay System's water volume is exchanged with each tide cycle and about 18 days are required to flush the entire system.

The circulation of the bays is weak and is thought to be characterized by a net southerly flow. Tidal movement is northerly during flood tide and southerly during ebb tide (Teehan and Barnett, 1989). These water movements result in a net counterclockwise circulation in the bay system, with fresh water from the Blackwater and Yellow Rivers moving south along the west shore of Blackwater Bay, and saline gulf water moving north along the east shore (Charles D'Asaro, Univ. West Fla., personal communication). It has been noted that under certain conditions current reversals occur. The cause of these reversals is most likely wind (Olinger et al., 1975).

The tidal flow forms a salt wedge, which keeps lighter fresh waters extending over much of the surface, and the salt waters across the bottom (Teehan and Barnett, 1989). As a result, surface waters exhibit much lower salinities than deeper water.

E. WATER QUALITY

Blackwater Bay and East Bay are part of the Pensacola Bay System. Pensacola Bay has been designated as a top S.W.I.M. priority, mainly due to declines in water and sediment quality, and loss of habitat. Even though Blackwater Bay and East Bay are less impacted by human activities than the rest of the bay system, the entire system must be viewed as a whole, especially in terms of assimilative capacity and water quality. Traditional water quality studies of the system have been criticized as snapshots in time which focus on quantities of nutrients and other chemicals, rather than on water quality with respect to organisms which inhabit and which used to inhabit, the system (Dr. Collard, University of West Florida, oral report to the Pensacola Bay System Technical Advisory Committee). The disappearance of oyster reefs from East Bay and the loss of submerged aquatic vegetation throughout the system are indicators of declining water and sediment quality. Benthic macroinvertebrates are another good indicator group. Unlike water quality samples, benthic macroinvertebrate samples may be repeated for more consistent results. When sediment quality changes, composition of benthic macroinvertebrate species also changes, thereby affecting other organisms of a higher trophic status such as fish (Dr. Collard, UWF, report to TAC). Pollution tolerant benthic macroinvertebrates occur in the bays, however, invertebrate

samples from the Yellow River are comprised of species common to healthy systems (Hand, et al., 1988; Bass et al., 1977).

Yellow River

The Yellow River exhibits some of the most pristine water quality in the state of Florida. All segments of the river have good overall water quality. The Yellow River is classified as Class III by the Department of Environmental Regulation. Class III waters intended use is for recreation, propagation and maintenance of a healthy population of fish and wildlife.

The Yellow River was designated on March 1, 1979, by the Department of Environmental Regulation as an Outstanding Florida Water (OFW) body. The statutory requirement for an OFW is that the water body must have "natural attributes worthy of special protection" (Section 403.061(28), F.S.). In OFW bodies, the primary water quality standard used in regulation is the actual ambient water quality of each individual OFW, rather than the general numerical limits of the water quality classification system. The importance of this system is that all OFWs receive special protection against water pollution.

Despite its good water quality, man's impacts are present. For example, catfish with unusual tumors have been found in the tributaries of the Yellow River which drain Eglin Air Force Base. These fish have been collected and studied but the cause of the tumors is unknown. No unusual fish have been caught in the last few years.

In addition, Trammel Creek has received and continues to receive improperly treated wastewater from the city of Crestview Waste Water Treatment Plant (WWTP). This creek, a tributary of the Yellow River, shows signs of nutrient and turbidity problems (Hand et al., 1988). The Yellow River, above its confluence with the Shoal River, was the site of a 1979 anhydrous ammonia spill. Later studies by the Game and Fish Commission (Bass and Yeager, 1983) showed the creek to still be impacted by the spill.

Trawick Creek, approximately 8 miles northeast of the preserve boundary at Highway 87, has siltation from the maintenance of Interstate 10. The water quality of tributaries of the Shoal River shows signs of road and borrow pit runoff, and stream bank erosion. Parts of the Yellow River are impacted by logging operations runoff, and some segments near agriculture

areas receive nutrients, silt and biological oxygen demand loadings from runoff (Florida Department of Natural Resources, 1989a).

Blackwater Bay and East Bay

Studies have shown that Blackwater Bay and East Bay have poor circulation and low flushing rates. Because of this, the bays are not able to assimilate increased loads of nutrients and pollution from human activities (Olinger et al., 1975; Young, 1981). Over time, a buildup of organic sediments has occurred in the bays, and is described by Young (1981) as a "noxious sludge layer". Both Olinger et al., and Young noted fair DO (dissolved oxygen) levels and high TOC (total organic carbon) levels in the bays. They concluded that the bays were functioning as nutrient and organic carbon sinks due to the overloading of these compounds in the water and the insufficient circulation of the bays.

Other than the two studies mentioned above, limited water quality studies have been conducted in Blackwater Bay and East Bay. Presently, no permanent water quality stations are located in these waters. The Department of Environmental Regulation has two surface water quality monitoring stations located miles from the preserve; one at Blackwater River at Highway 4, and another in Escambia Bay, which is heavily impacted by industrial discharges. No sediment quality tests have been conducted on bay sediments.

The Department of Natural Resources, Shellfish Environmental Assessment Section (SEAS), does however, routinely monitor Blackwater Bay and East Bay for shellfish contaminants such as fecal coliforms and other disease causing bacteria. The Shellfish Environmental Assessment Section published a report (Teehan and Barnett, 1989) which surveyed and analyzed shellfish conditions in Blackwater Bay. The report states that statistical analysis revealed significant associations between fecal coliform levels and rainfall during summer months at seven stations in the survey area. Currently, Blackwater Bay is classified as shellfish Prohibited, and East Bay is classified as shellfish Conditionally Approved (Department of Natural Resources, 1989b). Areas are designated Prohibited if sampling results indicate fecal material, pathogenic microorganisms, or poisonous or deleterious substances are consistently or unpredictably present in dangerous concentrations, or the shoreline survey identifies actual or potential pollution sources of high magnitude which may affect the growing area (Teehan and Barnett, 1989).

Sources of pollution

There are numerous point and non-point sources of pollution which impact Blackwater Bay and East Bay. The S.W.I.M. program Point Source Assessment of the Pensacola System (1991) lists the city of Crestview, Department of Transportation I-10 Rest Area, East Milton Elementary School, city of Milton, and Naval Air Station (NAS) Whiting Field as point sources which affect the preserve waters.

Wastewater Treatment Plants (WWTP)

Treated wastewater from the city of Milton and East Milton Elementary School is discharged into the Blackwater River, and treated wastewater from the city of Crestview is discharged into Trammel Creek, a tributary of the Yellow River. Chlorinated effluent from the city of Milton WWTP is discharged into the Blackwater River, 1.5 miles north of the I-10 bridge (Teehan and Barnett, 1989). Oxygen depletion and high coliform bacteria counts have been attributed to insufficient wastewater treatment at this plant. This facility, however, has undergone extensive modification and water quality is expected to improve (Hand et al., 1988). Chlorinated effluent from the East Milton Elementary School is discharged into the Blackwater River two miles north of the I-10 bridge (Teehan and Barnett, 1989).

As stated earlier, Trammel Creek, which receives treated wastewater from the city of Crestview, shows signs of nutrient and turbidity problems. Crestview's WWTP has recently been upgraded but it is too soon to determine if the effluent or in-stream water quality will appreciably improve (Florida Department of Natural Resources, 1989a). The city of Crestview WWTP has a history of sewage spills and mechanical breakdowns and is presently operating under a consent order from the Department of Environmental Regulation. In June, 1990, a faulty filter at the Crestview WWTP caused the discharge of 30 million gallons of improperly treated sewage into Trammel Creek. According to the Florida Game and Freshwater Fish Commission, 97% of the faunal species present in the area were wiped out due to the spill. Fishing on the Yellow River was temporarily banned in December 1990 due to extremely poor quality effluent resulting from a faulty trickling filter.

Septic Tanks

Septic tanks are another source of pollution to the preserve. Teehan and Barnett (1989) performed a septic tank survey of the land adjacent to the preserve (see Appendix B, Pollution Source Survey). The effect of septic tank systems on ground and estuarine water is an unresolved problem. According to Patterson, et al. (1971), "the total evidence indicates that

septic systems today exert a significant detrimental effect on environmental quality." While WWTP's are permitted initially and monitored regularly, no monitoring - either of the system after installation or of associated environmental impact - is required for septic systems (Teehan and Barnett, 1989). According to Clark (1974), "there are three major potential problems related to septic tanks in coastal area:

1) wastes are leached into coastal waters when septic tanks are located too close to the shore,

2) tidally-induced high water tables provide direct and rapid flushing of drainfields into the coastal waters, and

3) inadequate drainfield components or soil absorption characteristics cause tanks to overflow, particularly during rainstorms, and pollute coastal waters."

Treatment provided by septic tanks is minimal compared to other forms of wastewater treatment. Septic tank effluent contains varying concentrations of the primary nutrients nitrogen, carbon, and phosphorus, and smaller quantities of surfactants, metals and toxic organics. However, in terms of public health, the most significant problem is release of pathogenic bacteria, such as Escherichia coli (Teehan and Barnett, 1989). Excessively porous coastal soils allow effluent to leach too rapidly. Effluent reaches groundwater essentially untreated, polluting the water with bacteria, pathogens, and nutrients. A 1975 study by the Environmental Protection Agency noted that septic systems are responsible for high nutrient loads and excessive bacterial counts found in surface waters adjacent to septic systems.

Other point and non-point sources

Garcon Peninsula and Peterson Point have the highest housing densities in the preserve area; both area also contain ranches. These area are crossed by stormwater ditches, which discharge into Blackwater Bay. Stormwater may carry bacteria from septic tank leachate and domestic animals. Mallard (1980) noted significant quantities of total coliform, fecal coliform, and fecal steptococcus in stormwater runoff.

Other contaminants in surface runoff include petroleum products from paved areas; sediments from improper development, agriculture, dirt roads, logging operations, and stream bank erosion; phosphorus and nitrogen from agriculture, and pesticides, including malathion, dieldrein, and heptachlor epoxide, from agriculture or mosquito control. Stormwater from NAS Whiting field is a source of pollution to the preserve.

Boat traffic contributes metals including copper, tin and lead, as well as petroleum and occasional discharges of raw or partially treated sewage.

Marinas are recognized pollution sources, especially where petroleum products are stored, transferred, and used. Heavy metal contamination of water, shellfish, and sediment may occur as anti-fouling bottom paints leach over time. Dredging and filling can suspend sediments and reintroduce associated pollutants to the water column. Bulkheads, piers, and docks alter water circulation patterns, block sunlight, reduce flushing, and trap debris. In addition, anti-fouling agents such as Copper Chromium Arsenic (CCA) from pilings and tri-butyl tin from boat bottom paints may leach into surrounding water (Teehan and Barnett, 1989). Presently, one marina and two fish camps are located in the preserve.

Loss of Submerged Vegetation and Other Resources

Long time residents of the area have noticed a significant decline in submerged aquatic vegetation since the 1950's. Historical accounts state that the bays were once highly productive, with extensive grassbeds, oyster beds, and shrimp and fish populations. The Pensacola Bay System was the focus of a historical submerged macrophyte study and inventory by Rogers and Bisterfield (1975). They reported that the entire system experienced an overall recession and disappearance of grassbeds from 1949-1974. Recent LANDSAT surveys indicate present coverage is approximately the same as in 1974, indicating little, or no recovery has taken place (Ken Haddad, DNR, personal communication).

Records for the northeast area of East Bay, adjacent to the preserve (Olinger et al., 1975) revealed a decline in lateral extension of the grassbed; however, the width of the central area appeared to have remained relatively constant. Two years later, this bed had also disappeared (J.D. Brown, Bream Fishermen Association, personal communication). A study by Environmental Analysts of Florida, Inc. in June 1979, also reported the absence of grassbeds between Escribano and Miller Points. In summary, there has been a history of submerged macrophyte loss in the entire Pensacola Bay System, including Blackwater Bay and East Bay. The only abundant, persistent species are tapegrass (Vallisneria americana) and widgeon grass (Ruppia maritima), essentially brackish water species, that are doing well in Blackwater Bay, but that have diminished in upper Escambia Bay.

Additionally, commercial fisheries species associated with grassbeds have shown a significant decline in conjunction with the decline of grassbeds. Bay scallops (Argopecten irradians), brown shrimp (Penaeus aztecus), white shrimp (P. setiferous), and pink shrimp (P. duorarum), as well as some

finfish species, have all shown significant declines in numbers. The shrimp fisheries was also impacted by high concentrations of polychlorinated biphenyls (PCB).

Shellfish, primarily oysters (Crassostrea virginica), have shown significant declines and crashes in numbers, due to fungal parasites, poor water quality, heavy rainfall, and dredging activities. Personnel from DNR report periodic crashes in oyster populations within the preserve, with near 100% mortality rate. The first documented die-off occurred in 1963 and the most recent die-off was reported in 1987. Since that time oyster numbers have been slowly increasing. The DNR has charted two oyster reefs and one resource enhancement project in the preserve.

Historically, oysters landings have contributed greatly to the economy of Santa Rosa County. In 1985, the most recent peak year for oyster landings, nearly 500,000 pounds of oysters were harvested.

F. VEGETATIVE COMMUNITIES

The Yellow River Marsh Aquatic Preserve includes not only submerged grassbed communities, but also other types of wetland communities such as marshes, swamps and forested wetlands. These wetlands are a valuable resource to the residents of Santa Rosa County for many reasons. Detailed illustrations of emergent and submerged vegetation found in the preserve are contained in Appendix C.

Wetlands of the preserve receive floodwaters after heavy rains and function as natural flood control. Pollutants, excess nutrients, and sediments enter the wetlands and are filtered out of stormwater, thereby improving water quality. The preserve wetlands recycle many nutrients which are essential for wildlife. These wetlands provide safe, sheltered habitats for juvenile members of numerous species of marine and estuarine organisms. Many of these species are important to commercial and recreational fishermen of Santa Rosa County. The wetlands also provide habitat for many other types of wildlife, such as migratory birds, waterfowl, and mammals. As a result, the wetlands are productive hunting areas, especially for deer and ducks. Wetlands recharge groundwater supplies and supply drinking water. Timber and other natural resources are harvested from wetlands. And finally, wetlands are important for educational and aesthetic reasons.

In order to perform these important functions wetlands must be preserved in their natural state. Draining and filling of wetlands degrades water quality and contributes to flooding, and destroys wildlife habitat and its associated economic

values. Development of wetlands is occurring on Garcon Peninsula, adjacent to the preserve.

1. Forested Wetlands

There are several different types of forested wetlands which occur within the Yellow River Marsh Aquatic Preserve. Forested wetlands are commonly known by a variety of names such as river swamp, shrub bog, bayhead, cypress swamp, titi bog, floodplain forest, swamp forest, and bottomland hardwood forest.

These forested wetlands are characterized by a wide variety of plant life including trees, shrubs, vines, grasses, and herbaceous plants. The moisture regime is the most significant factor in maintaining these communities; only flood tolerant species of plants and animals can survive. Forested wetlands are present along the Yellow River and its tributaries until reaching the marshes at Blackwater Bay (see Figures 3 and 4).

Trees found in the forested wetlands include: water hickory, sweetgum, blackgum, tupelo, red maple, sweetbay, redbay, loblolly bay, ash, elm, American hornbeam, river birch, cypress, red and white cedar, black willow, titi, pond pine, slash pine, sycamore and several species of oaks.

Woody understory species include buttonbush, yaupon holly, dahoon holly, titi, St. John's-wort, dog hobble, fetterbush, large gallberry, myrtle-leaved holly, swamp azalea, Florida anise, Virginia willow and sweet pepperbush.

Plant life in the forested interior floodplain is often characterized by herbaceous vines such as greenbriar, wild grape, peppervine, poison ivy, trumpet creeper, and crossvine. Other herbaceous species include cinnamon fern, royal fern, chain fern, lizard's tail, orchids and other flowering plants, and mosses and liverworts. Refer to Table 1 for a detailed list of forested wetland species.

Forested wetlands host a variety of wildlife such as deer, bobcats, bears, wild hog, beaver, fox, otters, raccoons, swamp rabbits, squirrels (flying, red, gray), opposum, and mink. Wild turkey, waterfowl, wading birds, migratory birds, song birds, and birds of prey, especially ospreys, hawks, and owls are found in the preserve. Turtles, snakes, frogs, salamanders, and even alligators may be found in the preserve. All of these species utilize the forested wetlands for food, shelter, and breeding/nesting habitat, and are dependent on the wetlands for their continued survival.

In addition to providing food and habitat for animals, forested wetlands receive floodwaters, recycle nutrients,

filter stormwater runoff and serve as a sink for sediments and other types of pollutants.

2. Marshes

Marshes of the preserve fall into two categories: tidal marsh and floodplain marsh.

Tidal marshes are expansive intertidal or supratidal areas occupied primarily by rooted, emergent vascular macrophytes such as cordgrass, needlerush, sawgrass, saltwort, saltgrass, and glasswort (Florida Natural Areas Inventory, 1990). Additionally, species such as sea ox-eye daisy and sedges also occur. These species are tolerant of the higher salinities and harsher wind and wave conditions characteristic of tidal marshes. The largest expanse of tidal marsh in the preserve is found along the west shore of East Bay near White Point.

Floodplain marsh occurs in the river floodplain. These marshes are seasonally inundated and are dominated by maidencane, pickerelweed, sagittaria, buttonbush, wax myrtle, and other mixed emergents (Florida Natural Areas Inventory, 1990). Other species which occur in the floodplain marsh include giant cutgrass, cattail, spadderdock, beak rush, bulrush, sedges, spike rush, and sawgrass.

The floodplain marsh covers approximately 2400 acres at the mouth of the Yellow River. In addition to the marsh species, patchy stands of hardwoods and water tolerant pine trees have become established on small "islands" of higher elevation in the marsh. See Table 2 for a detailed list of marsh plant species.

Marsh communities are among the most productive ecosystems in the world; three times more productive than cultivated farmland. In addition to being highly productive, marsh communities also recycle nutrients and function as natural filtration systems for runoff. Marshes provide food, shelter, and habitat for deer, otters, marsh rabbits, racoons, coots, egrets, gulls, terns, herons, bitterns, rails, gallinules, red-winged blackbirds, ospreys, hawks, ducks, alligators, snakes, turtles, and salamanders. Marshes are utilized as nesting habitat by a number of species and serve as protected nursery areas for juvenile fish and invertebrates.

3. Grassbeds

Grassbeds are expansive subtidal or intertidal areas, occupied primarily by rooted submerged vascular macrophytes (Florida Natural Areas Inventory, 1989). Grassbeds of the Yellow River Marsh Aquatic Preserve extend well into Blackwater Bay from the mouth of the Yellow River and its distributaries. Grassbeds are also present in patches along the western

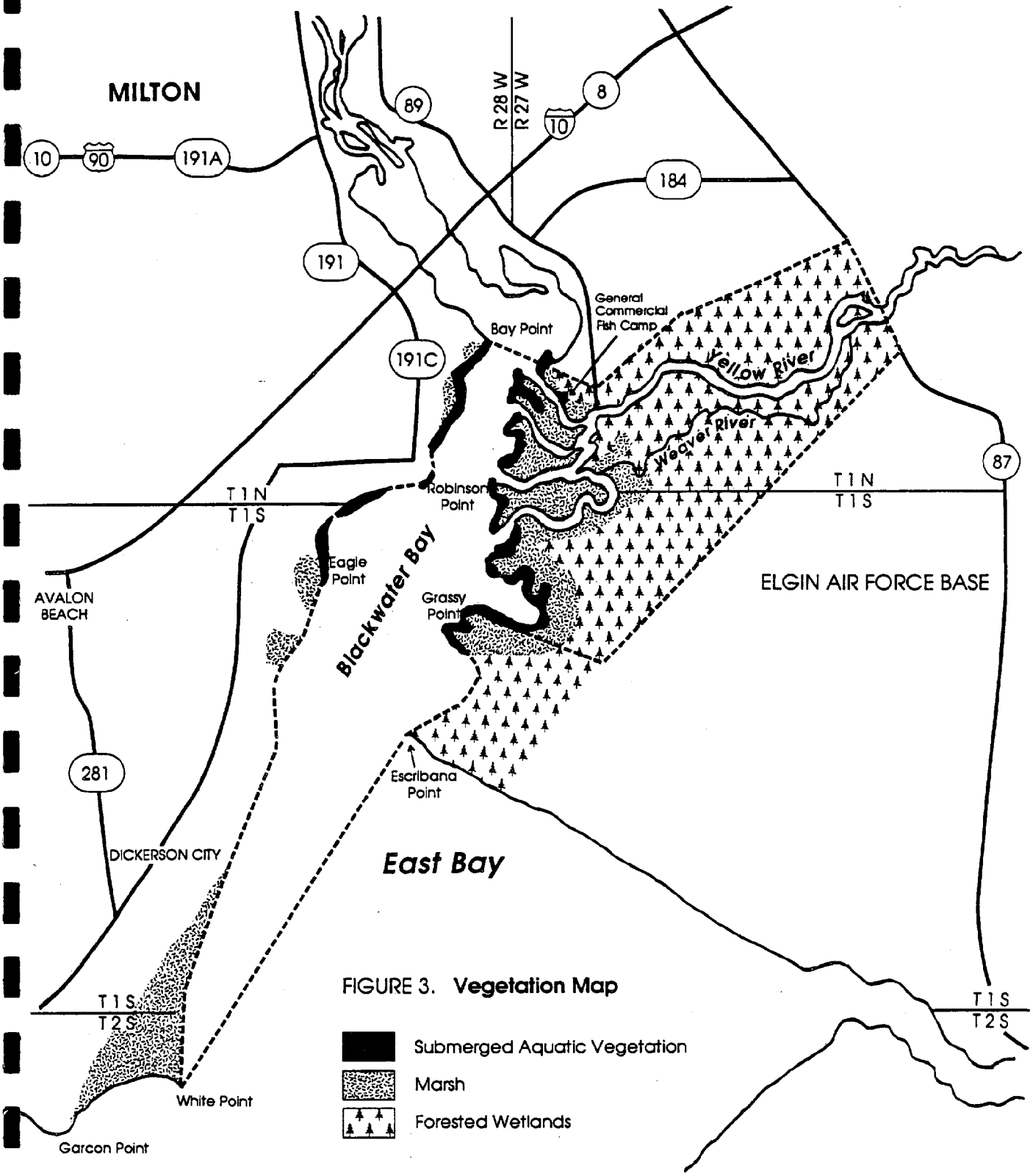

FIGURE 3. **Vegetation Map**

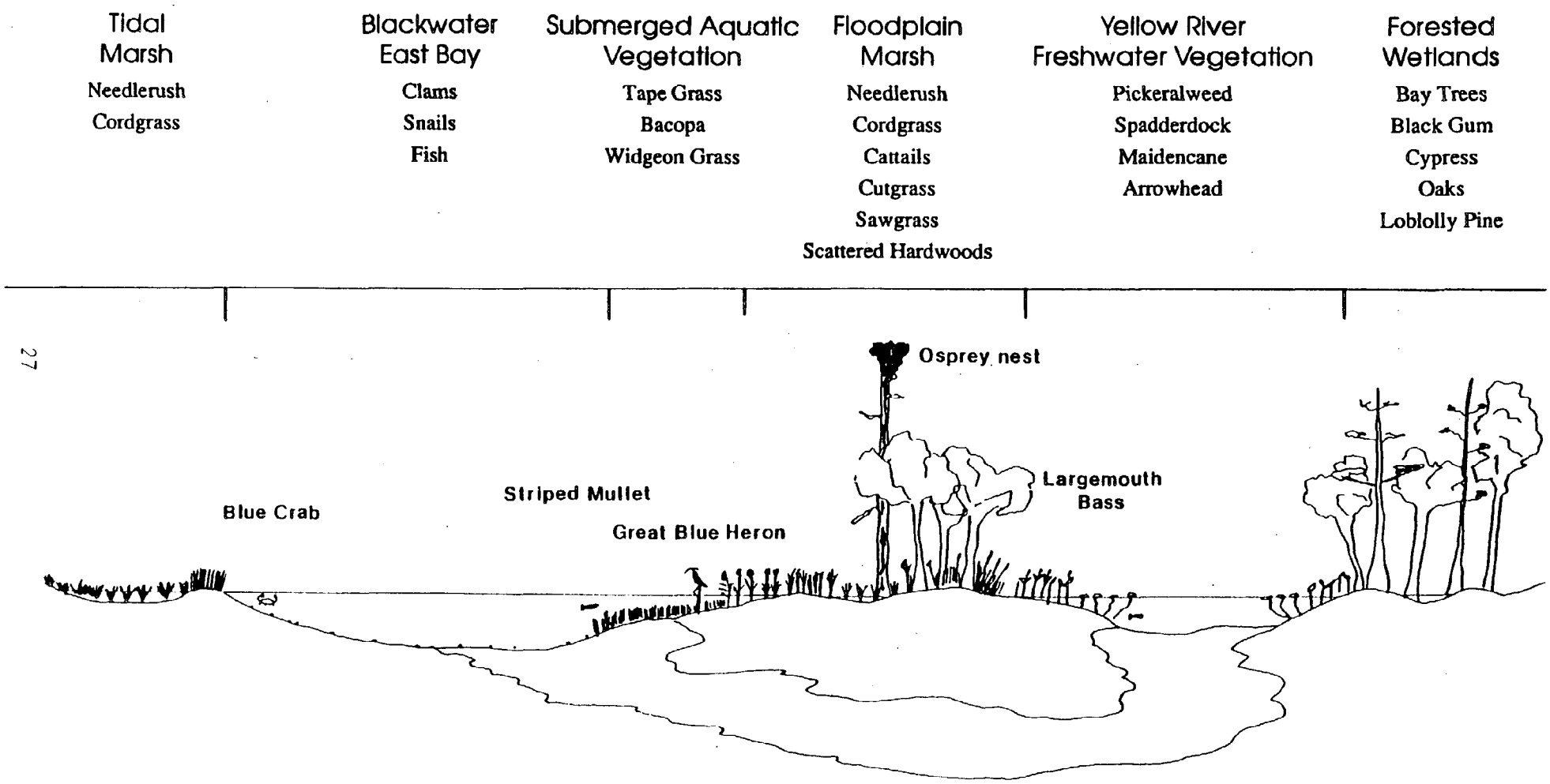

FIGURE 4.
VEGETATION PROFILE

shoreline. The grassbeds are dominated by tapegrass (Vallisneria americana), which grows in the bay at depths of one to three feet. Associated with tape grass are aquatic species such as lemon bacopa, southern naiad, widgeon grass, and bladderwort (see Table 3).

Submerged grasses such as tapegrass perform many valuable functions within the estuarine system. They stabilize sediments, recycle nutrients, provide shelter and habitat for aquatic fauna, and serve as spawning and nursery areas for many species of fish and shellfish. Many commercially important fish spend at least part of their lives in these beds.

The Yellow River Marsh is part of the Pensacola Bay System. This system is the most impacted by human activity of all the watersheds of the panhandle (Rogers and Bisterfield, 1975). East Bay, just outside the preserve boundaries, once contained expansive stretches of grassbeds, especially between Escribano Point and Miller Point. These beds disappeared by 1977. Grassbed disappearance has been noted in the Pensacola Bay System since 1951 (Rogers and Bisterfield, 1975). Disappearance of grassbeds in the preserve has been less extensive than in other areas of the Pensacola Bay System.

G. FISH AND WILDLIFE

1. Fish

At least 101 species occur in the Florida portion of the river system, including Blackwater Bay. Of the species recorded, 33 are marine or brackish water forms. An additional five are diadromous (Alabama shad, skipjack herring, hogchocker, Atlantic sturgeon, American eel). Freshwater species entering the bay are derived from the Blackwater and Yellow Rivers. Marine species originate from the Gulf of Mexico or are permanent residents of the estuary (Bass et al., 1979).

The minnow family, Cyprinidae, contributes the largest number of species to the system, with a total of 17. The sunfish (Centrarchidae) are the second best represented with 14 species. Other families contributing five or more species are Ictaluridae (freshwater catfish), Cyprinodontidae (killifish), Sciaenidae (drums) and Percidae (perches) (Bass et al.,1979). See Table 4 for a checklist of fish recorded from the Yellow River system, Florida, including Blackwater Bay.

Bass, et al., (1979) surveyed the Yellow River system and set up sampling stations throughout the area, including two stations in the river portion of the preserve. Station 1, in the tidal delta at the mouth of the Yellow River, yielded 23 species, all of which are freshwater forms. The most abundant

was bluegill, which contributed 31.3% of the catch by number. Next in abundance was the longnose gar, comprising 19.4% of the number. Third most abundant was the redear sunfish (12.4%). Commercial or sport fish made up 58.2% by number.

Station 2, up the river away from the delta, yielded 24 species, all but one of which were freshwater. The southern flounder, a common invader of Florida streams, was the only marine representative. Bluegill was again the most abundant, comprising 22.4% by number. The longear sunfish was second (12.0%) and was followed by spotted sucker (7.7%). Commercial or sport fish comprised 66.1% of the collection.

The river swamp/backwaters amid the bottomland hardwoods and associated vegetation are an important habitat for fish production. Fish of the main river channel depend greatly upon these "quiet water" areas for spawning and growth (Bass and Yeager, 1983).

Marine species which are abundant in the lower bay include Gulf menhaden, tidewater silverside, silver perch, sand seatrout, spot, croaker, and striped mullet. Other common species are speckled worm eel, sea catfish, needlefish, spotted seatrout, and hogchocker (Bass et al., 1979).

Both marine and freshwater fish inhabit the upper bay adjacent the outlets of the two rivers. The river/bay interface is highly valuable as a producer of fish, providing primary nursery grounds (Bass and Yeager, 1983). Abundant fish of the upper bay are speckled worm eel, bay anchovy, Gulf pipefish, bluegill, redear sunfish, and naked goby. Other common species are longnose gar, coastal shiner, spot, striped mullet, and clown goby. Freshwater species found occasionally include spotted gar, bowfin, chain pickerel, spotter sucker, tadpole madtom, brook silverside, warmouth, longear sunfish, spotted sunfish, and bluespotted sunfish (Bass and Hitt, 1977).

Marine species caught by anglers at the mouth of the Yellow River include spotted seatrout, red drum, flounder, croaker, spot, sting ray, bull shark, gafftopsail catfish, and sea catfish.

Overall, the Yellow River System is high in numbers of fish species, but production of sport fish is relatively low in comparison to other Florida streams (Bass et al., 1979).

2. Mammals

The marsh and bottomland hardwood communities provide habitat for numerous mammalian species. White-tailed deer, a popular game animal, frequents both areas, mainly because of the escape cover and browse provided (McWhite, 1984). Many other common hardwood forest and wetland inhabitants occur here, including squirrel, armadillo, raccoon, bobcat, coyote, wild hog, beaver, fox, swamp rabbit, opposum, mink, and river otter. The Florida black bear, a threatened species, also inhabits the area. Refer to Table 5 for a detailed list of species.

The continuum of uplands to forested wetlands to marsh habitat offers these and smaller mammals excellent home range, foraging opportunities, and escape cover from excessive human activity and predators. The two primary factors contributing to this are the rural nature of northern adjacent uplands and the forested lands of Eglin Air Force Base abutting the south and eastern preserve boundaries of the aquatic preserve.

3. Reptiles and Amphibians

A variety and abundance of reptiles and amphibians occur in the preserve. The American alligator, which is listed as a species of special concern by the Florida Game and Fresh Water Fish Commission, is a common inhabitant of the marsh and bottomlands. Numerous salamanders, frogs, and turtles occur throughout the floodplain. Water snakes, including the poisonous cottonmouth, are also common to both bottomland and marsh communities. Refer to Table 5 for a detailed list of species.

4. Birds

Wading birds, raptors, songbirds and waterfowl frequent all habitat types within the preserve.

Some of the more conspicuous wading birds found loafing or foraging in the marsh or emergent vegetation include: great blue heron, least bittern, and snowy egret. Raptors such as the osprey, hawks, and the endangered bald eagle utilize all communities, nesting in larger trees in the inner marsh and swamp forest and feeding in the estuary and floodplain. While ospreys are very common in the preserve, bald eagles are quite rare. Songbirds are ubiquitous among the arboreal habitats of the bottomlands. Various species of ducks are found throughout the preserve. Wood ducks normally inhabit the swamp forest, nesting in tree cavities and consuming acorns as a primary food. They are usually year-round residents in this area. Migratory ducks such as scaup, and pintail may temporarily stop at the river or bay during winter. See Table

5 for a detailed list of bird species which inhabit the preserve.

5. Benthic Macroinvertebrates

Benthic macroinvertebrates of the Yellow River System were sampled by the Florida Game and Freshwater Fish Commission (Bass et al., 1979). The report contains a detailed description of substrates and species collected at various sites and habitats in the preserve. Substrates ranged from mud and aquatic vegetation to coarse sand. Blackwater Bay was sampled by the Game and Freshwater Fish Commission (Bass and Hitt, 1977) as part of a larger survey of the Blackwater River system.

Substrate type appears to be of greater importance than water quality or current velocity in determining species present. Fine sand, mud, and vegetation are all productive of benthos whether they occur in the rivers or bay. Clean sands, whether in still or moving water are relatively unproductive (Bass and Hitt, 1977).

Dominant bay and shoreline benthos include both oligochaete and polychaete worms, clams, snails, midge larvae, mysid shrimp, and amphipods and isopods (small flattened crustaceans such as beach fleas). The amphipods and isopods are abundant in the grassbeds and sandy areas of the preserve.

Common river benthos include polychaete and oligochaete worms, leeches, copepods, mysid shrimp, amphipods, isopods, midge larvae, mayfly nymphs, crayfish, caddisfly larvae, dragonfly and damselfly larvae, dobsonfly, aquatic beetles, culicidae, snails, mussels, and clams.

Oyster harvesting in and adjacent to the preserve contributes to the economy of Santa Rosa County. The oyster industry has experienced a slump in recent years after peaking in 1985.

6. Designated Species

Some designated animal species which have legal protection pursuant to the Endangered Species Act of 1973, are assumed to be found within the vicinity of the preserve. Table 6 lists species endangered, threatened, or of special concern which may be found in or near the preserve. For management of designated plant species, the Florida Natural Areas Inventory Special Plant List, a cooperative effort between the Department of Natural Resources and the Nature Conservancy, is the primary reference source. For management of designated animal species, the Florida Game and Fresh Water Fish Commission (FGFWFC) (list published in 39-27.03-05, F.A.C.) is the primary reference source. The United States Fish and

Wildlife Service (USFWS) is responsible for implementing the provisions of the federal act.

Species may be classified as rare, endangered, threatened, under review for listing, or of special concern. Endangered species are those threatened with extinction if the deleterious factors affecting their populations continue. These are species whose numbers have already declined to such a critically low level, or whose habitats have been so seriously reduced or degraded that without active assistance, survival is questionable. Threatened species are those likely to become endangered in the foreseeable future if current trends continue. Under review species are being considered for designation. Species of special concern are those that warrant special attention even though they do not fit the other categories. These species, although perhaps not rare, may be especially vulnerable to certain types of exploitation or environmental changes and have experienced long term population declines. Species of this designation may also have potential impact on endangered or threatened populations of other species.

H. ARCHAEOLOGICAL AND HISTORICAL RESOURCES

Although little archaeological investigation has been conducted in the region around the Yellow River, the following is a brief evaluation from Little, K.J., C. Curren, and L. McKenzie (1988).

Investigations have demonstrated that at least portions of the Blackwater drainage (including Yellow River) are rich in archaeological resources. Components of most cultural periods were identified, with the exception of sixteenth and eighteenth century colonial sites.

Data derived from 44 archaeological sites were recorded during the survey. Thirty five were newly recorded sites and 9 were previously recorded. Fifteen of these sites are located directly within the aquatic preserve. Archaeological resources here are consistently being impacted by shoreline inundation and erosion, treasure hunters and commercial and residential development, indicating the need for further preservation.

I. REGIONAL LAND USE, DEVELOPMENT AND ASSOCIATED IMPACTS

1. ADJACENT UPLAND USES

Land use adjacent to the preserve is predominately classified as rural. According to the West Florida Comprehensive Regional Policy Plan (1987) this classification includes agricultural, range and forested lands.

The preliminary coastal element of the Santa Rosa County Comprehensive Plan (1989) further designates this land as Santa Rosa County Coastal Area. Eglin Air Force Base at the eastern boundary is the only exception, being categorized as "Military Holdings".

The preliminary Santa Rosa County Comprehensive Plan also designates land within the coastal area as residential and commercial. Most of the residential acreage is presently deemed rural residential/agricultural due to the rural nature of the land (Santa Rosa Comprehensive Plan, 1989).

Characteristic land uses adjacent to the preserve are further broken down into the following categories: low or no development, low-density residential, medium to high density residential, commercial, recreational and military holdings. A more detailed outline of local land use is provided in the local government land use map in Figure 5.

a. **RESIDENTIAL**

1. **Low or No Development:** This designation is characterized by areas in essentially natural conditions with little or no land alterations or structural development. The complete north shore of the Yellow River with the exception of an approximate one half linear mile section near Highway 87, is in this designation. The brackish marsh system at the mouth of the river is also of this land use. These tracts are in private ownership and have little impact on open waters of the preserve due to the buffering effect of the vast bottomland hardwood community.

2. **Low-Density Residential:** Adjacent to the bottomland hardwoods, most of the land is designated as rural, with forest lands being interspersed by small range and farmlands. Single-family homes on 5 to 100 acres tracts are characteristic of this area. In addition, Low-Density residential development occurs on the uplands at the southwest periphery near White Point. This area contains numerous single-family residences and the small community of Dickerson City with numerous single-family homes.

3. **Medium to High Density Residential:** From Dickerson City northward to Robinson Point the uplands adjacent to the west shore of Blackwater Bay are characterized by numerous individual subdivisions in early stages of development. Areas such as Villa Garcon, Blackwater Bay Estates

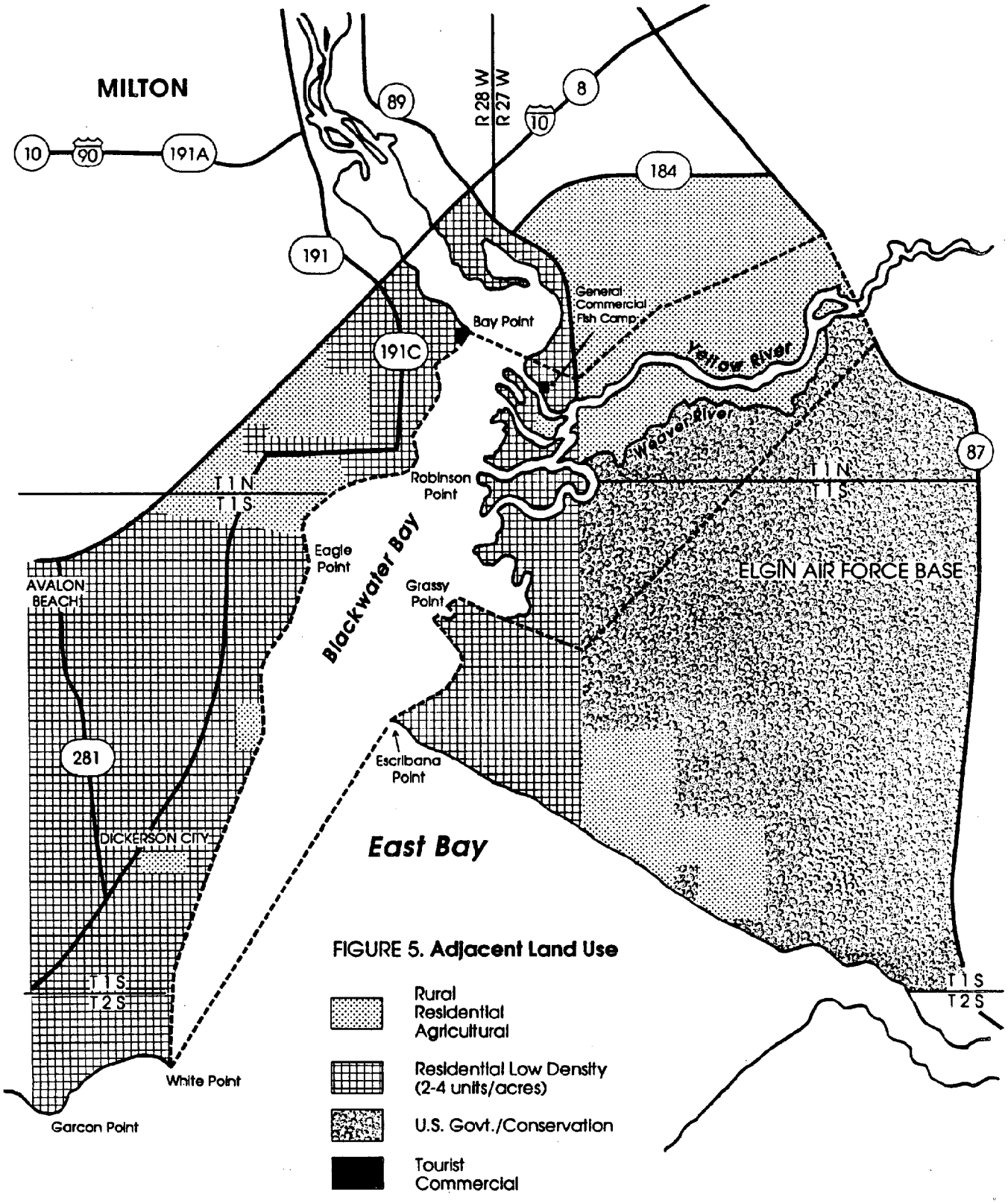

FIGURE 5. **Adjacent Land Use**

- Rural Residential Agricultural
- Residential Low Density (2-4 units/acres)
- U.S. Govt./Conservation
- Tourist Commercial

and Hammock De Galvez represent increasing suburban growth. Small cattle farms and expanses of pine forest separate many of these subdivisions. Much of the land is for sale. Adjacent uplands from Robinson Point northeast to Bay Point have experienced moderate development in addition to commercial expansion. Small waterways such as Jakes Bayou and Sandy Point Bayou are also sights of increased residential development. Docking facilities are prominent along the shoreline.

b. **COMMERCIAL:** Three water dependent commercial areas are located immediately adjacent to the preserve. Brown's Fish Camp and Cooey's Fish Camp are located on the Yellow River, and Nichol's Marina is situated on a canal, on the west shore of Blackwater Bay. Brown's Fish Camp has a boat ramp, approximately 10 homes and mobile homes, restrooms, and a wood seawall approximately 20 feet in length. Nichol's Marina is a large boat landing facility and is the permanent mooring site for about 20 to 30 vessels. Nichol's Restaurant is also at this location.

c. **RECREATIONAL:** The above facilities represent recreational uses when viewed from the context of "associated boat use", as do the many docking facilities extending from the west boundary uplands.

d. **MILITARY HOLDINGS:** The military holding of Eglin Air Force Base is adjacent to the bottomland hardwoods and marsh system to the south and east. This land consist of mid-successional longleaf pine (Pinus palustris) and loblolly pine (Pinus taeda). There is no development in this area with the exception of a landing field approximately one and a half miles from the preserve. The land is used primarily for forestry and wildlife management purposes.

2. CURRENT USES OF THE PRESERVE

Uses of the preserve can be divided into four general categories: Public/Recreation, Private, Commercial, and Public Utilities.

a. **PUBLIC/RECREATION:** Recreational boating and fishing are major uses of preserve waters. The favorable fishing in the Yellow River and associated marsh attract sportsmen who use mainly the two launching facilities in the northeast section of the preserve, Brown's Fish Camp and Cooey's Fish Camp. Blackwater and East Bay are utilized moderately as brackish game

fishing areas. These bays are frequently used as navigation routes for large vessels to the Gulf of Mexico from municipalities on the Blackwater River such as Milton and Bagdad. A number of these vessels are moored at Nichol's Marina near the mouth of the Blackwater River, as discussed in the "ADJACENT LAND USE" section.

b. **PRIVATE:** Approximately 20 docking facilities, in addition to numerous seawalls on the Blackwater Bay, provide for boat mooring, fishing and scenic observation as major private uses. There are three private docks on the Yellow River and Marsh, and one "houseboat" near Cooey's Fish Camp.

c. **COMMERCIAL:** Commercial uses include the one restaurant and the marina. Two public boat launching facilities are present. The bay portions of the preserve are classified "Prohibited" and "Conditionally Approved" for shellfishing, and there are no shellfish propagation leases in Blackwater Bay or the preserve portion of East Bay. The eastern oyster (Crassostrea virginica), however, has potential economic value in Blackwater Bay according to Teehan and Barnett (1989). Blackwater and East Bays are utilized moderately for crabbing and mullet netting.

d. **PUBLIC UTILITIES:** A large powerline crosses the Yellow River about three tenths of a mile from the Highway 87 northeast boundary of the preserve. The powerline requires a right-of-way of approximately 250 linear feet on either side of the river. Five navigational lights are situated in the Blackwater Bay as channel markers.

3. PLANNED USE

Increased population and development will most likely impact the preserve with added water degradation from urban runoff, sewage leachate, etc. As noted earlier, homes on Garcon Peninsula, the area of most intense development, are not connected to central sewage treatment. Soils are mostly very poorly drained and unsuitable for septic tanks. This area is allowed a density up to four homes per acre.

The population of Santa Rosa County was 70,900 at the beginning of 1990. The projected population is approximately 77,300 by 1995 and 82,200 by the year 2000 (Dorman and Assoc., Pers. Comm.).

A planned bridge to cross East Bay would no doubt encourage development of the uplands on the west side of the preserve.

This proposed location of the bridge is outside the aquatic preserve. If constructed, indirect impacts may occur to waters of the preserve and associated resources. Added turbidity, losses of marsh vegetation and hydrocarbon pollution are some possible impacts. It should also further increase development on Garcon Peninsula. Careful environmental impacts studies will be essential to determine the environmental feasibility of this bridge.

According to the preliminary Coastal Management Element of the Santa Rosa County Comprehensive Plan, "Development and redevelopment near estuaries can potentially impact water quality, circulation patterns, and accumulation of contaminants in sediments. To minimize potential impacts, a system of county, state and federal regulations have been developed".

TABLE 1

FORESTED WETLAND VEGETATION

TREES AND SHRUBS:

COMMON NAME	SCIENTIFIC NAME
Water hickory	Carya aquatica
Sweetgum	Liquidambar styraciflua
Swamp tupelo	Nyssa sylvatica
Sweetbay	Magnolia virginiana
Black titi	Cliftonia monophylla
White titi	Cyrilla racimiflora
River birch	Betula nigra
Laurel oak	Quercus laurifolia
Overcup oak	Quercus lyrata
Water oak	Quercus nigra
Shumard oak	Quercus shumardii
Swamp chestnut oak	Quercus michauxii
Willow oak	Quercus phellos
American hornbeam	Carpinus caroliniana
Bald cypress	Taxodium distichum
Atlantic white cedar	Chamaecyparis thyoides
Red cedar	Juniperus silicicola
Spruce pine	Pinus glabra
Pond pine	Pinus serotina
Slash pine	Pinus elliottii
Loblolly pine	Pinus taeda
Sugarberry	Celtis laevigata
Red maple	Acer rubrum
Dogwood	Cornus florida
Box elder	Acer negundo
Dahoon holly	Ilex cassine
Black walnut	Juglans nigra
Black willow	Salix nigra
American elm	Ulmus americanan
Green ash	Fraxinus pennsylvanica
Sycamore	Platanus americana
Loblolly bay	Gordonia lasianthus
Red bay	Persea borbonia
Dog hobble	Leucothoe sp.
Fetterbush	Lyonia lucida
Large gallberry	Ilex coricea
Myrtle-leaved holly	Ilex myrtifolia
Sweet pepperbush	Clethra alnifolia
Virginia willow	Itea virginica
Blackgum	Nyssa biflora
Water ash	Fraxinus carolinensis
Buttonbush	Cephalanthus occidentalis

TABLE 2

TIDAL MARSH AND FLOODPLAIN MARSH VEGETATION

COMMON NAME	SCIENTIFIC NAME
Needlerush	*Juncus* spp.
Smooth cordgrass	*Spartina alterniflora*
Marshhay cordgrass	*Spartina patens*
Bulrush	*Scirpus* spp.
Coastal dropseed	*Sporobolus virginicus*
Seashore paspalum	*Paspalum vaginatum*
Seashore saltgrass	*Distichlis spicata*
Shoregrass	*Monanthochole littoralis*
Sea ox-eye daisy	*Borrichia frutescens*
Glasswort	*Salicornia virginica*
Saltwort	*Batis maritima*
Beak rush	*Rynchospora* spp.
Maidencane	*Panicum hemitomon*
Sedge	*Carex* spp., *Cyperus* spp.
Common reed	*Phragmites australis*
Sawgrass	*Cladium jamaicenis*
Spike rush	*Eleocharis* spp.
Arrowhead	*Sagittaria* spp.
Golden club	*Orontium aquaticum*
Blue flag	*Iris hexagona*
Cattail	*Typha* spp.
Pickerelweed	*Pontideria cordata*
Smartweed	*Polygonum punctatum*
Pennywort	*Hydrocotyle umbellata*
St. John's wort	*Hypericum* spp.

TABLE 3

SUBMERGED AQUATIC VEGETATION

COMMON NAME	SCIENTIFIC NAME
Tapegrass	*Vallisneria americana*
Widgeon grass	*Ruppia maritima*
Lemon bacopa	*Bacopa caroliniana*
Green fanwort	*Cabomba caroliniana*
Southern Naiad	*Najas guadalupensis*
Bladderwort	*Utricularia* spp.

TABLE 4

GENERAL FISH SPECIES

COMMON NAME	SCIENTIFIC NAME
Lake Chubsucker	Erimyzon sucetta
Yellow Bullhead	Ictalurus natalis
Mosquitofish	Gambusia affinis
Bluegill	Lepomis macrochirus
Sailfin Shiner	Pteronotropis hyselopterus
Pirate Perch	Aphredoderus sayanus
Spotted Sunfish	Lepomis punctatus
Blackbanded Darter	Percina nigrofasciata
Shadow Bass	Ambloplites ariommus
Flagfin Shiner	Pternotropis signipinnis
Weed Shiner	Notropis texanus
Spotted Sucker	Minytrema melanops
Longear Sunfish	Lepomis megalotis
Largemouth Bass	Micropterus salmoides
Chain Pickerel	Esox niger
Redear Sunfish	Lepomis microlophus
Channel Catfish	Ictalurus punctatus
Gafftopsail catfish	Bagre marinus
Gulf Menhaden	Brevoortia patronus
Atlantic Croaker	Micropogonias undulatus
Spot	Leiostomus xanthurus
Tidewater Silverside	Menidia beryllina
Bay Anchovy	Anchoa mitchilli
Naked Goby	Gobiosoma bosci
Striped Mullet	Mugil cephalus
Black Drum	Pogonias cromis
Killifish	Fundulus spp.
Tadpole madtom	Notorus gyrinus

TABLE 5

GENERAL WILDLIFE SPECIES

MAMMALS

COMMON NAME	SCIENTIFIC NAME
White-tailed Deer	Odocoileus virginianus
Florida Black Bear	Ursus americanus
Beaver	Castor canadensis
Muskrat	Ondatra zibethica
Raccoon	Procyon lotor
Eastern Gray Squirrel	Sciurus carolinesis
Eastern Fox Squirrel	Sciurus niger
Marsh Rabbit	Sylvilagus palustris
Gray Fox	Urocyon cinereoargenteus
Red Fox	Vulpes vulpes
River Otter	Lutra canadensis
Armadillo	Dasypus novemcinctus
Eastern Coyote	Canis latrans
Spotted Skunk	Spilogale putorius
Wild Pig	Sus scrofa
Bobcat	Lynx rufus
Mink	Mustela vison

REPTILES AND AMPHIBIANS

COMMON NAME	SCIENTIFIC NAME
American Alligator	Alligator mississippiensis
Alligator Snapping Turtle	Macroclemys temminckii
Musk Turtle	Sternotherus odoratus
Mud Turtle	Kinosternon subrubrum
Diamondback Terrapin	Malaclemys terrapin
Florida Cooter	Pseudemys floridana
Mobile Cooter	Pseudemys concinna
Florida Softshell	Trionyx ferox
Cottonmouth	Agkistrodon piscivorous
Mud Snake	Farancia abacura
Queen Snake	Natrix septemvittata
Brown Water Snake	Natrix taxispilota
Green Water Snake	Natrix cyclopion
Banded Water Snake	Natrix fasciata
Tiger Salamander	Ambystoma tigrinum
Red Salamander	Pseudotriton ruber
Central Newt	Notophthalmus viridescens
Dusky Salamander	Desmognathus auriculatus

TABLE 5

GENERAL WILDIFE SPECIES
(continued)

Tree Frog	Hyla spp.
Bull Frog	Rana catesbeiana
Kingsnake	Lampropeltis getulus
Gartersnake	Thamnophis sirtalis
Ribbon Snake	Thamnophis sauritus

BIRDS

COMMON NAME	SCIENTIFIC NAME
Osprey	Pandion haliaetus
Snowy Egret	Egretta thula
Great Egret	Casmerodius albus
Great Blue Heron	Ardea herodias
Eastern Brown Pelican	Pelecanus occidentalis
Anhinga	Anhinga anhinga leucogaster
Florida Cormorant	Phalacrocorax auritus
Little Blue Heron	Egretta caerulea
Black-Crowned Night Heron	Nycticorax nycticorax hoactli
American Bittern	Botaurus lentiginosus
Least Bittern	Ixobrychus exilis
White Ibis	Eudocimus albus
Wood Stork	Mycteria americana
Black Duck	Anas rubripes
Wood Duck	Aix sponsa
Pintail	Anas acuta
Marsh Hawk	Circus cyaneus
Bald Eagle	Haliaeetus leucocephalus
Wild Turkey	Meleagris gallopavo
Rails	Rallus spp.
Belted Kingfisher	Megaceryle alcyon

TABLE 6

DESIGNATED WILDLIFE SPECIES
LIKELY TO OCCUR IN THE YELLOW RIVER MARSH AQUATIC PRESERVE

COMMON NAME/SCIENTIFIC NAME	FGFWFC	USFWS
BIRDS:		
Southeastern Kestrel *Falco sparverius paulus*	T	UR2
Little Blue Heron *Egretta caerulea*	SSC	
Snowy Egret *Egretta thula*	SSC	
Tricolored Heron *Egretta tricolor*	SSC	
Bald Eagle *Haliaeetus leucocephalus*	T	E
Least Tern *Sterna antillarum*	T	
Brown Pelican *Pelecanus occidentalis*	SSC	
Osprey *Pandion haliaetus*	SSC	
Peregrine Falcon *Falco peregrinus*	T	
MAMMALS:		
Florida mink *Mustala vison lutensis*		UR2
Round-tailed muskrat *Neofiber alleni*		UR2
Eastern chipmunk *Tamias striatus*	SSC	
Florida black bear *Ursus americanus floridanus*	T	UR2

AMPHIBIANS AND REPTILES:	**FGFWFC**	**USFWS**
American alligator *Alligator mississippiensis*	SSC	T(S/A)
Alabama map turtle *Graptemys pulchra*	SSC	UR2
Florida Bog Frog *Rana okaloosae*	SSC	
Gulf Saltmarsh Snake *Nerodia fasciata clarkii*	E	
Pine Barrens tree frog *Hyla andersonii*	SSC	UR5
Alligator Snapping Turtle *Macroclemys temminckii*	SSC	UR2
FISH:		
Atlantic Sturgeon *Acipenser oxyrhynchus*	SSC	UR2
Blackmouth Shiner *Notropis melanostomus*	E	UR2
Bluenose Shiner *Pteronotropis welaka*	SSC	
INVERTEBRATES:		
American Sand-burrowing Mayfly *Dolania americana*	T	
Blackwater Sandfiltering Mayfly *Homoeoneuria dolani*	T	
Gulf Clubtail *Gomphus modestus*	T	
Meridion Mayfly *Pseudiron meridionalis*	T	

Plants:

COMMON NAME/SCIENTIFIC NAME	FNAI
Panhandle Lily *Lillium iridollae*	E
Orange Azalea *Rhododendron austrinum*	E
Ashe's Magnolia *Magnolia ashei*	E
White-top pitcher plant *Sarracenia leucophylla*	E

FNAI	=	Florida Natural Area Inventory
FGFWFC	=	Florida Game & Fresh Water Fish Commission
USFWS	=	United States Fish & Wildlife Service
E	=	Endangered
T	=	Threatened
T(S/A)	=	Threatened Due to Similarity of Appearance
SSC	=	Species of Special Concern
UR2	=	Under review for federal listing, but substanial evidence of biological vulnerability and/or threat is lacking.
UR5	=	Still formally under review for listing, but no longer considered for listing because recent information indicates species is more widespread or abundant than previously believed.

CHAPTER IV

MANAGEMENT AREAS

A. INTRODUCTION

This chapter divides the Yellow River Marsh Aquatic Preserve into separate management areas where general rule criteria and allowable uses are defined for each area. The management areas are classified and delineated based on the types and locations of existing and planned uses of the adjacent uplands, as well as on the types, occurrence and characteristics of the natural and cultural resources on submerged lands. The various management areas delineated may be classified similarly or differently as these factors vary in the preserve.

The purpose of this chapter is four-fold: (1) to provide a better understanding of the general rule criteria designed to preserve and protect resources and habitat, (2) to identify the types of allowable uses on state-owned submerged lands within the aquatic preserve, (3) to provide local planners with a guide for land use decisions, and (4) to provide the staff of the Bureau of Submerged Lands and Preserves and other agencies with a continuity of direction in regards to the management of aquatic preserves. As such, this intent will afford habitat protection while sending some measure of predictability for allowable public and private uses in the aquatic preserve.

Prior to providing the criteria for specific resource management areas, it is important that the intent, jurisdiction, and limitations of Florida's Aquatic Preserve Program be reiterated. Section 258.36, F.S., states that "it is the intent of the Legislature that state-owned submerged lands in areas which have exceptional biological, aesthetic, and scientific value... be set aside forever as aquatic preserves or sanctuaries for the benefit of future generations." The program has jurisdiction over the use of state-owned submerged lands within the boundaries of a given preserve. Activities which are not within the boundaries of the aquatic preserve (i.e., adjacent upland land uses) or which do not directly affect the state-owned submerged land (i.e., regulation of commercial fishing or water quality) are not within the jurisdiction of the Aquatic Preserve Program.

There are a number of differences between the rules governing uses of state-owned submerged lands within an aquatic preserve relative to those not within an aquatic preserve. The principle difference is that uses of the submerged lands within an aquatic preserve must be shown to be "in the public interest" before they can be authorized, as opposed to being

"not contrary to the public interest" for non-aquatic preserve areas.

B. MANAGEMENT AREA CLASSIFICATIONS

A key component of the management program for an aquatic preserve is the division of the preserve into management areas. The classification of management areas in an aquatic preserve is based upon both resource value of submerged lands within the preserve, and the existing or anticipated future land use on the adjacent uplands as designated in the Local Government Comprehensive Plan. As in the delineation of upland land uses through zoning, the intention of delineating a preserve into management areas is to guide development activities on the state-owned submerged lands to areas where it is more appropriate, and to provide standards by which proposed uses and activities must comply. The intent of these management area classifications is to make potential development activities compatible with resource protection goals.

Designated or existing land uses are incorporated into the classification of management areas because use of the adjacent uplands has a direct bearing on the intensity of demand for uses of state-owned submerged lands. The Aquatic Preserve Program has no jurisdiction over the designated use of the adjacent uplands. As mentioned earlier, the incorporation of the designated land use into the management area classification is primarily an acknowledgement of how local government has chosen to have a certain area developed; however, this upland designation also serves as a tool in designating compatible uses of the submerged lands in accordance with upland uses.

Specific land use categories to be incorporated in the classification of management areas include:

Agriculture (AG): This category represents state-owned submerged lands adjacent to land designated on an approved future land use map for a county and/or municipality as agriculture. It is intended to accommodate private areas with sparse populations used primarily for agricultural and/or forestry purposes.

Single-Family (SF): This category represents state-owned submerged lands adjacent to land designated on an approved future land use map for a county and/or municipality as single-family residential. It is intended to include areas using the adjacent portion of the aquatic preserve solely for private recreational activities.

Commercial-Industrial (CI): This category represents state-owned submerged lands adjacent to land designated on an approved future land use map for a county and/or municipality as commercial or industrial. The category is also intended to incorporate uses associated with structures that charge fees or generate revenue. Examples of commercial uses includes marinas that charge fees; yacht clubs that charge membership fees; private businesses such as fish houses; and, establishments such as restaurants.

Public Recreation (PR): This category represents state-owned submerged lands adjacent to land designated on an approved future land use map of a county and/or municipality as public usage or preservation and which is utilized for the purposes of public recreation. It is intended to include both areas where structures are used by the general public at no charge and federal, state, county, or municipal parks that charge a nominal fee. Military structures, while not always open to the public, are considered in this category since the military serves the public.

Open-water (OW): This category represents state-owned submerged lands within an aquatic preserve which are of a distance of greater than 500 feet from land.

Classifications of management areas are also derived from the resource value of the state-owned submerged lands adjacent to the upland property. Each of the land use classifications noted above is assigned a second code letter to define the resource value of its submerged bottoms. The methodology used for determining the resource value shall be consistent with the latest procedure approved by the Bureau of Submerged Lands and Preserves. If an area within the preserve is designated as a **Primary Resource Protection Area (PRPA)**, then it will be assigned a resource value of **"1"**. A PRPA essentially combines Resource Protection Areas 1 and 2, as defined in Section 18-20.003(31), and 18-20.003(32), F.A.C.

Submerged areas that are characterized by the absence of the above resource attributes will be designated as a **Secondary Resource Protection Area (SRPA)**, and will be assigned a resource value of **"2"**. A SRPA is a Resource Protection Area 3 as defined by Section 18-20.003(33), F.A.C.

As stated previously, resource values are to be incorporated into the classification of management areas. For example, if an area within the preserve is determined to have a primary resource protection area, and if the adjacent land is zoned as a single-family residential neighborhood, it would be classified as a **SF/1** management area.

C. MINIMUM CRITERIA FOR ALLOWABLE USES

Chapter 18-20, F.A.C. (Appendix A), provides the minimum standards with regard to utilization of the state-owned submerged lands within an aquatic preserve, as authorized by the Board of Trustees and DNR. It should be noted that other regulatory agencies' rules and jurisdictions over activities may also apply within aquatic preserves. The minimum standards under Chapter 18.20, F.A.C., for each allowable use are detailed below:

Private residential single docks:
Section 18-20.004(5)(a), F.A.C., provides that all docks within an aquatic preserve shall meet the following standards and criteria.

1. No dock shall extend the lesser of 500 feet waterward of the mean or ordinary high water line or 20% of the width of the water body at that particular location.

2. Areas of significant biological, scientific, historic, and/or aesthetic value require special management considerations. Modifications to docks in these areas may be more restrictive and are determined on a case-by-case analysis.

3. The number, lengths, drafts, and types of vessels allowed to utilize the proposed facility may be stipulated.

4. Where local governments have more stringent standards and criteria for docking facilities, the more stringent standards for protection and enhancement of the aquatic preserve shall prevail.

In addition, Section 18-20.004(5)(b), F.A.C., provides that private residential single docks shall conform to the following specific design standards and criteria:

1. An access dock cannot exceed a maximum width of 4 feet.

2. Must be designed and constructed to ensure maximum light penetration.

3. May extend from the shoreline no further than to a maximum depth of -4 feet mean low water (MLW).

4. When the water depth is -4 feet MLW at an existing bulkhead, the maximum dock length from the bulkhead shall be 25 feet, subject to modifications accommodating shoreline vegetation overhang.

5. Wave break devices shall be designed to allow for maximum water circulation and built in such a manner as to be part of the dock structure.

6. The maximum size of the terminal platform shall not exceed 160 square feet.

7. Dredging is strongly discouraged.

Commercial-Industrial docking facilities and marinas:
Section 18-20.004(5)(d), F.A.C., provides that commercial, industrial, and other revenue generating/income related docking shall conform to the following specific design criteria and standards:

1. Docking facilities shall only be located in or near areas with good circulation, flushing, and adequate water depths.

2. Docking facilities and access channels shall not be located in Resource Protection Areas 1 or 2; however, main access docks may be allowed to pass through Resource Protection Areas 1 or 2 that are located along the shoreline, to reach an acceptable Resource Protection Area 3, provided that such crossing will generate minimal environmental impact.

3. The siting of docking facilities shall take into account the access of the boat traffic to avoid marine grassbeds or other aquatic resources in the surrounding area.

4. The siting of new facilities within the aquatic preserve shall be secondary to the expansions of existing facilities when such expansion is consistent with other standards.

5. The location of new facilities and expansion of existing facilities shall consider the use of upland dry storage as alternative to multiple wet slip docking.

6. Marina siting will be coordinated with local governments to insure consistency with local plans and ordinances.

7. Marinas shall not be sited within state designated manatee sanctuaries.

Exceptions to the standards and criteria for any docking facility may be considered, but only upon demonstration that such exceptions are necessary to ensure reasonable riparian ingress and egress.

Piers:
Piers will follow the standards of private residential single docks or private residential multi-slip docks in accordance with the appropriate dock requirement for each management area's designated uses. In addition, the following applies to all piers:

(a) no temporary or permanent vessel mooring shall be permitted; at least one well displayed "no docking" sign shall be placed and maintained on each side of the pier; and railings shall be placed around the entire perimeter of the pier; and,

(b) dredging is strictly prohibited when associated with pier construction or maintenance.

Ramps:
Ramps may be permitted only on a case-by-case basis, after site inspection to assess the type and amount of shoreline or benthic vegetation or other habitat that would be impacted; the amount of filling of submerged lands required; and, the accessibility to the ramp from water or land access.

Lease, or transfer of lands, (Private Leases):
Section 18-20.004(1)(b), F.A.C., provides that there shall be no further lease or transfer of sovereignty lands within an aquatic preserve unless such transaction is in the public interest. Section 18-20.004(2), F.A.C., specifically defines the public interest test (see Appendix A for a copy of Chapter 18-20, F.A.C.). Section 18-20.004(1)(e), F.A.C., states that lease, easement, or consent may be authorized for only the following activities: a public navigation project; maintenance of an existing navigation channel; installation or maintenance of navigation aids; creation or maintenance of a commercial/industrial dock, pier, or marina; creation or maintenance of private docks; minimum dredging of navigation channels attendant to docking facilities; creation or maintenance of shore protection structures; installation or maintenance of oil and gas transportation facilities; creation, maintenance, replacement, or expansion of facilities required for the provision of public utilities; and, other activities which are a public necessity or which are necessary to enhance the quality or utility of the preserve and which are consistent with the Florida Aquatic Preserves Act (Section 258.35, F.S. through Section 258.46, F.S.). Section 18-20.004(1)(f), F.A.C. provides that structures to be built in, on, or over sovereignty lands are limited to those necessary to conduct water dependent activities.

Utility Easements:
Section 18-20.004(3)(c), F.A.C., provides that utility cables, pipes, and other such structures shall be constructed and located in a manner that will cause minimal disturbance to submerged land resources such as oyster bars and submerged grassbeds and do not interfere with traditional uses. It will be the policy within the Yellow River Marsh Aquatic Preserve to encourage the placement of utilities in designated corridors, or existing easements.

Spoil Disposal:
Section 18-20.004(3)(d), F.A.C., provides that spoil disposal within an aquatic preserve shall be strongly discouraged and may be approved only where the applicant has demonstrated that there is no other reasonable alternative and that the spoiling activity may be beneficial to, or at a minimum, not harmful to the quality and utility of the preserve. Exceptions to this criteria may be granted where beach quality sand is transferred and deposited onto shoreline beaches as part of an approved beach restoration management plan.

In addition to the allowable uses listed above, certain activities are generally permissible in all management areas, in accordance with general rules. These include shoreline stabilization, maintenance dredging of existing channels, and maintenance of channel markers. Where appropriate to protect environmental resources, certain conditions or restrictions may be placed on these types of activities. For example, seawalls in some locations may be discouraged, and riprap may be required to be placed along a seawall border to provide additional habitat.

D. MANAGEMENT AREAS

In this section, management areas have been delineated for the Yellow River Marsh Aquatic Preserve, (Figure 6). Boundaries, descriptions, and allowable uses are listed for each area. Due to changes that can occur from rezoning of adjacent uplands, and changing conditions on submerged lands, the final decision on approving, modifying or denying uses within the preserve will be made based on field surveys and assessments of project sites.

The determination of management area classifications have been based on information presented earlier. In the event that a site visit concludes that the management area for a specific site is different from that shown on the map in Figure 6, the determination made during the site visit will be judged as the correct determination.

MANAGEMENT AREA AG/1

(agriculture/primary resource protection area)

(there are three designated areas in this category)

Boundaries: The easternmost AG/1 area is defined as all of the sovereignty submerged lands of the preserve, lying east of a line which extends south from a point where U.S. Highway 89 terminates at the Yellow River, then traverses the river to meet the northwestern corner of the Eglin Air Force boundaries, and the island lying west of the above mentioned line, in section 31.

Description: The area is characterized by an extensive riverine forest community with few man-made alterations. The adjacent uplands are rural and utilized for agricultural, range and forest production. Emergent aquatic and wetland plants near shore are abundant and include dense stands of woody and herbaceous species. This river forest is alluvial in nature meaning that it is frequently inundated with flood waters and subsequently produces great amounts of detrital nutrients which are carried to the estuary. This area also offers spawning, growth, and foraging habitat for many important fish species due to the vegetative cover and high benthic macroinvertebrate production. Presently there is one boat ramp facility with boathouses in this area. The boathouses are non-conforming uses. There is a utility crossing in this area.

Allowable Uses: Private residential single docks and piers; utility easements (in designated corridors).

Boundaries: The second AG/1 area is defined as those submerged lands of the preserve that correspond with the uplands on northeast Garcon Peninsula, which abut the mean high water of Blackwater Bay and are designated as rural residential agricultural by the Santa Rosa County future land use map.

Description: This portion is characterized by shoreline brackish marshes and shallow waters of extensive submerged aquatic vegetation. The major submerged plant, tapegrass, Vallisneria americana, extends offshore to depths of approximately 1 to 4 feet at low tide. There are 3 docks in this area and no non-conforming uses.

Allowable Uses: Private residential single docks and piers; utility easements (in designated corridors).

Boundaries: The third AG/1 area is defined as those submerged lands of the preserve that correspond with the uplands on eastern Garcon Peninsula, which abut the mean high water of Blackwater Bay and are designated as rural residential/ agriculture by the Santa Rosa County future land use map.

Description: The 1200 feet of waterfront in this category is characterized by some offshore submerged vegetation, a narrow strip of sandy beach and shoreline resources of dense hardwood forested wetland. Alligator Bayou enters the preserve in this area. There is one non-conforming boat ramp at this site.

Allowable Uses: Private residential single docks and piers; utility easements (in designated corridors).

MANAGEMENT AREA CI/1

(commercial-industrial/primary resource protection area)

(there are two areas in this category)

Boundaries: The first area corresponds with a presently undeveloped upland section which has been zoned "tourist commercial" by Santa Rosa County located on Bay Point.

Description: The designated area is characterized by marsh vegetation and moderate beds of submerged vegetation dominated by tapegrass, Vallisneria americana. Presently there are no structures in this area and it is used primarily for commercial and recreational fishing.

Allowable Uses: Utility easements (in designated corridors). A single two-slip dock built in accordance with standards and criteria for private residential single docks; piers.
note: a commercial dock, however, may be permitted to pass over a primary resource protection area in order to reach a secondary resource protection area.

Boundaries: The second area in this category is an existing fish camp along the Yellow River just west of Highway 89.

Description: This area is characterized by dense bottomland forest and some aquatic vegetation.

Allowable Uses: Utility easements (in designated corridors). A single two-slip dock built in accordance with standards and criteria for private residential single docks; piers.
note: a commercial dock, however, may be permitted to pass over a primary resource protection area in order to reach a secondary resource protection area.

MANAGEMENT AREA SF/1
(single-family/primary resource protection area)

(there are five designated area in this category)

Boundaries: The easternmost SF/1 area includes all of the east shore of Blackwater Bay extending from the northeastern corner of the preserve in Blackwater Bay, south to Escribano Point. The eastern boundaries of this area are the line formed by the U.S. Highway 89 extension which traverses the Yellow River until meeting the northwest corner of Eglin Air Force Base, then west to Escribano Point.

Description: This area is characterized by an expansive brackish marsh system and extensive beds of submerged vegetation. Most of the area is inaccessible to humans except near Escribano Point and at the northern periphery. This area has few human alterations and is used for recreational and commercial fishing and hunting. The resources in this region are vital to the preserve because the vast river/marsh interface produces thousands of acre/feet of habitat for fish and wildlife, generates detritus, and serves to filter waters before entering the bay.

Allowable Uses: Private residential single docks and piers; utility easements (in designated corridors).

Boundaries: The second SF/1 area is located on the northwest shoreline of Blackwater Bay beginning at the intersection of the mean high water line and the southern boundary of the tourist commercial designation in the extreme northwest corner of the preserve. Then, follow the shoreline south until reaching the intersection of the mean high water line of Blackwater Bay and the northern boundary of the rural residential agricultural designation as outlined in the Santa Rosa County future land use map.

Description: This area is characterized by moderate to dense brackish marshes with nearshore habitats of abundant submerged vegetation. Many bayous and streams such as Sandy Point Bayou and Jakes Bayou enter the preserve in this area and are sites of productive grassbeds. Upland development is increasing and approximately 10 docking facilities and 3 seawalls are present, in addition to an artificial channel on which Nichol's Marina is located. Many of the docks, seawalls and associated mooring structures appear to be non-conforming uses.

Allowable Uses: Private residential single docks and piers; utility easements (in designated corridors).

Boundaries: The third SF/1 area extends from the south boundary line of the rural residential agricultural designation at the mean high water line of Blackwater Bay, south to a point 500 feet south of the Eagle Point Monument.

Description: This area is characterized by extensive brackish and salt marsh species and moderate to extensive submerged vegetation. There are several small sandy beaches, especially at a barrier spit where White Oak Bayou enters the preserve. This area is very productive for crustaceans and finfish. Development is increasing in the upland areas and 3 docks and 1 seawall are present. Two of these appear to be non-conforming.

Allowable Uses: Private residential single docks and piers; utility easements (in designated corridors).

Boundaries: The fourth SF/1 area begins at a point 4,000 feet south of where an extension of Blackwater Circle meets the mean high water line of Blackwater Bay. From this point, follow the shoreline south to a point where an extension of Central Avenue intersects the mean high water line of East Bay.

Description: This area is characterized by some off shore submerged vegetation, a narrow strip of sandy beach and shoreline resources of dense hardwood wetland transitional vegetation. These nearshore resources offer favorable wetland/upland habitat for wildlife species of the preserve. Benthic communities include abundant infaunal and epifaunal invertebrates such as blue crabs and polycheate worms. Although development is increasing near this area, nearshore resources have yet to be greatly impacted, and minimal disturbance to shoreline vegetation has occurred. There are 3 docks in this area and no non-conforming uses.

Allowable Uses: Private residential docks and piers; utility easements (in designated corridors).

Boundaries: The fifth SF/1 area begins at a point 500 feet south of the intersection of Park Avenue and Bay Boulevard at "Dickerson City" and continues south to the southernmost preserve boundary at White Point.

Description: This area is characterized by sparse submerged vegetation with a largely mud and sand substrate. A pristine salt marsh occurs in and adjacent to the area. This area is also bounded by an approximately 2,500 acre parcel of land proposed for purchase under the CARL program by the state. The "wet prairie" located within this acreage supports unique vegetation such as endangered pitcher plants. The

environmental sensitivity of this land reduces the possibility of future development.

Allowable Uses: Private residential docks and piers; utility easements (in designated corridors).

MANAGEMENT AREA SF/2

(single-family/secondary resource protection area)

(there are two designated areas in this category)

Boundaries: The northernmost SF/2 area begins at a point of mean high water at Blackwater Bay 500 feet south of the Eagle Point Monument. From this site, follow the line of mean high water south until reaching a point 4,000 feet south of where an extension of Blackwater Circle meets Blackwater Bay.

Description: The area is characterized by a sandy shoreline with sparse stands of marsh vegetation. Benthic resources include a sand and mud substrate with little submerged vegetation and some infaunal and epifaunal invertebrates of which blue crabs are the most conspicuous. Water depths are somewhat greater than a large extent of the west shore, making the area more easily accessible to boat traffic. Residential development is increasing markedly on the adjacent upland and several docks and seawalls have been constructed near shore.

Allowable Uses: Private residential single docks and piers; utility easements (in designated corridors).

Boundaries: The second SF/2 area is to the south on Garcon Peninsula and begins at a point where an extension of Central Avenue intersects with the mean high water of East Bay. From this point go south to a point of mean high water 500 feet south of the intersection of Park Avenue and Bay Boulevard at Dickerson City.

Description: The shoreline of this area consists of a mixture of sandy beaches, seawalls and some marsh vegetation. Most of the seawalls occur at the small population center known as Dickerson City. These seawalls are in need of repair and there is much rubble in the shallow water. Additionally, 2 pipes transport runoff from Dickerson City and surrounding areas into the preserve. There is little submerged vegetation in this area, and the main benthic resources are infaunal and epifaunal invertebrates.

Allowable Uses: Private residential docks and piers; utility easements (in designated corridors).

MANAGEMENT AREA PR/1

(public recreation/primary resource protection area)

Boundaries: This area is defined as all sovereign submerged lands in and adjacent to Weaver River which borders the property owned by the federal government known as Eglin Air Force Base.

Description: Dense bottomland hardwoods and aquatic vegetation characterize this area.

Allowable Uses: Utility easements (in designated corridors); public docks (a single two-slip dock built in accordance with the standards and criteria for private residential single docks), and boat ramps.

MANAGEMENT AREA OW/1

(open water/primary resource protection area)

Boundaries: This management area is defined as all state-owned submerged lands of Blackwater Bay, which are 500 feet waterward of MHW, within the aquatic preserve.

Description: This area is characterized by relatively shallow, dark waters of normally low salinities with submerged vegetation. Because of only fair to poor circulation in this area, activities which may pollute, increase sedimentation, etc., should be kept minimal. Major uses include recreational and commercial fishing and crabbing.

Allowable Uses: Utility easements (in designated corridors).

MANAGEMENT AREA OW/2

(open water/secondary resource protection area)

Boundaries: This management area is defined as all state-owned submerged lands of East Bay, which are 500 feet waterward of MHW, within the aquatic preserve.

Description: This area is characterized by some shallow waters, but generally deeper than Blackwater Bay. Waters are of low to moderate salinities with fair circulation. Major uses are recreational and commercial fishing and crabbing.

Allowable Uses: Private leases, utility easements (in designated corridors), spoil disposal.

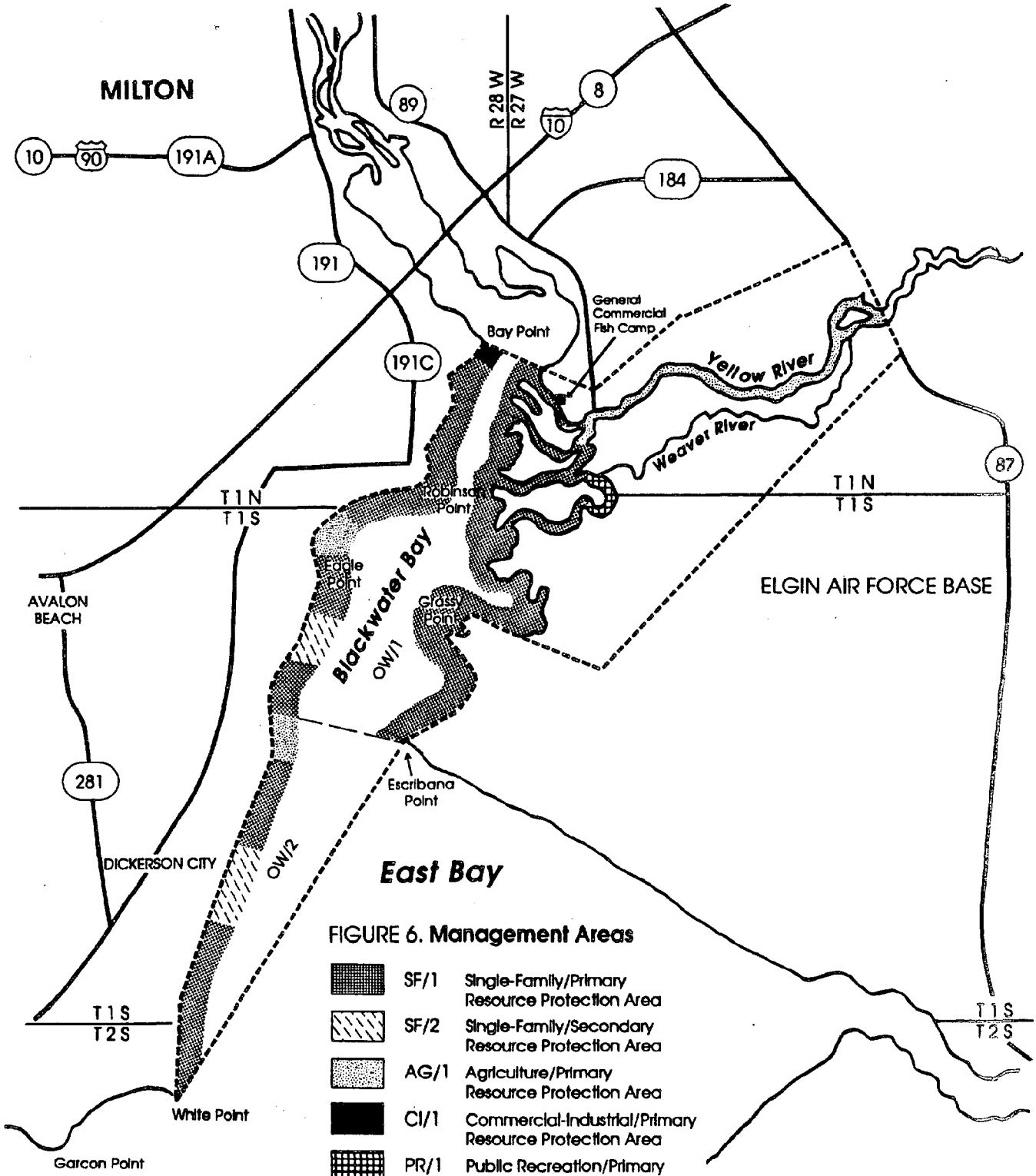

FIGURE 6. **Management Areas**

	SF/1	Single-Family/Primary Resource Protection Area
	SF/2	Single-Family/Secondary Resource Protection Area
	AG/1	Agriculture/Primary Resource Protection Area
	CI/1	Commercial-Industrial/Primary Resource Protection Area
	PR/1	Public Recreation/Primary Resource Protection Area (Eglin Air Force Base land adjacent to Weaver River)
	OW/1	Open Water/Primary Resource Protection Area
	OW/2	Open Water/Secondary Resource Protection Area

CHAPTER V

SITE SPECIFIC MANAGEMENT ISSUES & NEEDS

This chapter deals with management issues and initiatives involving specific activities and environmental processes that directly affect the biological integrity of the preserve. The issues that are specific to this area include, but are not limited to, increasing boat traffic, preservation of forested wetlands, preservation of marshes and wet prairie, and cooperation with Eglin Air Force Base. Management initiatives relative to these issues are intended to provide additional management direction not set forth by Chapter 258, F.S., Chapter 18-20, F.A.C., or Chapter IV of this plan.

Several of the site specific management issues and needs, as identified by public comments, are not within the jurisdiction of the Department of Natural Resources. Because of the importance of these issues to the public, however, the issues have been included in this plan. The aquatic preserve manager shall develop a liaison with the appropriate jurisdictional or enforcement agency in an attempt to encourage a solution to the issues.

1. BOATING ACTIVITY

A large portion of the bay is shallow and presents navigational problems. Additionally, expansive beds of submerged vegetation occur in one to three foot depths. Therefore, increased boating activity carries the potential to adversely impact this resource. Damages from "prop dredging" and "scouring" of submerged grassbeds are a direct threat.

MANAGEMENT INITIATIVES:

(1) Using the latest bathymetric information available, identify areas of greatest boating impact on submerged lands.

(2) Pursue with appropriate authorities the installation of navigational aides to help reduce boating impacts on the submerged resources.

(3) Develop educational programs to better inform the boating public on the critical issue of boating impacts and need to protect benthic vegetative communities.

2. PRESERVATION OF FORESTED WETLAND

The forested wetland along the Yellow River is a virtually unspoiled resource in the preserve. Its benefit to the whole of the preserve was outlined in Chapter III. The ecological integrity of Yellow River Marsh depends greatly on preserving its forested wetland. Although there is presently little disturbance to this forest, potential impacts from adjacent upland activity may increase.

MANAGEMENT INITIATIVES:

(1) Promote through educational programs, appreciation of these forest communities as vital habitat within the preserve, and the state.

(2) Promote and review the use of environmentally sound agricultural and forestry practices in the adjacent rural uplands.

(3) Through the permit application process, recommend design techniques for docking and pier facilities which would minimize the removal of trees and other native vegetation in the riverine forest.

3. PRESERVATION OF MARSH AND WET PRAIRIE

Much like the riverine forest and associated communities, marsh habitat in the preserve is virtually unspoiled. The rural nature and sparse population of the adjacent uplands in the eastern region of the preserve have served to minimize damage to marshes from development. However, marshes on the west coast of Blackwater and East Bay have experienced some loss and damage due to increased development in that area. These marshes in addition to the wet prairie are threatened by further development.

MANAGEMENT INITIATIVES:

(1) Promote through education, the appreciation of marshes as vital nursery areas for aquatic life; and the need for preservation of wet prairies as one of the few remaining habitats for endangered pitcher plants.

(2) Continue to pursue and emphasize as high priority the state's purchase of the wet prairies along Garcon Peninsula through the CARL Program.

(3) Coordinate development reviews with other applicable agencies, such as DER, to ensure that adjacent land uses and water dependent developments (i.e., marinas, etc.), are located and designed to minimize loss of submerged lands and nearshore wetland resources.

4. EGLIN AIR FORCE BASE

Eglin Air Force Base is a major land holder adjacent to the preserve, owning approximately 14 linear miles along the south and east boundary. The area is primarily a pine dominated forest.

MANAGEMENT INITIATIVES:

(1) Develop a cooperative status and close liaison with Eglin Air Force Base environmental management personnel to ensure present and future military uses of their lands adjacent to Yellow River Marsh Aquatic Preserve are consistent with protection of the preserve resources.

(2) Initiate the mutual exchange of resource information regarding military operations, such as low level flights and jet noise that impact the aesthetics and wildlife of the preserve.

5. WATER QUALITY AND SEDIMENT QUALITY

The Yellow River Marsh Aquatic Preserve is part of the Pensacola Bay System, which is a top S.W.I.M. priority in the state. The aquatic preserve is less impacted by human activity than other parts of the bay system. There are, however, no water quality monitoring stations in or even near the preserve. With pressures from development increasing, it is imperative that a water quality monitoring network be implemented as soon as possible.

MANAGEMENT INITIATIVES:

(1) Coordinate with the Northwest Florida Water Management District and Department of Environmental Regulation on the need to increase water quality and sediment quality monitoring within the preserve. Work directly with these agencies and DNR shellfish personnel to expand monitoring of water quality.

(2) Maintain an inventory of point and nonpoint sources of pollution which impact the preserve.

6. REGULATION OF COMMERCIAL FISHING AND NETTING

Local citizens' concerns are growing over the issues of (1) commercial shrimpers dragging nets past the shrimping line established in Blackwater Bay, (2) the use of drag nets and gill nets in the Yellow River, and (3) the impact these activities are having on the natural resources of the area.

MANAGEMENT INITIATIVES:

(1) Coordinate with the Florida Marine Patrol to enforce the shrimping setback line in Blackwater Bay.

(2) Coordinate with the Marine Fisheries Commission to provide input and assistance in the development of new shrimping rules soon to be established.

(3) Coordinate with the Marine Fisheries Commission to establish netting regulations within the aquatic preserve, especially in the Yellow River Aquatic Preserve.

(4) Initiate studies to determine the detrimental effects, if any, that shrimping and netting have on the resources of the preserve.

7. GARCON POINT TO REDFISH POINT BRIDGE

A bridge, just outside the boundaries of the aquatic preserve and immediately adjacent to the Garcon Point proposed CARL purchase, has been proposed to cross East Bay. As is typical of many large bridge development projects, there is strong public support both for and against the project. Citizens have urged the Department of Natural Resources and the aquatic preserve manager to begin immediately to prepare a 'scenario of impact' that this bridge may have on the aquatic preserve and to make this document available to the public.

MANAGEMENT INITIATIVES:

(1) Evaluate the present status of the Garcon Point to Redfish Point bridge and the Santa Rosa County Bridge Authority (a self-appointed group).

(2) Using all available resources, prepare an objective analysis of potential impacts that this proposed bridge may have on the aquatic preserve.

8. **BAJA BOATS**

Baja Boats proposed development project on the Blackwater River, north of the preserve boundary, is presently in "Inactive" file status. The project has not been permitted and the Department of Natural Resources is awaiting the submission of pertinent materials before a review of the project will be conducted. Citizens are concerned over the project because of the potential environmental impact and the unauthorized filling of wetlands which has already occurred in this project area.

MANAGEMENT INITIATIVE:

(1) Continue to monitor the status of the proposed Baja Boats project and submit comments when appropriate on any adverse impacts to the aquatic preserve.

CHAPTER VI

MANAGEMENT ACTION PLAN

The objective of this chapter is to establish guidelines that allow for the management and protection of the aquatic preserve's natural resources for the benefit of future generations (Section 258.35, F.S.).

Before an effective program can be designed to manage and protect natural resources, it is necessary to recognize the type of resources present, their location, function, and importance. Additional efforts should concentrate on identifying those activities or parameters that affect these resources, either positively or negatively. This information will form the foundation from which action will be initiated to manage and protect these resources. The strategies used in managing an aquatic preserve must consist of a variety of components such as **resource management**, **resource protection**, **research**, and **environmental education**.

In general, the management role of the aquatic preserve program includes:

* providing information on ecological functions and their economic importance,

* overseeing activities that affect or could affect the natural resources of preserve,

* ensuring that accurate biological and physical information is considered in permit-related issues and planning decisions,

* ensuring that all statutes and rules regarding the preserve's natural resources are complied with and that violations are enforced by appropriate authorities,

* conducting on-site surveys for specific activities,

* coordinating with other resource management and enforcement agencies,

* educating the public on the inherent values associated with natural resources,

* conducting or cooperating with other entities to conduct pertinent research projects,

* developing a comprehensive management program that can be periodically updated.

A. RESOURCE MANAGEMENT

The overall goals of resource management within aquatic preserves are:

* conducting and maintaining resource inventories,
* assessing the impact of human activities on the resources,
* cooperating with other agencies in water quality improvement,
* participating in local land use decisions that may affect the submerged resources.

GOAL A.1: Conduct and Maintain Resource Inventories

Objective A.1.1: To conduct and maintain a resource inventory of submerged and emergent vegetation.

Task A.1.1.1: Conduct a detailed inventory of submerged and emergent vegetation by using LANDSAT imagery, aerial photography and ground-truthing efforts.

Task A.1.1.2: Conduct inventory once every two years.

Objective A.1.2: To conduct an inventory of animal species, including designated species, and their habitats.

Task A.1.2.1: Conduct an inventory of animal species, with emphasis on designated species and birds, that feed, roost, loaf, breed, or nest in the preserve, as well as their associated habitats by using data from existing literature, current research studies, and groundtruthing efforts.

Task A.1.2.2: Conduct inventory once every two years.

GOAL A.2: Assess the Impact of Human Activities

Objective A.2.1: To inventory and assess the effects of human activities on the natural resources and possible needs for restoration.

Task A.2.1.1: Conduct a survey of all structures and activities in the preserve to determine the extent and relationship between human impact and the degradation of the natural resources.

Task A.2.1.2: Conduct inventory once every two years.

Task A.2.1.3: Monitor patterns and trends of grassbeds distribution in the preserve. Determine areas which have been impacted by boating, fishing, and other human activities.

GOAL A.3: Coordinate With Other Agencies To Improve Water Quality

Objective A.3.1: To coordinate with DER and the Northwest Florida Water Management District on improving water quality in the preserve.

Task A.3.1.1: Actively pursue procurement of basic water quality monitoring supplies for the preserve.

Task A.3.1.2: Maintain an inventory file and assess available water quality data in the preserve. Coordinate with DER and NWFWMD to determine sources of degradation and evaluate possible actions to improve water quality. Offer input and assistance to the Pensacola Bay System S.W.I.M. program.

Task A.3.1.3: Coordinate with the local mosquito control district(s), to review arthropod control plans submitted in compliance with Section 388.4111, F.S., and to monitor arthropod control activities for compliance with the management plan.

Task A.3.1.4: Identify point sources of pollution in the adjacent uplands and assess the cumulative impacts for monitoring and possible remediation through DER and WMD.

GOAL A.4: Restore Estuarine Habitat

Objective A.4.1: Identify suitable unvegetated and disturbed shoreline and submerged areas as restoration sites.

Task 4.1.1: Coordinate with the NWFWMD and Pensacola Bay System Technical Advisory Committee to identify and restore estuarine habitat in the preserve where needed.

GOAL A.5: Participate in Local Land Use Decisions

Objective A.5.1: To coordinate with local planning departments, regional planning councils, and the Department of

Community Affairs to develop/revise/evaluate Local Government Comprehensive Plans and amendments.

Task A.5.1.1: Establish role as a field representative for DNR Aquatic Preserves with local governments. Offer assistance in the development of policies and ordinances that regulate activities affecting state-owned submerged lands.

B. RESOURCE PROTECTION

In order to maintain the biological integrity of the aquatic preserve, it is imperative to protect the resources that comprise the system. The primary thrust of resource protection is the protection and preservation of the various submerged land resources in the preserve. The goals of the Aquatic Preserve Program with regard to resource protection therefore include:

* protection of existing submerged and emergent vegetation through the permit application review process.

* protection of animal species, particularly designated species, and their associated habitats.

GOAL B.1: Protection of Submerged and Emergent Vegetation

Objective B.1.1: To minimize potential damage to vegetation through the review of applications for use of state-owned land in the aquatic preserve.

Task B.1.1.1: Develop a standard format for surveying the biological resources at the project site. The report shall include the following information:

a) location of the area surveyed, including the majority of the potentially affected area.

b) assessment of the submerged bottoms and affected shorelines physical and biological features.

c) the definition of Primary and Secondary Resource Protection Areas will be used to determine if significant resources exist within the expected area of impact.

Task B.1.1.2: Coordinate with appropriate DNR staff in order to process the field comments in a timely manner.

Task B.1.1.3: Coordinate with other appropriate agencies that have regulatory authority for these projects.

Objective B.1.2: To ensure that structures and projects that have been built or are occurring have been authorized and are in compliance with authorized conditions.

Task B.1.2.1: Report activities that do not appear to have been authorized to the appropriate DNR enforcement agent.

Task B.1.2.2: Coordinate with the appropriate DNR staff to receive copies of all letters of consent, easements agreements, lease agreements, and other forms of authorizations.

Task B.1.2.3: Report variations from the authorized conditions to the appropriate DNR enforcement agent.

Task B.1.2.4: Coordinate with other appropriate agencies that have regulatory authority for these projects.

Objective B.1.3: To ensure other human uses of the preserve do not degrade the submerged or emergent vegetation.

Task B.1.3.1: Require that all dredge and fill projects use effective turbidity control practices.

Task B.1.3.2: Assess the impact of shrimp trawling on the submerged vegetation within the preserve.

GOAL B.2: Protection of Animal Species, Particularly Designated Species, and their Associated Habitats

Objective B.2.1: To comply with Objective C.2.1 through the implementation of Tasks C.2.1.1 and C.2.1.2.

Objective B.2.2: To ensure that these habitats are given maximum protection through the permit-review process.

Task B.2.2.1: Recommend modifications to proposed projects in order to take into account known habitat of designated species. Field staff will co-

ordinate with the Florida Game and Fresh Water Fish Commission when designated species habitat or "significant use areas" could be affected by proposed activities.

C. RESEARCH

The effective management of any biological system relies almost entirely on information relating how a system functions. Research is the foundation upon which this information is based.

* to gain a better understanding of those factors which are essential to the continued biological integrity of the major habitats within the aquatic preserve;

* to gain a better understanding of the factors which govern the continued survival and propagation of designated species that use the aquatic preserve for any portion of their life cycle.

GOAL C.1: Integrity of Major Habitats

Objective C.1.1: To determine the primary factors that affect the survival of species associated with marshes and riverine forest habitat.

Task C.1.1.1: Conduct information search by examining existing literature and any current research studies.

Task C.1.1.2: Assess the need for research on the major habitat types within the preserve.

Task C.1.1.3: Pursue, at the bureau level, grant funding to conduct studies in the preserve on the biology and ecology of grassbeds, marsh, and forested wetlands present in the preserve that will benefit the overall management of the resources.

GOAL C.2: Survival and Propagation of Designated Species

Objective C.2.1: To determine which portions of the preserve serve as habitat for designated species.

Task C.2.1.1: Coordinate with the Game and Fresh Water Fish Commission, the U.S. Fish and Wildlife Service, and any other relevant group to

determine which designated species use what portion of the aquatic preserve for various aspects of their life cycle.

Task C.2.1.2: Establish a system of seasonal monitoring sites to determine the use of the preserve by designated species and birds.

D. ENVIRONMENTAL EDUCATION

The integrity of the biological system within the Yellow River Marsh Aquatic Preserve can be affected, both directly and indirectly, by the public's enjoyment of the preserve. Without a biologically "healthy" aquatic system, water quality will deteriorate, fisheries will fail due to loss of habitat, and many species of wading birds will disappear. One of the primary aims of the Aquatic Preserve Program, therefore, is to educate the public as to the importance of the factors that affect the integrity of the preserve. The public may include students; waterfront property owners; visitors and new residents; user groups, such as developers and marine contractors; special interest groups such as Audubon and boating clubs; and local, regional and state government agencies that are involved in making decisions regarding the aquatic preserve.

The overall goal of the environmental education element is to instruct individuals as to the importance of preserving our natural resources so that they may consider all issues prior to making decisions that affect these resources and to educate the public and make them responsible users of the preserve. Two DNR publications, Environmental Education in Florida: Needs and Goals, and A Guide for Environmental Education, are notable references available for the preserve manager to aid in accomplishing this goal.

GOAL D.1: Public Education Toward Wise Resource Use

Objective D.1.1: To establish and conduct environmental educational programs for public and private schools and to provide assistance to other educational centers and organizations.

Task D.1.1.1: Notify the county school board of the Aquatic Preserve Program education efforts and the availability of its staff to assist or provide guidance for educational programs.

Task D.1.1.2: Coordinate with and assist local educational centers and other facilities, (such as

Task D.1.1.2: Coordinate with and assist local educational centers and other facilities, (such as Pensacola Junior College), on their educational programs.

Task D.1.1.3: Provide field trips to the aquatic preserve for interested parties.

Task D.1.1.4: Target educational programs towards audiences that will have the greatest potential impact on aquatic resources (e.g., boating clubs, homeowners associations, developers, etc.).

Task D.1.1.5: Conduct or assist in informal seminars, classes, or workshops for public discussion of the current resource management issues, resource utilization, and regulatory activities. Public forums such as these should involve private and public resource users.

Objective D.1.2: To produce educational literature and materials that inform the public of the preserves natural resources and the importance of preserving and protecting these resources.

Task D.1.2.1: Maintain and expand a specimen collection of species commonly found in the aquatic preserve for use in educational programs.

Task D.1.2.2: Develop slide programs, brochures, pamphlets, and/or booklets that describe to the public both the purpose of and activities conducted by aquatic preserve field staff, and also presents general information on the preserve's ecosystem.

Task D.1.2.3: Develop at the field office a reference library of material relevant to the areas natural resources.

Task D.1.2.4: Submit newspaper articles and radio announcements designed to educate the general public about the ecological functions and economic importance of the natural resources within the preserve. This approach may be the vehicle with which to disseminate the findings of recent research efforts to the public.

Task D.1.3.1: Participate in environmental education conferences and seminars to enhance teaching skills and to become familiar with other educational programs.

Task D.1.3.2: Pursue, at the bureau level, the necessary funds to construct an environmental learning center adjacent to the preserve.

CHAPTER VII

MANAGEMENT COORDINATION NETWORK

This chapter briefly presents a general overview of the various federal, state, regional, and local agencies that regulate or hold any interest in the management or use of the Yellow River Marsh Aquatic Preserve. One of the goals and objectives of the Aquatic Preserve Program is to coordinate with these agencies to achieve common goals relevant to the management and protection of resources in the preserve. Table 7 provides the manager with a quick reference matrix of those agencies with specific jurisdictions in the preserve.

It should be noted that many of the following federal, state, and local agencies with jurisdictions in the preserves may impose additional permit requirements on activities other than those previously outlined in Chapter IV of this plan.

A. FEDERAL AGENCIES

A number of federal agencies have property interests, land and wildlife management programs, research activities, construction activities, and regulation programs that deal either directly or indirectly with aquatic preserves.

In accordance with the federal consistency review process the Bureau of Submerged Lands & Preserves reviews the federal programs and activities as to how they affect the objectives of the Aquatic Preserve Program. This review is coordinated through the Florida Department of Environmental Regulation's Office of Coastal Management in order to enforce the provisions of the Federal Coastal Zone Management Act of 1972, as amended.

The **U.S. Army Corps of Engineers (COE)** has jurisdiction over inland navigable waters under the Rivers and Harbors Act of 1899. A revision of the Rivers and Harbors Act in 1968 extended the Corps jurisdiction allowing them to consider the fish and wildlife, conservation, pollution, aesthetics, ecology and other relevant factors of a project. The Corps regulatory program was expanded in 1972 to include the Federal Water Pollution Control Act Amendments, now known as the Clean Water Act (CWA). Section 404 of this act controls dredge and fill activities by the Corps and has since been extended to wetlands from Amendments to the CWA in 1977.

The **U.S. Coast Guard (USCG)** monitors for boating safety and navigational problems; operates search and rescue missions; conducts surveillance of narcotics contraband; and enforces maritime laws. The USCG also regulates construction of

bridges, causeways, and aerial utilities that may pose navigation hazards. In the inland waters a volunteer group called the Coast Guard Auxiliary performs boating safety inspections and search and rescue missions.

The **U.S. Environmental Protection Agency (EPA)** has jurisdiction over surface waters in the state. Enforcement authority was given under the Clean Water Act of 1972 and broadened under the 1977 revision. In general EPA is responsible for pollution control and abatement, including: air, water, noise, solid waste, toxic waste, and radiation. They review permits issued by DER for the treatment, disposal and storage of hazardous wastes. Authority is divided between EPA and the U.S. Coast Guard in regarding the discharge of oil or hazardous substances into surface water.

The **U.S. Geological Survey (USGS)** performs surveys and research pertaining to topography and water resources, and collects and publishes water resource data.

The **U.S. Fish and Wildlife Service (USFWS)** has responsibility for fish and wildlife as authorized in the Coastal Resources Barrier Act, National Environmental Protection Act, Migratory Bird Act, Endangered Species Act, and Fish and Wildlife Coordination Act. "Under provision of the Fish and Wildlife Coordination Act, the Fish and Wildlife Service must be consulted before the Corps of Engineers can submit a plan for Congressional approval. The USFWS comments on the impacts of proposed projects on endangered species, migratory birds and other fish and wildlife and their habitats" (Barile et al., 1987). They are directed to prepare environmental impacts assessments or statements for proposed projects by the Corps, and are authorized to issue "Jeopardy Opinion" against any proposed project which will negatively effect an endangered species (Barile et al., 1987).

The **National Marine Fisheries Service (NMFS)** under the U.S. Department of Commerce, records commercial fish landings, enforces national fishery laws, and protects vital fishery habitats.

B. STATE AGENCIES

Many state agencies have property interests, land and wildlife management programs, research activities, regulatory authority and construction activities within the preserve. Additionally, DNR administers other programs which may affect the resources and watershed of the preserve.

The **Department of Natural Resources (DNR)** jurisdiction includes state lands, sovereignty submerged lands, and marine resources which include marine research projects.

The Division of Marine Resources has several programs beneficial to aquatic preserves. The Marine Research laboratory in St. Petersburg has several projects including resource protection area mapping, a survey of the status of oyster bars, and fishery habitat utilization studies which generate valuable resource management information. They also administer a permitting program for the collection certain marine species and the use of certain chemicals. The Aquatic Preserve Program receives notification of issuance of permits within the preserve. Marine Resources also conducts a variety of research projects, including those aimed at manatee and marine turtle protection.

The Division of Law Enforcement's Marine Patrol enforces statutes relating to marine resources, fishery management laws, boating safety, vessel titling/registration and illegal narcotics.

The Division of State Lands, is granted authority under Chapters 18-20 and 18-21, F.A.C., "Sovereignty Submerged Land Management" which gives DNR the responsibility to regulate commercial and residential docks and other structures and activities conducted on submerged lands. In addition to the work related to aquatic preserves, the Division of State Lands is charged with overseeing uses, sales, leases, or transfers of all state-owned lands. The aquatic preserve staff interact with other staff of State Lands in all transactions concerning submerged lands within the preserve including acquisition of privately titled submerged lands or contiguous uplands important to the integrity of the preserve. Land acquisition is conducted through the Conservation and Recreation Lands (CARL) program, authorized under Chapter 253, F.S.

The Division of Resource Management is responsible for the management of aquatic plants, mineral resources, oil and gas exploration, and geologic studies. Chapters 369.20 - 369.22, F.S., authorizes the Bureau of Aquatic Plants to regulate various aquatic plant control programs, including permitting for mechanical, biological, and chemical control of aquatic plants. Permits are also necessary under Chapter 16C-52, F.A.C., "Aquatic Plant Importation, Transportation, Cultivation and Possession", for any persons cultivating, vegetating, or collecting aquatic plants. The Division of Resource Management also supervises state Navigation Districts and Canal Authority.

The Division of Beaches and Shores is responsible for managing erosion control, hurricane protection, coastal flood control, shoreline and offshore rehabilitation, and the regulation of work activities likely to affect the physical condition of the beach and shore (Chapter 161, F.S.)

The **Marine Fisheries Commission (MFC)** manages marine life by regulating the harvesting of all marine life except designated species. Their authority covers gear specification, prohibited gear, bag limits, size limits, species that may not be sold, protected species, closed areas, quality control codes, harvesting seasons, special considerations related to egg-bearing females, and oyster and clam relaying. The MFC is required to make annual recommendations to the Governor and Cabinet regarding marine fisheries research priorities, which can in turn directly influence research efforts and priorities at the preserve.

The **Department of Environmental Regulation (DER)** is responsible for regulating air, water, noise, wastewater, stormwater, and hazardous waste pollution through a permitting and certification process. DER also serves as the state contact for the initiation of dredge and fill applications in conjunction with the COE and DNR. The permitting process is a key management tool for the protection of the preserve.

The DER's rules significant to the Aquatic Preserve Program are Chapters 17-301, 17-302, 17-4, and 17-312, F.A.C. Authority for these rules is based in Chapter 403, F.S. Chapter 17-301 and 17-302, F.A.C., addresses water quality standards with the most stringent category being "Outstanding Florida Waters" (OFW). Special protection for OFW's is found in 17.302.700, F.A.C. As an OFW, ambient conditions, instead of prescribed values, become the water quality standards for the waterbody. Yellow River Marsh was designated as an Outstanding Florida Water in 1979. Chapter 17-4, F.A.C. addresses permit requirements, and Chapter 17-312, F.A.C. covers dredge and fill activities.

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 lands shall have prior approval of the Board of Trustees. An interagency agreement between DNR and DER provides for DNR staff comments into the DER permitting process for environmental impacts in aquatic preserves.

The DER's Coastal Zone Management Section is charged with coordinating activities related to coastal management and awards grants for research and management planning. The DER's Intergovernmental Coordination Section reviews federal actions for consistency with the Coastal Zone Program.

The **Department of Health and Rehabilitative Services (DHRS)** has responsibilities to protect the public's health by overseeing functions that involve water supplies, on site sewage disposal, septic tank cleaning, and solid waste control. Authority for these responsibilities are found in Chapter 154, 381, and 386, F.S. and in the 10D Series of

F.A.C., known as the "Sanitary Code". The local county DHRS office (County Health Department), has jurisdiction overseeing these responsibilities.

Also affecting the public's health and the Aquatic Preserve Program is the arthropod (mosquito) control program, which is usually administered through the local mosquito control district. DNR staff are involved in the management programs developed by the Florida Coordinating Council on Mosquito Control, and subsequent policy recommendations resulting from this groups will be evaluated for their potential effects on the aquatic preserve.

The **Florida Game and Fresh Water Fish Commission (FGFWFC)** authority is provided in the rules and regulations of Chapters 39.101 and 39.102, F.A.C. This authority involves the implementation of specific regulations and their enforcement, for all wildlife. The Office of Environmental Services reviews projects which may affect local fish and wildlife habitat. FGFWFC is the state coordinator of the non-game Wildlife and Endangered Species Program in Florida. The Division of Wildlife is also responsible for designating Critical Wildlife Management Areas to protect designated species. They also oversee habitat restoration and fish re-stocking of freshwater rivers and lakes. And, the FGFWFC has law enforcement officers that patrol the aquatic preserves.

The **Department of State (DOS), Division of Historical Resources (DHR)** has the responsibility granted under Chapter 267, F.S., regarding the preservation and management of Florida's archaeological and historical resources. This responsibility includes those cultural resources located on state-owned lands, including aquatic preserves.

The **Department of Transportation (DOT)** has responsibilities that include right of way and surface water run-off in the areas of roads, bridges and causeways. The DOT also updates a state-wide aerial photographic survey every four years, rotating on a district basis.

The **Department of Community Affairs (DCA)** and the Regional Planning Councils (RPC) are authorized under Section 380.06, F.S., for administering the Development of Regional Impact (DRI) program. The DRI process was established to provide a review and monitoring procedure for development projects potentially affecting the health, safety or welfare of citizens of more than one county.

The Department of Community Affairs also oversees the development of Local Government Comprehensive Plans (LGCP) for both counties and municipalities, as required by the Local Government Comprehensive and Land Development Regulation Act, Chapter 163, Part II, F.S. Subsection 163.3202(5), F.S.,

provides that DCA shall adopt rules for the review of local government land development regulations. Local governments are required to adopt land development regulations which are consistent with the adopted local comprehensive plan within one year after submission of the local comprehensive plan for review by the Department pursuant to subsection 163.3167(2), F.S.

The Office of Planning and Budgeting of the Executive Office of the Governor, in conjunction with the DER's Coastal Zone Management Section, is responsible for administering project reviews applicable to Florida's Coastal Management Program Federal Consistency evaluation process. This process includes all projects in the state that involve federal permitting, federal assistance or direct federal activities. Each project must undergo this additional review to determine if the project is consistent with established programs, policies and rules of the state. This includes projects affecting resources in aquatic preserves.

C. REGIONAL AGENCIES

In addition to state and federal agencies, two regional agencies have a major role in the use and management of the preserve: These organizations conduct activities that are on a broader scale than those of the local governments, but on a smaller scale than the state level.

Northwest Florida Water Management District (NWFWMD)

The water management district administers permitting programs for consumptive water use, management and storage of surface water well drilling and operation, and regulation of artificial recharge facilities. This includes withdrawal of water from rivers, streams, and wells. The types of water uses permitted by the NWFWMD which could affect the preserve include irrigation and public water supply. The water management district is also involved in various studies on water supply and management that may be of use. to the preserve. In addition, the NWFWMD is the lead agency in developing and implementing the S.W.I.M. program.

West Florida Regional Planning Council (WFRPC)

The West Florida Regional Planning Council serves as a regional planning body for the local government of Santa Rosa County. Among its duties are aiding local governments with planning expertise; being a regional representative for the DRI review process; serving as a regional clearinghouse for state and federal projects at the state and federal levels; assisting local governments in obtaining grants; and preparing and administering the Regional Policy Plan.

The DRI review of projects which affect the preserve will be reviewed by both the central office staff and field personnel. DRI's for marinas or subdivisions adjacent to the preserve, and commercial or industrial developments will be reviewed closely for their potential impact on the preserve.

D. LOCAL GOVERNMENTS/INTEREST GROUPS

Local governments are the incorporated cities and counties that border the preserve. The entire Yellow River Marsh Aquatic Preserve is bounded by Santa Rosa County. Although not adjacent to the preserve, the incorporated municipality of Milton lies approximately 8 miles north of the preserve boundary and the unincorporated population center of Bagdad is situated about 4 miles north of the preserve.

Field personnel are the liaison with local governments, and they will provide input into local government policies and practices to encourage conformance with the objectives of the aquatic preserve management plan.

Private Interest Groups and Public

Effective management of the preserve will be enhanced by continued support from organized groups, associations, and individuals. Citizen support organizations are particularly valuable through the provision of technical, non-technical, and financial assistance. The administrative and field staff will actively encourage participation from citizen support organizations at this aquatic preserve.

The relationship of non-governmental entities to the preserve will include the coordination of activities such as scientific research, environmental education, and other activities relating to the protection, management or improved understanding of the preserve. Field staff will be active in communicating with the above groups.

TABLE 7: MANAGEMENT COORDINATION NETWORK

LOCAL AGENCIES

- LGT Local Governments (Cities, Towns, Municipalities)
- CGT County Governments
- LDD Local Drainage Districts
- MCD Mosquito Control Districts
- ICD Inlet Commissions/Districts
- SWC Soil and Water Conservation Districts

STATE AGENCIES

- DCA Florida Department of Community Affairs
- DER Florida Department of Environmental Regulation
- DNR Florida Department of Natural Resources
- GFC Florida Game and Freshwater Fish Commission
- HRS Florida Department of Health and Rehabilitative Services
- DOS Florida Department of State
- DOT Florida Department of Transportation
- FMP Florida Marine Patrol
- FSG Florida Sea Grant
- MFC Marine Fisheries Commission
- DAC Florida Department of Agriculture and Consumer Services

REGIONAL AGENCIES

- RPC Regional Planning Council
- WMD Water Management Districts
- FIN Florida Inland Navigation District

FEDERAL AGENCIES

- CG United States Coast Guard
- COE United States Army Corps of Engineers
- EPA United States Environmental Protection Agency
- FWS United States Fish and Wildlife Service
- NMF National Marine Fisheries Service
- GS United States Geological Survey

Source: modified from the Indian River Lagoon Joint Reconnaissance Report, 1987

	Local						Regional			State											Federal					
	LGT	CGT	LDD	MCD	ICD	SWC	RPC	WMD	FIN	DAC	DCA	DER	DNR	GFC	HRS	DOS	DOT	FMP	FSG	MFC	CG	COE	EPA	FWS	NMF	GS
Dredge and Fill Permitting	●	●						●	●			●	●	●						●	●	●	●	●		●
Docks, Fishing Piers, Seawalls	●	●										●	●									●				
Marinas	●	●					●				●	●	●							●		●		●		
Submerged Lands Management									●				●													
Habitat Protection	●	●					●	●			●	●	●	●				●		●		●		●	●	
Mangroves/Wetlands Protection	●	●					●	●			●	●	●	●								●		●		
Seagrass Protection	●	●					●	●			●	●	●									●		●	●	
Habitat Restoration		●						●			●	●	●	●			●					●		●		
Mangroves/Wetlands Restoration		●		●				●			●	●	●									●		●		
Seagrass Restoration								●			●	●	●									●		●		●
Resource Inventory							●	●	●		●	●	●	●					●	●				●	●	
Manatees/Porpoises	●	●					●				●		●											●	●	
Endangered Species	●	●					●				●		●	●			●	●	●	●	●			●	●	●
Shellfish/Aquaculture		●		●						●		●	●													
Public Awareness/Education		●						●	●		●	●	●	●				●	●	●	●	●	●	●	●	
Research				●				●				●	●	●					●						●	
Fisheries Research				●							●		●	●					●	●				●	●	
Fisheries Management				●							●		●						●	●				●	●	
Recreational Fishing											●		●	●				●	●	●				●	●	
Commercial Fishing											●		●					●	●	●				●	●	
Wildlife Management								●			●			●				●		●		●		●	●	
Mosquito Impoundments		●		●							●		●									●				
Historical/Archeological Sites	●	●					●				●		●			●										
Water Quality	●	●		●		●	●	●			●	●	●		●			●					●	●		
Nonpoint Source Pollution	●	●				●	●	●			●	●	●		●		●					●	●	●		
Point Source Pollution	●	●					●	●			●	●	●		●							●	●	●		
Oil/Chemical Spills		●					●	●			●	●	●					●			●	●	●	●		
Drainage/Freshwater Control	●	●	●			●	●	●			●	●	●									●		●		
Emergency Response	●	●					●				●	●	●	●				●								
Upland Development	●	●					●	●			●															
Land Use Planning	●	●					●				●															
Navigational/Boating	●	●			●		●		●				●	●	●			●	●		●	●		●		
Recreational Areas	●	●					●		●				●					●	●			●		●		●
Bridges and Roads		●					●	●			●	●	●				●				●	●				●

CHAPTER VIII

STAFFING AND FISCAL NEEDS

Historically, the Aquatic Preserve Program has been largely dependent on federal coastal zone grant funds for the development of management plans, with very little of this funding allocated towards staffing. Consequently, the number of both field positions and central office positions have been limited.

In order for the Yellow River Marsh Aquatic Preserve to be managed in accordance to the goals, objectives and tasks, set forth in this plan, adequate funding, staffing and equipment are essential. Currently, one employee has been assigned to manage Yellow River Marsh Aquatic Preserve, in addition to managing three other Northwest Florida aquatic preserves. There is no legislative funding for a permanent on-site manager at the preserve. Instead, management is conducted on a part-time basis by the aquatic preserve manager located in the Pensacola field office.

It is anticipated that one field office with at least two full time employees would be able to provide adequate staffing to cover these four preserves. Recently, one Environmental Specialist II position has been assigned to the Northwest Florida field office to manage these preserves. An annual review of the accomplishments of the program relative to the tasks listed in Chapter VI will help to determine if the initial staffing estimate is adequate to meet the legislative intent of the program.

A budget covering projected staff time, equipment, travel and other expenses for this area, which would include Yellow River Marsh Aquatic Preserve, is found in Table 8. The budget is required to fulfill the short range needs of the preserve as described in this management plan, and accomplish the Department goal of on-site management for all aquatic preserve by 1991, as expressed in the Agency Functional Plan.

TABLE 8

ANTICIPATED BUDGET FOR YELLOW RIVER MARSH AND OTHER LOCALLY ASSOCIATED AQUATIC PRESERVES

SALARY	1ST YEAR	2ND YEAR
* ES II (with benefits)	$ 33,836	$ 34,851
ES I (with benefits)	28,224	29,071
Secretary (with benefits)	17,255	17,773
Subtotal	$ 79,315	$ 81,695
OPERATING CAPITAL OUTLAY		
Vehicle	$ 15,000	
17' Boat/Motor/Trailer	15,000	
Office Equipment	10,000	
Computer	5,000	
Sampling Gear/Supplies	3,000	
Subtotal	$ 48,000	
OPERATING EXPENSES		
Office Rent/Gas/Phone	$ 19,000	$ 21,000
TOTAL COST	**$ 146,315**	**$ 102,695**

* This position has recently been filled.

CHAPTER IX

RESOURCE AND PROGRESS MONITORING PROGRAM

To ensure that this management plan is effectively implemented, it will be necessary to institute two programs that will: (1) monitor changes in the biological resources over time, and (2) record any accomplishments achieved by the Yellow River Marsh Aquatic preserve office. These monitoring programs will consist of the following:

A. RESOURCE MONITORING

To monitor changes in the natural resources of the Yellow River Marsh Aquatic Preserve, a geographic information system (GIS) will be necessary. A GIS is a computer-based system that is used to capture, edit, display, and analyze geographic information. The first GIS programs were developed about 20 years ago to manage large collections of natural resources and environmental information. Since their development, they have been used in other areas such as utilities mapping, inventory management, and land use planning; however, their most important function continues to be natural resource management.

Future use of the GIS system will include the periodic inventory, compilation, and analysis of temporal and spatial data concerning the present state of the natural resources within the preserve. Historical aerial photography will be computerized for comparison with later data to conduct a temporal analysis of resource abundance. Detailed monitoring of revegetation/restoration efforts can also be computer analyzed. The online access to these natural resource databases will facilitate informed management decisions concerning the use and protection of submerged lands and their resources. Cooperation and file sharing is possible with other agencies handling such data with identical and similar systems.

B. PROGRESS MONITORING

For this management plan to be effectively implemented, it is necessary to monitor the accomplishments and progress on a regular basis. The field staff will be required to submit an annual report to the Bureau Chief detailing the following:

1. The state of the natural environment of the aquatic preserve.

a. Through the use of the resource inventories and a GIS system, when available, document the condition of each resource (e.g., vegetative loss or gain).

b. Present the number of structures/activities started or completed, breaking them down into:
   1) authorized projects (e.g., single-family, multi-family docks, marinas, seawalls, dredging, filling, etc.),
   2) unauthorized projects, or
   3) authorized projects started or completed that were developed in noncompliance with the original authorization.

2. What has been done toward accomplishing the tasks listed in Chapter VI.

   a. Each task will be listed, and status of accomplishing that task will be detailed. If the task has not been achieved, an explanation will be given. If the explanation was due to insufficient funding/staff, then this fact will be detailed so that an update of Chapter VIII can be made.

3. New goals and/or objectives, as needed, will be reflected in an annual update of Chapter VI.

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CHAPTER 18-20
FLORIDA AQUATIC PRESERVES

Library References: Riparian rights to navigable waters. I. Henry Dean, 55 Fla. Bar J. 247, 250 (Mar., 1981).

18-20.001 Intent.

(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 73-534, Laws of Florida, Sections 258.39, 258.391, 258.392 and 258.393, Florida Statutes, future aquatic preserves established pursuant to general or special acts of the legislature, and in Rule 18-20.002, Florida Administrative Code, 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) To 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 agencies to aid in carrying out the intent of the Legislature in creating 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, and 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 preserves;

(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 non-game 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.

(4) Nothing in these rules shall serve to eliminate or alter the requirements or authority of other governmental agencies, including counties and municipalities, to protect or enhance the preserves provided that such requirements or authority are not inconsistent with the act and this chapter.

Specific Authority 120.53, 258.43(1) FS. Law Implemented 258.35, 258.36, 258.37, 258.39, 258.393 FS. Chapter 80-280 Laws of Florida. History—New 2-23-81, Amended 8-7-85, Formerly 16Q-20.01, Transferred from 16Q-20.001.

18-20.002 Boundaries and Scope of the Preserves.

(1) These rules shall only apply to those sovereignty lands within a preserve, title to which is vested in the board, and those other lands for which the board has an appropriate instrument in writing, executed by the owner, authorizing the inclusion of specific lands in an aquatic preserve pursuant to Section 2(2) of Chapter 73-534, Laws of Florida, Sections 258.40(1) and 258.41(5), Florida Statutes, future aquatic preserves established through general or special acts of the legislature, and pursuant to Rule 18-20.008, Florida Administrative Code. Any publicly owned and maintained navigation channel authorized by the United States Congress, or other public works project authorized by the United States Congress, designed to improve or maintain commerce and navigation shall be deemed to be excluded from the

provisions of this chapter, pursuant to Subsection 258.40(2), Florida Statutes. Furthermore, all lands lost by avulsion or by artificially induced erosion shall be deemed excluded from the provisions of this chapter pursuant to Subsection 258.40(3), Florida Statutes.

(2) These rules do not apply to Boca Ciega Bay, Pinellas County or Biscayne Bay Aquatic Preserves.

(3) These rules are promulgated to clarify the responsibilities of the board in carrying out its land management functions as those functions apply within the preserves. Implementation and responsibility for environmental permitting of activities and water quality protection within the preserves are vested in the Department of Environmental Regulation. Since these rules are considered cumulative with other rules, a person planning an activity within the preserves should also consult the other applicable department rules (Chapter 18-21, Florida Administrative Code, for example) as well as the rules of the Department of Environmental Regulation.

(4) These rules shall not affect previous actions of the board concerning the issuance of any easement or lease; or any disclaimer concerning sovereignty lands.

(5) The intent and specific provisions expressed in 18-20.001(e) and (f) apply generally to all existing or future aquatic preserves within the scope of this chapter. Upon completion of a resource inventory and approval of a management plan for a preserve, pursuant to 18-20.013, the type designation and the resource sought to be preserved may be readdressed by the Board.

(6) For the purpose of clarification and interpretation, the legal description set forth as follows do not include any land which is expressly recognized as privately owned upland in a pre-existing recorded mean high water line settlement agreement between the board and a private owner or owners. Provided, however, in those instances wherein a settlement agreement was executed subsequent to the passage of the Florida Coastal Mapping Act, the determination of the mean high water line shall be in accordance with the provisions of such act.

(7) Persons interested in obtaining details of particular preserves should contact the Bureau of State Lands Management, Department of Natural Resources, 3900 Commonwealth Blvd., Tallahassee, FL 32303 (telephone 904-488-2297).

(a) The preserves are described as follows:

1. Fort Clinch State Park Aquatic Preserve, as described in the Official Records of Nassau County in Book 108, pages 343-346, and in Book 111, page 409.

2. Nassau River — St. Johns River Marshes Aquatic Preserve, as described in the Official Records of Duval County in Volume 3183, pages 547-552, and in the Official Records of Nassau County in Book 108, pages 232-237.

3. Pellicer Creek Aquatic Preserve, as described in the Official Records of St. Johns County in Book 181, pages 363-366, and in the Official Records of Flagler County in Book 33, pages 131-134.

4. Tomoka Marsh Aquatic Preserve, as described in the Official Records of Flagler County in Book 33, pages 135-138, and in the Official Records of Volusia County in Book 1244, pages 615-618.

5. Wekiva River Aquatic Preserve, as described in Section 258.39(30), F.S.

6. Mosquito Lagoon Aquatic Preserve, as described in the Official Records of Volusia County in Book 1244, pages 619-623, and in the Official Records of Brevard County in Book 1143, pages 190-194.

7. Banana River Aquatic Preserve, as described in the Official Records of Brevard County in Book 1143, pages 195-198, less those lands dedicated to the U. S. A. prior to the enactment of the act, until such time as the U. S. A. no longer wishes to maintain such lands for the purpose for which they were dedicated, at which time such lands would revert to the board, and be managed as part of the preserve.

8. Indian River — Malabar to Sebastian Aquatic Preserve, as described in the Official Records of Brevard County in Book 1143, pages 199-202, and in the Official Records of Indian River County in Book 368, pages 5-8.

9. Indian River — Vero Beach to Fort Pierce Aquatic Preserve, as described in the Official Records of Indian River County in Book 368, pages 9-12, and in the Official Records of St. Lucie County in Book 187, pages 1083-1086.

10. Jensen Beach to Jupiter Inlet Aquatic Preserve, as described in the Official Records of St. Lucie County in Book 218, pages 2865-2869.

11. North Fork, St. Lucie Aquatic Preserve, as described in the Official Records of Martin County in Book 337, pages 2159-2162, and in the Official Records of St. Lucie County in Book 201, pages 1676-1679.

12. Loxahatchee River — Lake Worth Creek Aquatic Preserve, as described in the Official Records of Martin County in Book 320, pages 193-196, and in the Official Records of Palm Beach County in Volume 1860, pages 806-809.

13. Biscayne Bay — Cape Florida to Monroe County Line Aquatic Preserve, as described in the Official Records of Dade County in Book 7055, pages 852-856, less, however, those lands and waters as described in Section 258.165, F. S., (Biscayne Bay Aquatic Preserve Act of 1974), and those lands and waters within the Biscayne National Park.

14. Lignumvitae Key Aquatic Preserve, as described in the Official Records of Monroe County in Book 502, pages 139-142.

15. Coupon Bight Aquatic Preserve, as described in the Official Records of Monroe County in Book 502, pages 143-146.

16. Cape Romano — Ten Thousand Islands Aquatic Preserve, as described in the Official Records of Collier County in Book 381, pages 298-301.

17. Rookery Bay Aquatic Preserve, as described in Section 258.39(31), FS.

18. Estero Bay Aquatic Preserve as described in Section 258.39(28), Florida Statutes.

19. Pine Island Sound Aquatic Preserve, as described in the Official Records of Lee County in Book 648, pages 732-736.

20. Matlacha Pass Aquatic Preserve, as described in the Official Records of Lee County in Book 800, pages 725-728.

21. Gasparilla Sound — Charlotte Harbor Aquatic Preserve, as described in Section 258.392, F.S.

22. Cape Haze Aquatic Preserve, as described in Section 258.39(29), F.S.

23. Cockroach Bay Aquatic Preserve, as described in Section 258.391, F.S.

24. St. Martins Marsh Aquatic Preserve, as described in the Official Records of Citrus County in Book 276, pages 238-241.

25. Alligator Harbor Aquatic Preserve, as described in the Official Records of Franklin County in Volume 98, pages 82-85.

26. Apalachicola Bay Aquatic Preserve, as described in the Official Records of Gulf County in Book 46, pages 77-81, and in the Official Records of Franklin County in Volume 98, pages 102-106.

27. St. Joseph Bay Aquatic Preserve, as described in the Official Records of Gulf County in Book 46, pages 73-76.

28. St. Andrews State Park Aquatic Preserve, as described in the Official Records of Bay County in Book 379, pages 547-550.

29. Rocky Bayou State Park Aquatic Preserve, as described in the Official Records of Okaloosa County in Book 593, pages 742-745.

30. Yellow River Marsh Aquatic Preserve, as described in the Official Records of Santa Rosa County in Book 206, pages 568-571.

31. Fort Pickens State Park Aquatic Preserve, as described in the Official Records of Santa Rosa County in Book 220, pages 60-63, in the Official Records of Escambia County in Book 518, pages 659-662, less the lands dedicated to the U. S. A. for the establishment of the Gulf Islands National Seashore prior to the enactment of the act, until such time as the U. S. A. no longer wishes to maintain such lands for the purpose for which they were dedicated, at which time such lands would revert to the board and be managed as part of the preserve.

32. For the purpose of this section the boundaries of the Lake Jackson Aquatic Preserve, shall be the body of water in Leon County known as Lake Jackson in Sections 1, 2, 3, 5, 10, 11 and 14, Township 1 North, Range 1 West and Sections 11, 12, 13, 14, 15, 21, 22, 23, 26, 27, 28, 29, 32, 33, 34, and 35, Township 2 North, Range 1 West lying below the ordinary high water line. Such lands shall include the submerged bottom lands and the water column upon such lands, as well as all publicly owned islands, within the boundaries of the preserve. Any privately held upland within the boundaries of the preserve shall be deemed to be excluded therefrom; provided that the Board may negotiate an arrangement with any such private upland owner by which such land may be included in the preserve.

33. Terra Ceia Aquatic Preserve, as described in Section 258.393, Florida Statutes.

34. Future aquatic preserves established pursuant to general or special acts of the legislature.

Specific Authority 120.53, 258.43(1) FS. Law Implemented 258.39, 258.391, 258.392, 258.393, 258.40, 258.41, 258.42, 258.43, 258.44, 258.45 FS. History—New 2-23-81, Amended 8-7-85, Formerly 16Q-20.02, Transferred from 16Q-20.002.

18-20.003 Definitions. When used in these rules, the following words shall have the indicated meaning unless the context clearly indicates otherwise:

(1) "Act" means the provisions of Section 258.35 through 258.46, F.S., the Florida Aquatic Preserve Act.

(2) "Activity" means any project and such other human action within the preserve requiring board approval for the use, sale, lease or transfer of interest in sovereignty lands or materials, or which may require a license from the Department of Environmental Regulation.

(3) "Aesthetic values" means scenic characteristics or amenities of the preserve in its essentially natural state or condition, and the maintenance thereof.

(4) "Applicant" means any person making application for a permit, license, conveyance of an interest in state owned lands or any other necessary form of governmental approval in order to perform an activity within the preserve.

(5) "Beneficial biological functions" means interactions between flora, fauna and physical or chemical attributes of the environment, which provide benefits that accrue to the public at large, including, but not limited to: nutrient, pesticide and heavy metal uptake; sediment retention; nutrient conversion to biomass; nutrient recycling and oxygenation.

(6) "Beneficial hydrological functions" means interactions between flora, fauna and physical geological or geographical attributes of the environment, which provide benefits that accrue to the public at large, including, but not limited to: retardation of storm water flow; storm water retention; and water storage, and periodical release;

(7) "Biological values" means the preservation and promotion of indigenous life forms and habitats including, but not limited to: sponges, soft corals, hard corals, submerged grasses, mangroves, saltwater marshes, fresh water marshes, mud flats, marine, estuarine, and aquatic reptiles, games and non-games fish species, marine, estuarine, and aquatic mammals, marine, estuarine, and aquatic invertebrates, birds and shellfish.

(8) "Board" means the Governor and Cabinet sitting as the Board of Trustees of the Internal Improvement Trust Fund.

(9) "Channel" means a trench, the bottom of which is normally covered entirely by water, with the upper edges of its sides normally below water.

(10) "Commercial, industrial and other revenue generating/income related docks" means docking facilities for an activity which produces income, through rental or any other means, or which serves as an accessory facility to other rental, commercial or industrial operations. It shall include, but not be limited to docking for: marinas, restaurants, hotels, motels, commercial fishing, shipping, boat or ship construction, repair, and sales.

(11) "Department" means the State of Florida Department of Natural Resources, as administrator for the board.

(12) "Division" means the Division of State Lands, which performs all staff duties and functions related to the administration of lands title to which is, or will be, vested in the board, pursuant to section 253.002, F.S.

(13) "Dock" means a fixed or floating structure, including moorings, used for the purpose of berthing buoyant vessels either temporarily or indefinitely.

(14) "Essentially natural condition" means those functions which support the continued existence or encourage the restoration of the diverse population of indigenous life forms and habitats to the extent they existed prior to the significant development adjacent to and within the preserve.

(15) "Extreme hardship" means a significant burden, unique to the applicant and not shared by property owners in the area. Self-imposed circumstances caused to any degree by actions of any person subsequent to the enactment of the Act shall not be construed as an extreme hardship. Extreme hardship under this act shall not be construed to include any hardship which arises in whole or in part from the effect of other federal, state or local laws, ordinances, rules or regulations. The term may be inherent in public projects which are shown to be a public necessity.

(16) "Fill" means materials from any source, deposited by any means onto sovereignty lands, either for the purpose of creating new uplands or for any other purpose, including spoiling of dredged materials. For the purpose of this rule, the placement of pilings or riprap shall not be considered to be filling.

(17) "Lease" means a conveyance of interest in lands, title to which is vested in the board, granted in accordance with specific terms set forth in writing.

(18) "Marina" means a small craft harbor complex used primarily for recreation.

(19) "Oil and gas transportation facilities" means those structures necessary for the movement of oil and gas from the production site to the consumer.

(20) "Person" means individuals, minors, partnerships, corporations, joint ventures, estates, trusts, syndicates, fiduciaries, firms, and all other associations and combinations, whether public or private, including governmental entities.

(21) "Pier" means a structure in, on, or over sovereignty lands, which is used by the public primarily for fishing, swimming, or viewing the preserve. A pier shall not include a dock.

(22) "Preserve" means any and all of those areas which are exceptional areas of sovereignty lands and the associated water body so designated in Section 258.39, 258.391, and 258.392, F.S., including all sovereignty lands, title to which is vested in the board, and such other lands as the board may acquire or approve for inclusion, and the water column over such lands, which have been set aside to be maintained in an essentially natural or existing condition of indigenous flora and fauna and their supporting habitat and the natural scenic qualities and amenities thereof.

(23) "Private residential single dock" means a dock which is used for private, recreational or leisure purposes for a single family residence, cottage or other such single dwelling unit and which is designed to moor no more than two boats.

(24) "Private residential multi-slip dock" means a docking facility which is used for private recreational or leisure purposes for multi-unit residential dwellings which shall include but is not limited to condominiums, townhouses, subdivisions and other such dwellings or residential areas and which is designed to moor three or more boats. Yacht clubs associated with residential developments, whose memberships or utilization of the docking facility requires some real property interest in the residential area, shall also be included.

(25) "Public interest" means demonstrable environmental, social, and economic benefits which would accrue to the public at large as a result of a proposed action, and which would clearly exceed all demonstrable environmental, social, and economic costs of the proposed action. In determining the public interest in a request for use, sale, lease, or transfer of interest in sovereignty lands or severance of materials from sovereignty lands, the board shall consider the ultimate project and purpose to be served by said use, sale, lease, or transfer of lands or materials.

(26) "Public navigation project" means a project primarily for the purpose of navigation which is authorized and funded by the United States Congress or by port authorities as defined by Section 315.02(2), F.S.

(27) "Public necessity" means the works or improvements required for the protection of the health and safety of the public, consistent with the Act and these rules, for which no other reasonable alternative exists.

(28) "Public utilities" means those services, provided by persons regulated by the Public Service Commission, or which are provided by rural cooperatives, municipalities, or other governmental agencies, including electricity, telephone, public water and wastewater services, and structures necessary for the provision of these services.

(29) "Quality of the preserve" means the degree of the biological, aesthetic and scientific values of the preserve necessary for present and future enjoyment of it in an essentially natural condition.

(30) "Resource management agreement" means a contractual agreement between the board and one

or more parties which does not create an interest in real property but merely authorizes conduct of certain management activities on lands held by the board.

(31) "Resource Protection Area (RPA) 1" — Areas within the aquatic preserves which have resources of the highest quality and condition for that area. These resources may include, but are not limited to corals; marine grassbeds; mangrove swamps; salt-water marsh; oyster bars; archaeological and historical sites; endangered or threatened species habitat; and, colonial water bird nesting sites.

(32) "Resource Protection Area 2" — Areas within the aquatic preserves which are in transition with either declining resource protection area 1 resources or new pioneering resources within resource protection area 3.

(33) "Resource Protection Area 3" — Areas within the aquatic preserve that are characterized by the absence of any significant natural resource attributes.

(34) "Riparian rights" means those rights incident to lands bordering upon navigable waters, as recognized by the courts of this state and common law.

(35) "Sale" means a conveyance of interest in lands, by the board, for consideration.

(36) "Scientific values" means the preservation and promotion of certain qualities or features which have scientific significance.

(37) "Shore protection structure" means a type of coastal construction designed to minimize the rate of erosion. Coastal construction includes any work or activity which is likely to have a material physical effect on existing coastal conditions or natural shore processes.

(38) "Sovereignty lands" means those lands including, but not limited to: tidal lands, islands, sandbars, shallow banks, and lands waterward of the ordinary or mean highwater line, to which the State of Florida acquired title on March 3, 1845, by virtue of statehood, and of which it has not since divested its title interest. For the purposes of this rule sovereignty lands shall include all submerged lands within the boundaries of the preserve, title to which is held by the board.

(39) "Spoil" means materials dredged from sovereignty lands which are redeposited or discarded by any means, onto either sovereignty lands or uplands.

(40) "Transfer" means the act of the board by which any interest in lands, including easements, other than sale or lease, is conveyed.

(41) "Utility of the preserve" means fitness of the preserve for the present and future enjoyment of its biological, aesthetic and scientific values, in an essentially natural condition.

(42) "Water dependent activity" means an activity which can only be conducted on, in, over, or adjacent to, water areas because the activity requires direct access to the water body or sovereignty lands for transportation, recreation, energy production or transmission, or source of water and where the use of the water or sovereignty lands is an integral part of the activity.

Specific Authority 258.43(1) FS. Law Implemented 258.37, 258.43(1) FS. History—New 2-25-81, Amended 8-7-85, Formerly 16Q-20.03, Transferred from 16Q-20.003.

18-20.004 Management Policies, Standards and Criteria. The following management policies, standards and criteria are supplemental to Chapter 18-21, Florida Administrative Code (Sovereignty Submerged Lands Management) and shall be utilized in determining whether to approve, approve with conditions or modifications or deny all requests for activities on sovereignty lands in aquatic preserves.

(1) GENERAL PROPRIETARY

(a) In determining whether to approve or deny any request the Board will evaluate each on a case-by-case basis and weigh any factors relevant under Chapter 253 and/or 258, Florida Statutes. The Board, acting as Trustees for all state-owned lands, reserves the right to approve, modify or reject any proposal.

(b) There shall be no further sale, lease or transfer of sovereignty lands except when such sale, lease or transfer is in the public interest (see Section 18-20.004(2) Public Interest Assessment Criteria).

(c) There shall be no construction of seawalls waterward of the mean or ordinary high water line, or filling waterward of the mean or ordinary high water line except in the case of public road and bridge projects where no reasonable alternative exists.

(d) There shall, in no case, be any dredging waterward of the mean or ordinary high water line for the sole or primary purpose of providing fill for any area landward of the mean or ordinary high water line.

(e) A lease, easement or consent of use may be authorized only for the following activities:

1. a public navigation project;

2. maintenance of an existing navigational channel;

3. installation or maintenance of approved navigational aids;

4. creation or maintenance of a commercial/industrial dock, pier or a marina;

5. creation or maintenance of private docks for reasonable ingress and egress of riparian owners;

6. minimum dredging for navigation channels attendant to docking facilities;

7. creation or maintenance of a shore protection structure;

8. installation or maintenance of oil and gas transportation facilities;

9. creation, maintenance, replacement or expansion of facilities required for the provision of public utilities; and

10. other activities which are a public necessity or which are necessary to enhance the quality or utility of the preserve and which are consistent with the act and this chapter.

(f) For activities listed in paragraphs 18-20.004(1)(e)1.—10. above, the activity shall be

designed so that the structure or structures to be built in, on or over sovereignty lands are limited to structures necessary to conduct water dependent activities.

(g) For activities listed in paragraphs 18-20.004(1)(e)7., 8., 9. and 10. above, it must be demonstrated that no other reasonable alternative exists which would allow the proposed activity to be constructed or undertaken outside the preserve.

(h) The use of state-owned lands for the purpose of providing private or public road access to islands where such access did not previously exist shall be prohibited. The use of state-owned lands for the purpose of providing private or public water supply to islands where such water supply did not previously exist shall be prohibited.

(i) Except for public navigation projects and maintenance dredging for existing channels and basins, any areas dredged to improve or create navigational access shall be incorporated into the preempted area of any required lease or be subject to the payment of a negotiated private easement fee.

(j) Private residential multi-slip docking facilities shall require a lease.

(k) Aquaculture and beach renourishment activities which comply with the standards of this rule chapter and Chapter 18-21, Florida Administrative Code, may be approved by the board, but only subsequent to a formal finding of compatibility with the purposes of Chapter 258, Florida Statutes, and this rule chapter.

(l) Other uses of the preserve, or human activity within the preserve, although not originally contemplated, may be approved by the board, but only subsequent to a formal finding of compatibility with the purposes of Chapter 258, Florida Statutes, and this rule chapter.

(2) PUBLIC INTEREST ASSESSMENT CRITERIA

In evaluating requests for the sale, lease or transfer of interest, a balancing test will be utilized to determine whether the social, economic and/or environmental benefits clearly exceed the costs.

(a) GENERAL BENEFIT/COST CRITERIA:

1. any benefits that are balanced against the costs of a particular project shall be related to the affected aquatic preserve;

2. in evaluating the benefits and costs of each request, specific consideration and weight shall be given to the quality and nature of the specific aquatic preserve. Projects in the less developed, more pristine aquatic preserves such as Apalachicola Bay shall be subject to a higher standard than the more developed urban aquatic preserves such as Boca Ciega Bay; and,

3. for projects in aquatic preserves with adopted management plans, consistency with the management plan will be weighed heavily when determining whether the project is in the public interest.

(b) BENEFIT CATEGORIES:

1. public access (public boat ramps, boatslips, etc.);

2. provide boating and marina services (repair, pumpout, etc.);

3 improve and enhance public health, safety, welfare, and law enforcement;

4. improved public land management;

5. improve and enhance public navigation;

6. improve and enhance water quality;

7. enhancement/restoration of natural habitat and functions; and

8. improve/protect endangered/threatened/unique species.

(c) COSTS:

1. reduced/degraded water quality;

2. reduced/degraded natural habitat and function;

3. destruction, harm or harassment of endangered or threatened species and habitat;

4. preemption of public use;

5. increasing navigational hazards and congestion;

6. reduced/degraded aesthetics; and

7. adverse cumulative impacts.

(d) EXAMPLES OF SPECIFIC BENEFITS:

1. donation of land, conservation easements, restrictive covenants or other title interests in or contiguous to the aquatic preserve which will protect or enhance the aquatic preserve;

2. providing access or facilities for public land management activities;

3. providing public access easements and/or facilities, such as beach access, boat ramps, etc.;

4. restoration/enhancement of altered habitat or natural functions, such as conversion of vertical bulkheads to riprap and/or vegetation for shoreline stabilization or re-establishment of shoreline or submerged vegetation;

5. improving fishery habitat through the establishment of artificial reefs or other such projects, where appropriate;

6. providing sewage pumpout facilities where normally not required, in particular, facilities open to the general public;

7. improvements to water quality such as removal of toxic sediments, increased flushing and circulation, etc.;

8. providing upland dry storage as an alternative to wetslip; and

9. marking navigation channels to avoid disruption of shallow water habitats.

(3) RESOURCE MANAGEMENT

(a) All proposed activities in aquatic preserves having management plans adopted by the Board must demonstrate that such activities are consistent with the management plan.

(b) No drilling of oil, gas or other such wells shall be allowed.

(c) Utility cables, pipes and other such structures shall be constructed and located in a manner that will cause minimal disturbance to submerged land resources such as oyster bars and submerged grass beds and do not interfere with traditional public uses.

(d) Spoil disposal within the preserves shall be strongly discouraged and may be approved only

structures shall be constructed and located in a manner that will cause minimal disturbance to submerged land resources such as oyster bars and submerged grass beds and do not interfere with traditional public uses.

(d) Spoil disposal within the preserves shall be strongly discouraged and may be approved only where the applicant has demonstrated that there is no other reasonable alternative and that activity may be beneficial to, or at a minimum, not harmful to the quality and utility of the preserve.

(4) RIPARIAN RIGHTS

(a) None of the provisions of this rule shall be implemented in a manner that would unreasonably infringe upon the traditional, common law and statutory riparian rights of upland riparian property owners adjacent to sovereignty lands.

(b) The evaluation and determination of the reasonable riparian rights of ingress and egress for private, residential multi-slip docks shall be based upon the number of linear feet of riparian shoreline.

(c) For the purposes of this rule, a private, residential, single docking facility which meets all the requirements of Rule 18-20.004(5) shall be deemed to meet the public interest requirements of Rule 18-20.004(1)(b), Florida Administrative Code. However, the applicants for such docking facilities must apply for such consent and must meet all of the requirements and standards of this rule chapter.

(5) STANDARDS AND CRITERIA FOR DOCKING FACILITIES

(a) All docking facilities, whether for a single or multi-slip residential or commercial, shall be subject to the following standards and criteria:

1. no dock shall extend waterward of the mean or ordinary high water line more than 500 feet or 20 percent of the width of the waterbody at that particular location whichever is less;

2. certain docks may fall within areas of special or unique importance. These areas may be of significant biological, scientific, historic and/or aesthetic value and require special management considerations. Modifications may be more restrictive than the normally accepted criteria. Such modifications shall be determined on a case-by-case analysis, and may include, but shall not be limited to changes in location, configuration, length, width and height;

3. the number, lengths, drafts and types of vessels allowed to utilize the proposed facility may also be stipulated; and

4. where local governments have more stringent standards and criteria for docking facilities, the more stringent standards for the protection and enhancement of the aquatic preserve shall prevail.

(b) Private residential single docks shall conform to the following specific design standards and criteria:

1. any main access dock shall be limited to a maximum width of four (4) feet;

2. the dock decking design and construction will insure maximum light penetration, with full consideration of safety and practicality;

3. the dock will extend out from the shoreline no further than to a maximum depth of minus four (− 4) feet (mean low water);

4. when the water depth is minus four (− 4) feet (mean low water) at an existing bulkhead the maximum dock length from the bulkhead shall be 25 feet, subject to modifications accommodating shoreline vegetation overhang;

5. wave break devices, when necessary, shall be designed to allow for maximum water circulation and shall be built in such a manner as to be part of the dock structure;

6. terminal platform size shall be no more than 160 square feet; and

7. dredging to obtain navigable water depths in conjunction with private residential, single dock applications is strongly discouraged.

(c) Private residential multi-slip docks shall conform to the following specific design standards and criteria:

1. the area of sovereignty, submerged land preempted by the docking facility shall not exceed the square footage amounting to ten times the riparian waterfront footage of the affected waterbody of the applicant, or the square footage attendant to providing a single dock in accordance with the criteria for private residential single docks, whichever is greater. A conservation easement or other such use restriction acceptable to the Board must be placed on the riparian shoreline, used for the calculation of the 10:1 threshold, to conserve and protect shoreline resources and subordinate/waive any further riparian rights of ingress and egress for additional docking facilities;

2. docking facilities and access channels shall be prohibited in Resource Protection Area 1 or 2, except as allowed pursuant to Section 258.42(3)(c)1., Florida Statutes, while dredging in Resource Protection Area 3 shall be strongly discouraged;

3. docking facilities shall only be approved in locations having adequate existing water depths in the boat mooring, turning basin, access channels, and other such areas which will accommodate the proposed boat use in order to insure that a minimum of one foot clearance is provided between the deepest draft of a vessel and the bottom at mean low water;

4. main access docks and connecting or cross walks shall not exceed six (6) feet in width;

5. terminal platforms shall not exceed eight (8) feet in width;

6. finger piers shall not exceed three (3) feet in width, and 25 feet in length;

7. pilings may be utilized as required to provide adequate mooring capabilities; and

8. the following provisions of Rule 18-20.004(5)(d) shall also apply to private residential multi-slip docks.

(d) Commercial, industrial and other revenue generating/income related docking facilities shall conform to the following specific design standards and criteria:

1. docking facilities shall only be located in or near areas with good circulation, flushing and adequate water depths;

2. docking facilities and access channels shall be prohibited in Resource Protection Area 1 or 2, except as allowed pursuant to Sections 258.42(3)(e)1., Florida Statutes; while dredging in Resource Protection Area 3 shall be strongly discouraged;

3. the docking facilities shall not be located in Resource Protection Area 1 or 2; however, main access docks may be allowed to pass through Resource Protection Area 1 or 2, that are located along the shoreline, to reach an acceptable Resource Protection Area 3, provided that such crossing will generate minimal environmental impact;

4. beginning July 1, 1986 new docking facilities may obtain a lease only where the local governments have an adopted marina plan and/or policies dealing with the siting of commercial/industrial and private, residential, multi-slip docking facilities in their local government comprehensive plan;

5. the siting of the docking facilities shall also take into account the access of the boat traffic to avoid marine grassbeds or other aquatic resources in the surrounding areas;

6. the siting of new facilities within the preserve shall be secondary to the expansions of existing facilities within the preserve when such expansion is consistent with the other standards;

7. the location of new facilities and expansion of existing facilities shall consider the use of upland dry storage as an alternative to multiple wet-slip docking;

8. marina siting will be coordinated with local governments to insure consistency with all local plans and ordinances;

9. marinas shall not be sited within state designated manatee sanctuaries; and

10. in any areas with known manatee concentrations, manatee warning/notice and/or speed limit signs shall be erected at the marina and/or ingress and egress channels, according to Florida Marine Patrol specifications.

(e) Exceptions to the standards and criteria listed in Rule 18-20.004(5), Florida Administrative Code, may be considered, but only upon demonstration by the applicant that such exceptions are necessary to insure reasonable riparian ingress and egress.

(6) MANAGEMENT AGREEMENTS

The board may enter into management agreements with local agencies for the administration and enforcement of standards and criteria for private residential single docks.

(7) In addition to the policies, standards and criteria delineated in subsections (1) through (6), the provisions of the following management plans apply to specific aquatic preserves and are incorporated herein by reference. Where regulatory criteria in 18-20, F. A. C., may differ with specific policies in the management plans listed herein, the general rule criteria shall prevail.

	Date Adopted
Alligator Harbor	September 23, 1986
Banana River	September 17, 1985
Cockroach Bay	April 21, 1987
Estero Bay	September 6, 1983
Charlotte Harbor (Cape Haze, Gasparilla Sound-Charlotte Harbor, Matlacha Pass and Pine Island Sound)	May 18, 1983
Indian River-Malabar to Vero Beach	January 21, 1986
Indian River Lagoon (Vero Beach to Fort Pierce and Jensen Beach to Jupiter Inlet)	January 22, 1985
Loxahatchee River-Lake Worth Creek	June 12, 1984
Nassau River-St. Johns River Marshes and Fort Clinch State Park	April 22, 1986
North Fork of the St. Lucie River	May 22, 1984
St. Joseph Bay	June 2, 1987
St. Martins Marsh	September 9, 1987
Terra Ceia	April 21, 1987
Wekiva River	August 25, 1987

Specific Authority 258.43(1) FS. Law Implemented 258.41, 258.42, 258.43(1), 258.44 FS. History—New 2-25-81, Amended 8-7-85, Formerly 16Q-20.004, Transferred from 16Q-20.004, Amended 9-4-88.

18-20.005 Uses, Sales, Leases, or Transfer of Interests in Lands, or Materials, Held by the Board.

Specific Authority 258.43(1) FS. Law Implemented 253.02, 253.12, 258.42 FS. History—New 2-25-81, Repealed 8-7-85, Formerly 16Q-20.05, Transferred from 16Q-20.005.

18-20.006 Cumulative Impacts. In evaluating applications for activities within the preserves or which may impact the preserves, the department recognizes that, while a particular alteration of the preserve may constitute a minor change, the cumulative effect of numerous such changes often results in major impairments to the resources of the preserve. Therefore, the department shall evaluate a particular site for which the activity is proposed with the recognition that the activity may, in conjunction with other activities adversely affect the preserve which is part of a complete and interrelated system. The impact of a proposed activity shall be considered in light of its cumulative impact on the preserve's natural system. The department shall include as a part of its evaluation of an activity:

(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 preserves, 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.

Specific Authority 258.43(1) FS. Law Implemented 258.36, 258.43, 258.44 FS. History—New 2-25-81, Formerly 16Q-20.06, Transferred from 16Q-20.006.

18-20.007 Protection of Riparian Rights.

Specific Authority 258.43(1) FS. Law Implemented 258.123, 258.124(8), 258.44 FS. History—New 2-25-81, Repealed 6-7-85, Formerly 16Q-20.07, Transferred from 16Q-20.007.

18-20.008 Inclusion of Lands, Title to Which Is Not Vested in the Board, in a Preserve.

(1) Lands and water bottoms which are within designated aquatic preserve boundaries, or adjacent thereto and which are owned by other governmental agencies, may be included in an aquatic preserve upon specific authorization for inclusion by an appropriate instrument in writing executed by the agency.

(2) Lands and water bottoms which are within designated aquatic preserve boundaries or adjacent thereto, and which are in private ownership, may be included in an aquatic preserve upon specific authorization for inclusion by an appropriate instrument in writing executed by the owner.

(3) The appropriate instrument shall be either a dedication in perpetuity, or a lease. Such lease shall contain the following conditions:

(a) The term of the lease shall be for a minimum period of ten years.

(b) The board shall have the power and duty to enforce the provisions of each lease agreement, and shall additionally have the power to terminate any lease if the termination is in the best interest of the aquatic preserve system, and shall have the power to include such lands in any agreement for management of such lands.

(c) The board shall pay no more than $1 per year for any such lease.

Specific Authority 258.43(1) FS. Law Implemented 258.40, 258.41 FS. History—New 2-25-81, Formerly 16Q-20.08, Transferred from 16Q-20.008.

18-20.009 Establishment or Expansion of Aquatic Preserves.

(1) The board may expand existing preserves or establish additional areas to be included in the aquatic preserve system, subject to confirmation by the legislature.

(2) The board may, after public notice and public hearing in the county or counties in which the proposed expanded or new preserve is to be located, adopt a resolution formally setting aside such areas to be included in the system.

(3) The resolution setting aside an aquatic preserve area shall include:

(a) A legal description of the area to be included. A map depicting the legal description shall also be attached.

(b) The designation of the type of aquatic preserve.

(c) A general statement of what is sought to be preserved.

(d) A statement that the area established as a preserve shall be subject to the management criteria and directives of this chapter.

(e) A directive to develop a natural resource inventory and a management plan for the area being established as an aquatic preserve.

(4) Within 30 days of the designation and establishment of an aquatic preserve, the board shall record in the public records of the county or counties in which the preserve is located a legal description of the preserve.

Specific Authority 258.43(1) FS. Law Implemented 258.41 FS. History—New 2-25-81, Formerly 16Q-20.09, Transferred from 16Q-20.009.

18-20.010 Exchange of Lands. The board in its discretion may exchange lands for the benefit of the preserve, provided that:

(1) In no case shall an exchange result in any land or water area being withdrawn from the preserve; and

(2) Exchanges shall be in the public interest and shall maintain or enhance the quality or utility of the preserve.

Specific Authority 258.43(1) FS. Law Implemented 258.41(5), 258.42(1) FS. History—New 2-25-81, Formerly 16A-20.10, Transferred from 16Q-20.010.

18-20.011 Gifts of Lands. The board in its discretion may accept any gifts of lands or interests in lands within or contiguous to the preserve to maintain or enhance the quality and utility of the preserve.

Specific Authority 258.43(1) FS. Law Implemented 258.42(5) FS. History—New 2-25-81, Formerly 16Q-20.11, Transferred from 16Q-20.011.

18-20.012 Protection of Indigenous Life Forms. The taking of indigenous life forms for sale or commercial use is prohibited, except that this prohibition shall not extend to the commercial taking of fin fish, crustacea or mollusks, except as prohibited under applicable laws, rules or regulations. Members of the public may exercise their rights to fish, so long as not contrary to other statutory and regulatory provisions controlling such activities.

Specific Authority 258.43(1) FS. Law Implemented 258.43(1) FS. History—New 2-25-81, Formerly 16Q-20.12, Transferred from 16Q-20.012.

18-20.013 Development of Resource Inventories and Management Plans for Preserves.

(1) The board authorizes and directs the division to develop a resource inventory and management plan for each preserve.

(2) The division may perform the work to develop the inventories and plans, or may enter into agreements with other persons to perform the work. In either case, all work performed shall be subject to board approval.

Specific Authority 258.43(1) FS. Law Implemented 253.03(7), 253.03(8) FS. History—New 2-25-81, Amended 8-7-85, Formerly 16Q-20.13, Transferred from 16Q-20.013.

18-20.014 Enforcement. The rules shall be enforced as provided in Section 258.46.

Specific Authority 258.43(1) FS. Law Implemented 258.46 FS. History—New 2-25-81, Formerly 16Q-20.14, Transferred from 16Q-20.014.

18-20.015 Application Form.

Specific Authority 253.43(1) FS. Law Implemented 258.43 FS. History—New 2-25-81, Repealed 8-7-85, Formerly 16Q-20.15, Transferred from 16Q-20.015.

18-20.016 Coordination with Other Governmental Agencies. Where a Department of Environmental Regulation permit is required for activities on sovereignty lands the department will coordinate with the Department of Environmental Regulation to obtain a copy of the joint Department of Army/Florida Department of Environmental Regulation permit application and the biological survey. The information contained in the joint permit application and biological assessment shall be considered by the department in preparing its staff recommendations to the board. The board may also consider the reports of other governmental agencies that have related management or permitting responsibilities regarding the proposed activity.

Specific Authority 253.43(1) FS. Law Implemented 258.43 FS. History—New 2-25-81, Formerly 16Q-20.16, Transferred from 16Q-20.016.

18-20.017 Lake Jackson Aquatic Preserve. In addition to the provisions of Rules 18-20.001 through 18-20.016, the following requirements shall also apply to all proposed activities within the Lake Jackson Aquatic Preserve. If any provisions of this Rule are in conflict with any provisions of Rules 18-20.001 through 18-20.016 or Chapter 73-534, Laws of Florida, the stronger provision for the protection or enhancement of the aquatic preserve shall prevail.

(1) No further sale, transfer or lease of sovereignty lands in the preserve shall be approved or consummated by the Board, except upon a showing of extreme hardship on the part of the applicant or when the board shall determine such sale, transfer or lease to be in the public interest.

(2) No further dredging or filling of sovereignty lands of the preserve shall be approved or tolerated by the Board of Trustees except:

(a) Such minimum dredging and spoiling as may be authorized for public navigation projects or for preservation of the lake according to the expressed intent of Chapter 73-534, Laws of Florida; and

(b) Such other alteration of physical conditions as may be necessary to enhance the quality or utility of the preserve.

(3) There shall be no drilling of wells, excavation for shell or minerals, and no erection of structures (other than docks), within the preserve, unless such activity is associated with activity authorized by Chapter 73-534, Laws of Florida.

(4) The Board shall not approve the relocations of bulkhead lines within the preserve.

(5) Notwithstanding other provisions of this act, the board may, respecting lands lying within the Lake Jackson basin:

(a) Enter into agreements for and establish lines delineating sovereignty and privately owned lands;

(b) Enter into agreements for the exchange and exchange sovereignty lands for privately owned lands;

(c) Accept gifts of land within or contiguous to the preserve.

Specific Authority 258.39(26) FS. Law Implemented 258.39(26), 258.43 FS. History—New 8-7-85, Formerly 16Q-20.017, Transferred from 16Q-20.017.

APPENDIX B

POLLUTION SOURCE SURVEY
(FROM TEEHAN AND BARNETT, 1989)

The pollution source survey was conducted by personnel of the Department of Natural Resoruces Shellfish Environmental Assessment Section, Western Gulf Coast District Office. Many individuals along with local, county and state agencies were contacted for background information. Detailed shoreline reconnaissance was conducted during March, 1987. Documented sources of actual or potential pollution included all residences, businesses, public assembly areas, and other sources which could contribute contaminates to receiving waters in and around the preserve. Drainage patterns and land runoff were assessed using topographic maps and by noting the source and outfall of canals, ditches, creeks, and pipes.

Sub Area 1: Garcon Peninsula I-10 south to Juniper Drive

I. 191C from I-10 to SR191

On septic tank systems:
81 houses waterfront
22 houses non-waterfront
10 mobile homes waterfront
35 mobile homes non-waterfront
1 business waterfront
Livestock

II. SR191 from Juniper Drive to I-10

On septic tank systems:
28 houses waterfront
74 houses non-waterfront
43 mobile homes non-waterfront
7 businesses non-waterfront
Livestock

Sub Area 2: SR89 from I-10 to Ward Basin Road

I. On septic tank systems:
22 houses waterfront
70 houses non-waterfront
4 mobile homes waterfront
8 mobile homes non-waterfront
2 businesses waterfront
2 businesses non-waterfront

II. SR89 from Coachman Road to I-10

On septic tank systems:
52 houses waterfront
39 houses non-waterfront
31 mobile homes waterfront
48 mobile homes non-waterfront
7 units waterfront
1 buisness waterfront

Sub Area 3: SR184 from SR89 to SR87

I. Old Hickory Hammock Road

On septic tank sytems:
4 houses waterfront
20 houses non-waterfront
4 mobile homes waterfront
39 mobile homes non-waterfront

II. SR184 from SR89 to SR87

On septic tank systems:
97 houses non-waterfront
108 mobile homes non-waterfront
2 businesses non-waterfront
Livestock

Sub Area 4: SR87 from I-10 to the Yellow River

On septic tank system:
34 houses non-waterfront
31 mobile homes non-waterfront
1 buisness waterfront
4 businesses non-waterfront

APPENDIX C

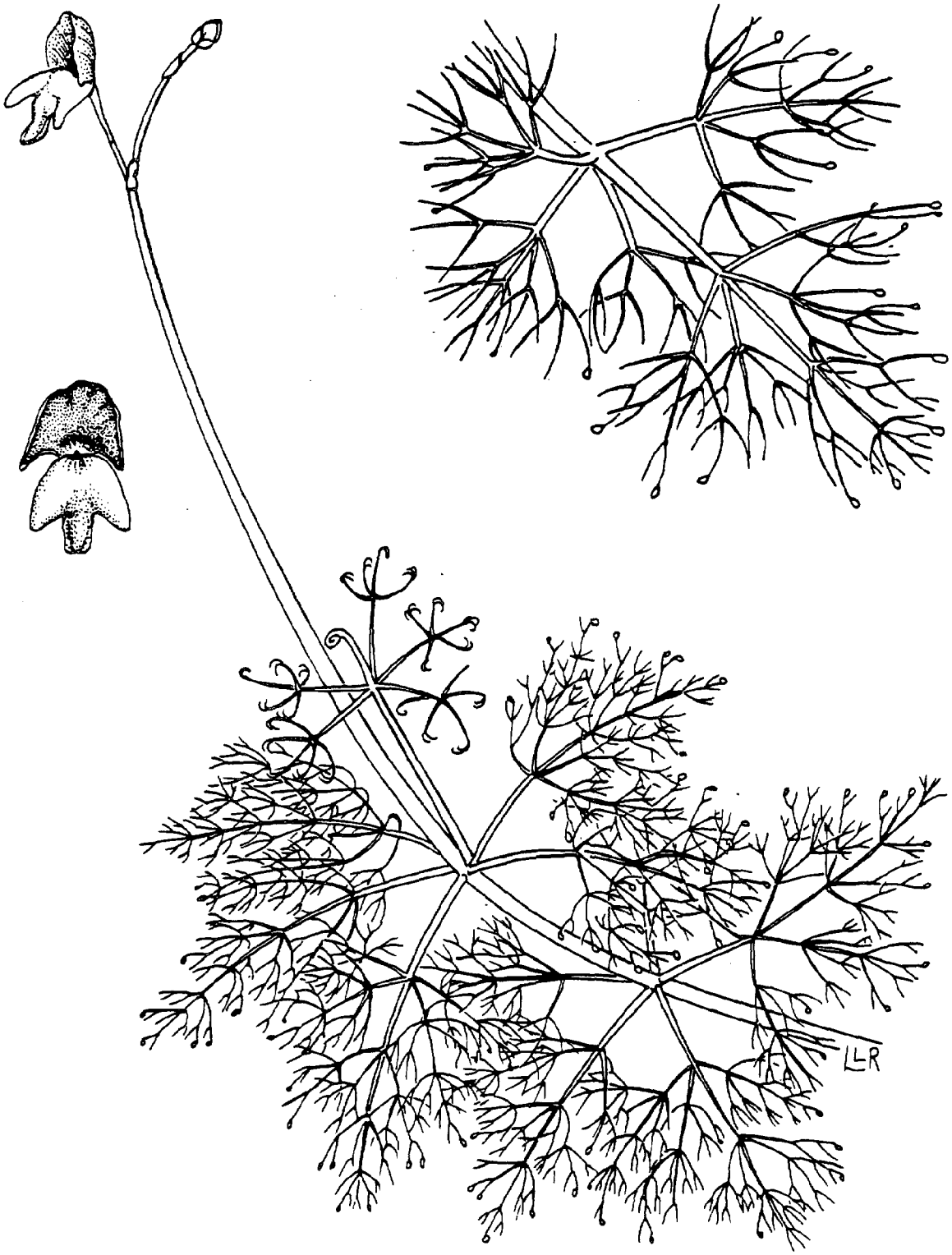


illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

Vallisneria americana
Tapegrass

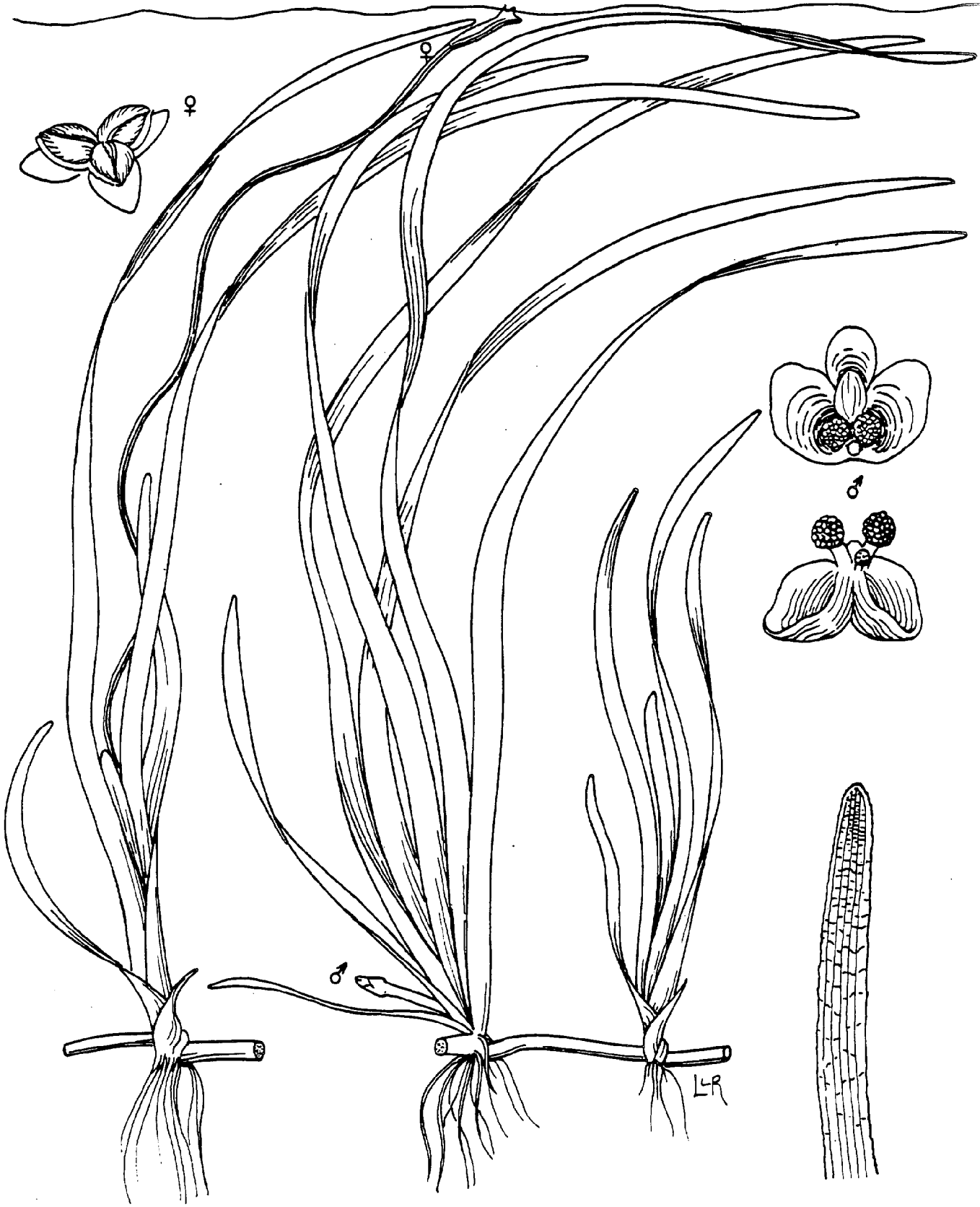


illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

Juncus effusus
Soft rush

illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

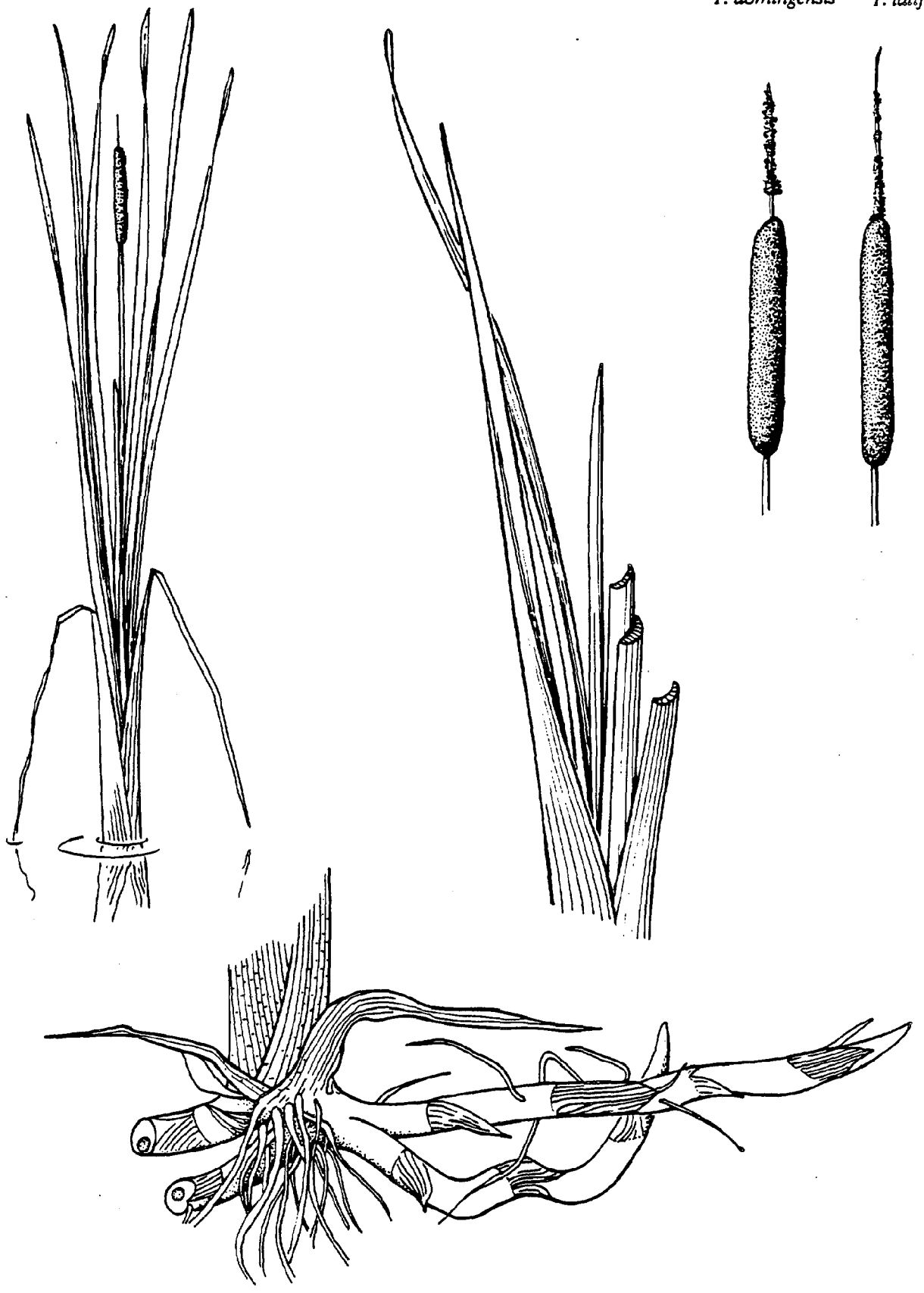
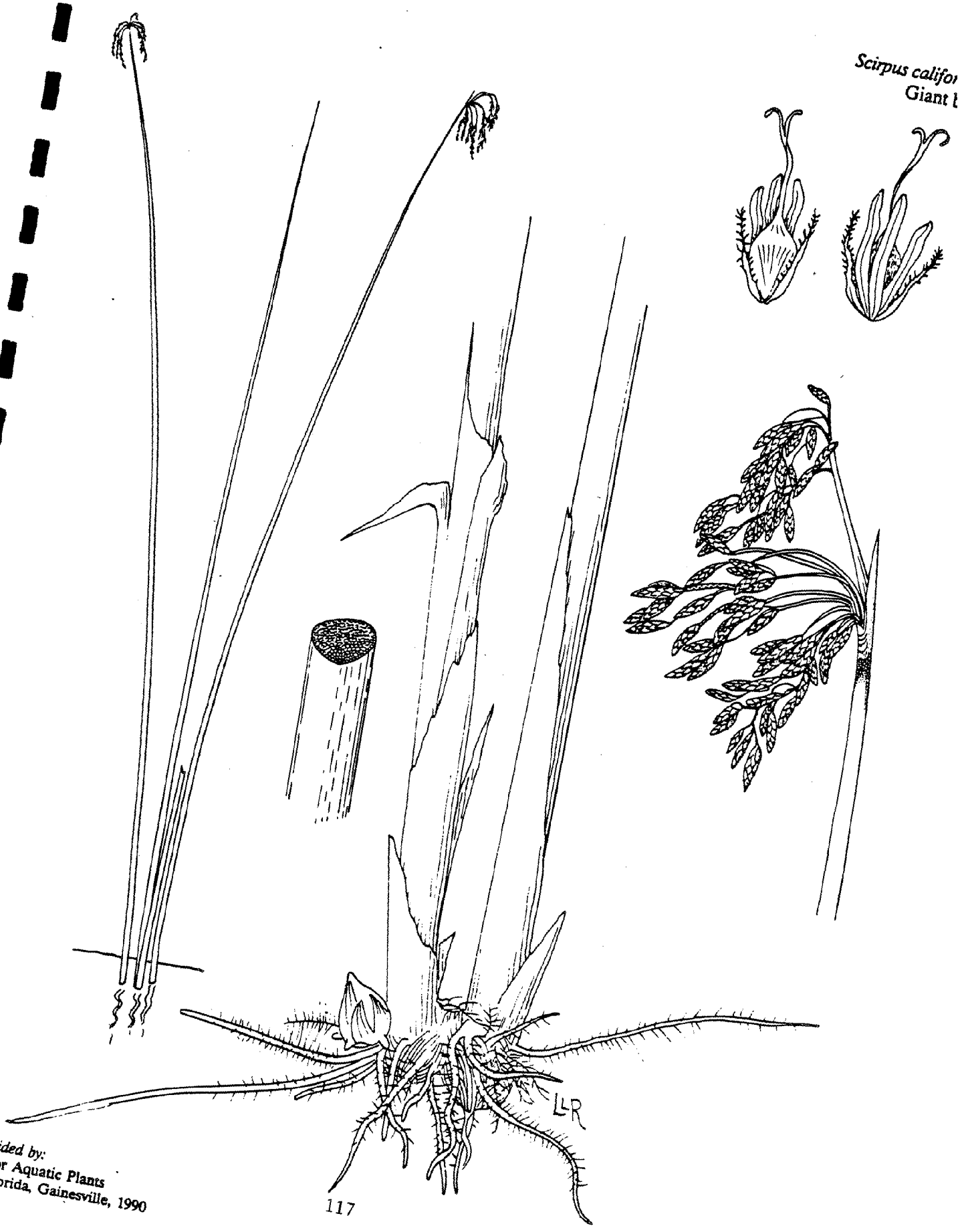


illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

Typha Cattail

Scirpus califo
Giant



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, Center for Aquatic Plants
rsity of Florida, Gainesville, 1990

Pontederia cordata
Pickerelweed

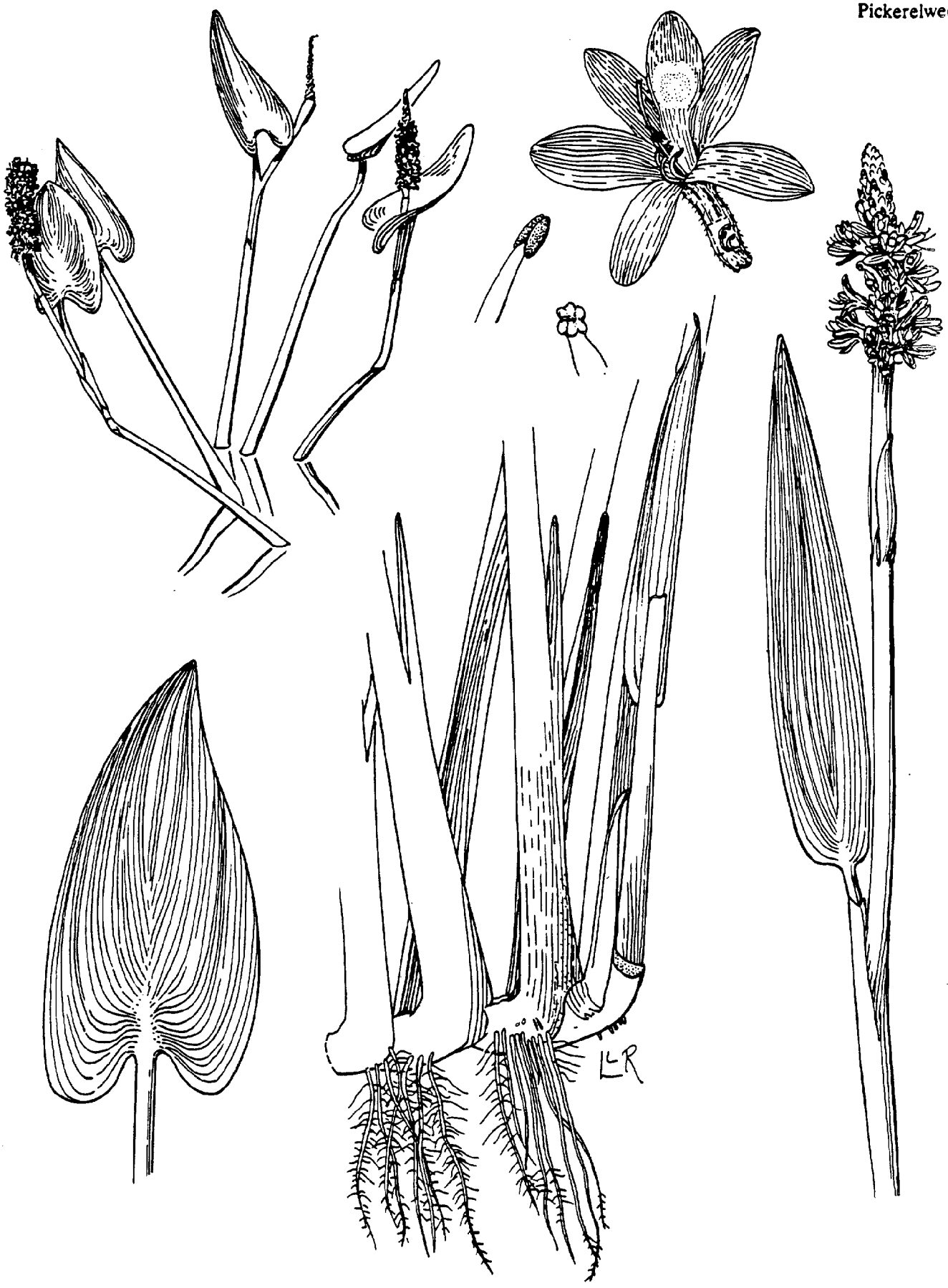

illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

Phragmites australis
Common reed

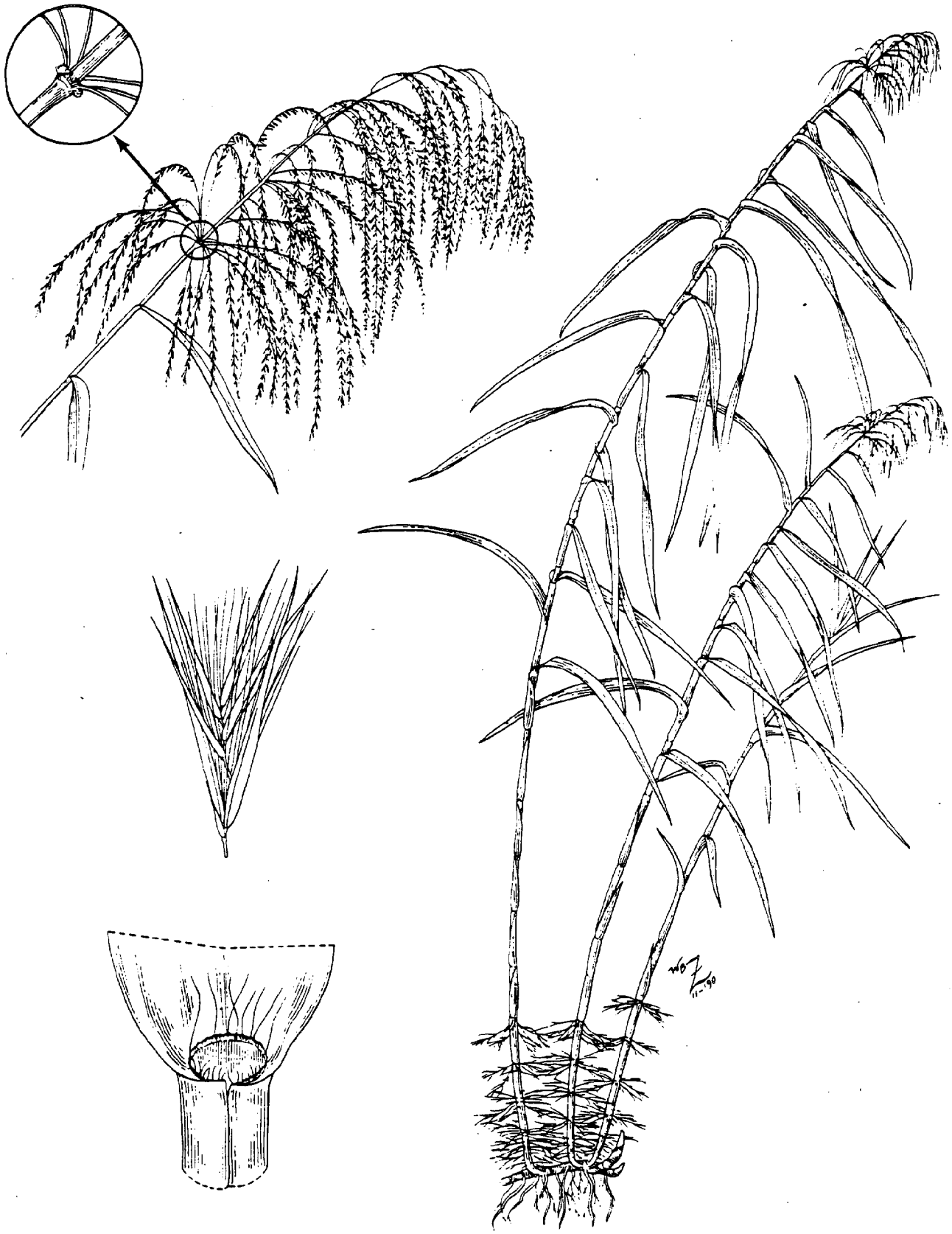

illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

Najas guadalupensis
Southern naiad

illustration provided by:
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University of Florida, Gainesville, 1990