
DISTRICT WATER MANAGEMENT PLAN

September 2005



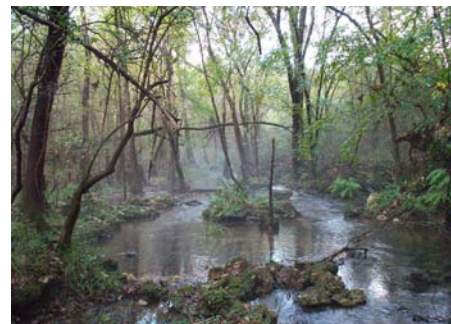
Water Supply



Flood Protection



Water Quality



Natural Systems

Northwest Florida Water Management District

Program Development Series 2005-1

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WATER MANAGEMENT DISTRICT

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I. District Overview

A. INTRODUCTION

The Northwest Florida Water Management District (NFWFMD) stretches from the St. Marks River Basin in Jefferson County to the Perdido River in Escambia County. The District is one of five water management districts in Florida, created by the Water Resources Act of 1972 (Chapter 373, Florida Statutes). Sixteen counties lie within the District: Bay, Calhoun, Escambia, Franklin, Gadsden, Gulf, Holmes, Jackson, Leon, Liberty, Okaloosa, Santa Rosa, Wakulla, Walton, and Washington counties, and the westernmost portion of Jefferson County.

Section 373.036(2), Florida Statutes (F.S.), requires all the water management districts to develop “a district water management plan for water resources within its region, which ...addresses water supply, water quality, flood protection and floodplain management, and natural systems.” These are referred to in the district water management plans (DWMPs) as the four Areas of Responsibility. The DWMPs are prepared under the guidance of the Florida Department of Environmental Protection (DEP), and follow a uniform format to ensure consistency with Chapter 373 and Chapter 62-40, Florida Administrative Code, the Water Resource Implementation Rule. The first DWMPs were written in 1994, and they are updated every five years.

The District’s mission and its goals for each Area of Responsibility (AOR) are:

| | |
|---|--|
| <p>DISTRICT MISSION:</p> | <p>Protect and manage the water resources of northwest Florida in a sustainable manner for the continued welfare of its residents and natural systems.</p> |
| <p>DISTRICT GOALS:</p> <p><i>Water Supply</i></p> <p><i>Flood Protection and Floodplain Management</i></p> <p><i>Water Quality</i></p> <p><i>Natural Systems</i></p> | <p>Promote the availability of sufficient water for all existing and future reasonable-beneficial uses and affected natural systems.</p> <p>Maintain natural floodplain functions and minimize harm from flooding.</p> <p>Protect and improve the quality of the District’s water resources.</p> <p>Protect and enhance natural systems.</p> |

This revision of the DWMP is intended to:

- Communicate the District’s mission, goals, objectives, and strategies to address current regional water resource and water management issues, consistent with the directives and policies in the State Comprehensive Plan (Chapter 187, F.S.), The Water Resources Act, and the Water Resource Implementation Rule.
- Incorporate new and revised programs, priorities, and plans.
- Provide a resource to local governments, regional planning councils, community interest groups, and others for water resource information and technical assistance.
- Promote coordination of governmental activities to facilitate the resolution of water management issues in northwest Florida.
- Identify measures intended to gauge the success of District water resource management strategies, in order to strengthen accountability to the public.
- Advance a watershed management approach to addressing regional water resource issues.
- Provide for a 20-year planning horizon, encompassing 2005-2025.

B. DISTRICT HISTORY

District Origin and Authority

In 1972, the Florida Legislature passed the Florida Water Resources Act, which created the South Florida and Southwest Florida water management districts. The 1976 Legislature amended the act to create the Northwest Florida, Suwannee River, and St. John's River water management districts, and establish the districts' primary responsibilities of planning for and managing water resources in Florida.

Pursuant to statute, the districts are governed regionally by boards appointed by the Governor and confirmed by the Senate. Four of the districts have nine-member boards, including the NFWFMD. The Southwest Florida Water Management District has an eleven-member board. Together, these unique agencies work with state and local government to assure the availability of water supplies for all reasonable and beneficial uses, promote flood protection and floodplain management, address water quality issues, and protect and restore natural systems. The Legislature provided for general oversight of the districts by DEP and budget oversight by the Executive Office of the Governor.

The districts' authority derives from Chapter 373, F.S., which, among other things:

- Establishes the state's water policy and provides the framework for DEP and water management district coordination and programs.
- Regulates the consumptive uses of surface and groundwater.
- Authorizes the districts to develop and implement regulations for water well construction.
- Authorizes the Department and the districts to develop and implement regulations for the management of surface waters and stormwater management activities.
- Authorizes the districts to levy an ad valorem tax for water management purposes.

The first undertaking of the NFWFMD was water resource data collection. In its early years, the District collected data in cooperation with the U.S. Geological Survey, provided technical assistance to local governments, and began compiling a water use plan.

Since its inception, legislative directives and statutory changes have substantially expanded the District's responsibilities. In 1975, the District implemented its first authorized regulatory program, which was established to regulate water well construction. Other regulatory programs soon followed: artificial recharge in 1976, dam construction in 1978, Works of the District in 1979, consumptive water use in 1982, and the Warren Henderson Act covering agriculture, forestry, and wetlands protection in 1984. In 1978, the District completed a Water Resources Management Plan, which set forth management policies to guide the District and established a basic policy framework for water management in northwest Florida.

C. PHYSICAL SETTING

Geographic Jurisdiction

The water management districts are set up along hydrologic boundaries, which means that their boundaries fall approximately along watershed divides, rather than political boundaries. Florida's five water management districts are shown in Figure 1. The Northwest Florida Water Management District covers approximately 11,200 square miles, including all of the 15 westernmost counties in the state and part of Jefferson County. There are 63 incorporated cities within the District. The District is bound on the north by Georgia and Alabama, on the west by Alabama, on the south by the Gulf of Mexico, and on the east by the Suwannee River Water Management District, which shares Jefferson County with the NFWFMD.

Climate

Northwest Florida has a humid, subtropical climate with daily summer temperatures between 91° F and 70° F, that average 81° F. The daily winter temperatures typically range between 66° F and 40° F, and average about 54° F. April, October, and November are typically the driest months of the year, and rainfall is 3 - 4 inches on average during these months. There are two prominent wet periods during the year. The first occurs in winter and early spring, and is the result of major fronts moving in from the northwest, with monthly rainfall generally in the 5 - 6 inch range. The second, during the summer, is due to surface heating that results in convective activity and tropical systems that can generate heavy rainfall.

Land Cover/Land Use

Table 1 provides generalized land use and land cover data developed from 1994-1995 color-infrared National Aerial Photography Program (NAPP) digital ortho quarter quads. The land use and land cover data are classified according to the Florida Land Use Cover and Forms classification system (FDOT 1999). The majority (approximately 57 percent) of the District is classified as upland forest. Agricultural land comprises approximately 13 percent of the District and is scattered primarily across its northern portion.

| Land Use Type | Acres | Percent |
|-------------------------|-----------|---------|
| Urban & Built-up | 484,897 | 6.8% |
| Agriculture | 950,135 | 13.4% |
| Upland Forest | 4,078,409 | 57.4% |
| Wetlands | 1,380,498 | 19.4% |
| Barren Land | 24,135 | 0.3% |
| Trans./ Comm./Utilities | 66,607 | 0.9% |
| Water | 126,680 | 1.8% |
| TOTAL | 7,111,362 | 100.0% |

SOURCE: NFWFMD 1995

Agricultural land comprises approximately 13 percent of the District and is scattered primarily across its northern portion.

U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) data, based on 1988-1993 NAPP imagery, classified wetlands according to Cowardin et al. (1979). Based on NWI, it is estimated that approximately 32 percent of the District consists of wetlands. Waterbodies and urban areas each cover approximately 8 percent of the total land area in the District.

Most of the non-urban land in the District is devoted to forestry and agriculture. Private forest lands, in particular, cover a major portion of the District. Public lands and private conservation lands also include over two million acres District-wide. Prominent public lands include four large military bases, the Apalachicola National Forest, Blackwater River State Forest, St. Marks National Wildlife Refuge, and St. Vincent Island National Wildlife Refuge. The District has acquired over 200,000 acres fee-simple and on a less-than-fee basis. An estimated 46,000 acres in the District are privately held conservation lands.

Portions of the District are among the fastest growing areas of the state. Substantial areas are being transformed from forested and rural in character to suburban and urban. Much of this growth is focused in coastal areas and proximate to waterbodies. Such change brings with it significant water resource challenges. Potential impacts of growth include loss or fragmentation of wetlands and other sensitive habitats, lowering of aquifers from increasing withdrawals, altered recharge characteristics, and water quality impacts from widespread nonpoint source pollution.

Figure 1. Northwest Florida Water Management District



D. CULTURAL RESOURCES

Table 2. 2002 Population Estimates and 2025 Projected Population in the NFWWMD

| County | 2002 Population (Estimated) | 2025 Population (Projected) | Percent Increase |
|--------------|-----------------------------------|-----------------------------------|---------------------|
| Bay | 152,000 | 192,400 | 27% |
| Calhoun | 13,000 | 16,000 | 23% |
| Escambia | 299,500 | 356,400 | 19% |
| Franklin | 10,200 | 13,700 | 34% |
| Gadsden | 45,900 | 51,300 | 12% |
| Gulf | 15,200 | 17,400 | 14% |
| Holmes | 18,700 | 22,100 | 18% |
| Jackson | 47,700 | 55,600 | 17% |
| Jefferson* | 13,300 | 15,300 | 15% |
| Leon | 248,000 | 328,900 | 33% |
| Liberty | 7,200 | 8,700 | 21% |
| Okaloosa | 177,000 | 235,200 | 33% |
| Santa Rosa | 125,000 | 197,100 | 58% |
| Wakulla | 24,200 | 40,500 | 67% |
| Walton | 45,500 | 79,000 | 74% |
| Washington | 21,600 | 27,600 | 28% |
| TOTAL | 1,264,000 | 1,657,200 | 31% |

*Jefferson County is partially within the Suwannee River Water Management District. It is estimated that approximately 60 percent of the county population is within the NFWWMD.

SOURCE: 2003 Bureau of Economic and Business Research (BEBR) Florida Statistical Abstract, University of Florida

POPULATION DISTRIBUTION AND PROJECTIONS

The District's 2002 estimated population was 1,264,000. Outside of the District's metropolitan areas, northern Florida retains a rural atmosphere. The District is relatively sparsely populated, with an overall population density of less than 113 people per square mile. Population density decreases with distance from beaches and urban centers. The highest population densities in the District occur along the coast from Panama City to Pensacola. However, between 2000 and 2003, Wakulla, Walton, and Santa Rosa counties had the largest percentage increases in population (U.S. Department of the Census 2004).

Table 2 shows, by county, the District's 2002 estimated population, the projected 2025 population, and the associated percent change within that time period. The District's 2025 population is projected to increase by 31 percent over 2002 most significantly in Walton and Wakulla counties.

MAJOR ECONOMIC ACTIVITIES

Agriculture and forestry are major components in the northwest Florida economy. Farming is more diverse and less energy-intensive than in some other regions of the state. Field crops, such

as peanuts, soybeans, corn, and cotton, are commonly grown. Beef cattle and hogs are also raised on many farms. Counties particularly important to agriculture include Jackson, Gadsden, Jefferson, and Calhoun. In the 1920s, paper mill companies began to buy poor, cutover lumber company land throughout the region. Today these areas are managed as extensive tree farms, which supply raw materials to paper mills.

Recreational and commercial fishing and tourism are important in the District's coastal region. Apalachicola Bay supports Florida's largest commercial oyster fishery, while recreational fishing, state parks, and the beaches of northwest Florida draw many tourists. During the state's 2003-04 fiscal year, nearly 600,000 people visited St. Andrews State Park in Panama City, more than any other park in the Panhandle (FDEP: Press Office, July 2004).

Government plays an important part in the economy of northwest Florida. Naval and Air Force bases located near Fort Walton Beach, Niceville, Pensacola, and Panama City are major civilian and military employers. The Florida Defense Alliance estimated that in Fiscal Year 2002, the Department of Defense spent almost \$6 billion in northwest Florida (Florida Defense Alliance 2004). Since Tallahassee is the state capital and home to two state universities, state government is the largest employer in the city.

E. WATER RESOURCES

Northwest's water resources encompass diverse and productive natural systems and support important quality of life and economic benefits for the residents of northwest Florida, such as commercial and recreational fisheries, marine transportation, outdoor recreation, public water supply, tourism, flood abatement, aesthetic qualities, and more. Economic growth patterns and associated human activities increase demands on water resources and natural systems, which must be managed and protected to ensure their sustainability and the benefits they provide for the region's residents.

The region is rich in both surface water and groundwater resources. Though these resources are often discussed independently, it is important to note the interaction between them. For instance, while Bay County relies on surface water for its drinking water supply, groundwater must replenish that resource. The karst topography of much of the District includes sinkholes, springs, disappearing streams, and openings such as solution holes that result from the dissolution of limestone. Interaction between surface water and groundwater in a porous karst aquifer system can be rapid. Pollution through karst features that feed into groundwater can contaminate drinking water supplies and springs. Preservation of these sensitive environmental areas is essential to both water quality and quantity.

SURFACE WATER HYDROLOGY

Rivers and Streams

There are more rivers and streams in northwest Florida than in any other area of the state. Six of the District's major rivers have a combined flow of 27 billion gallons per day. In terms of annual discharge, the District has three of the five largest rivers in the state: the Apalachicola, Choctawhatchee, and Escambia. The District's major rivers originate in Alabama and Georgia (see Chapter VIII, *Watershed Management*, Figure 9). Most of the rivers in the District are in their natural state and have few man-made structures that alter their floodplains and channels or control their flow rates. Variations in local flow are determined by rainfall and runoff or by groundwater discharge into the streams. The Apalachicola River has the largest discharge (flow) in the state, with an average of 24,768 cubic feet per second. Its basin drains more than 19,000 square miles, extending to north Georgia's southern Appalachian Mountains.

Generally, streams can be divided into two main types: those that receive most of their flow from direct rainfall runoff or from the Sand-and-Gravel Aquifer, most of which are acidic and low in dissolved minerals; and streams that receive most of their flow from runoff and the Floridan Aquifer, which have high mineral concentrations and an almost neutral pH level. Most of the rivers that receive significant contributions of flow from the Floridan Aquifer are located in the central and eastern portions of the District.

Estuaries

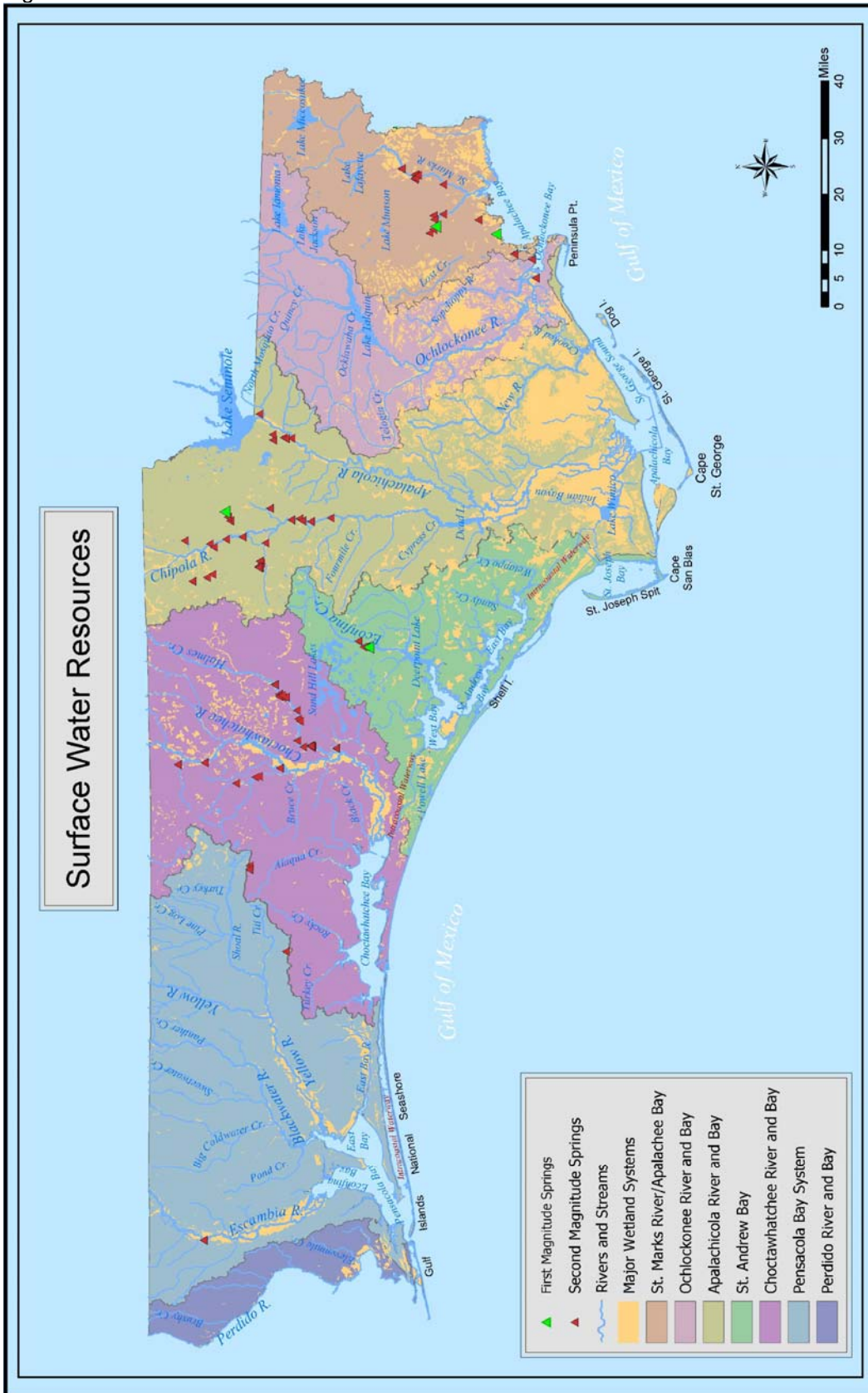
The District encompasses all or part of seven major estuaries and more than 1,500 miles of coastline. The estuaries include Pensacola, Choctawhatchee, St. Andrew, St. Joseph, Ochlockonee, and Apalachee bays. These estuarine systems are among the state's most productive; they comprise a zone of important habitat diversity and productivity within the Gulf of Mexico, including seagrass beds, oyster beds, and salt marshes. They provide important public benefits and support important recreational and commercial fisheries. The major riverine-estuarine watersheds cover the entire District and over 33,000 square miles in Florida, Georgia, and Alabama.

Springs

The District has 21 first- and second-magnitude springs, which provide an important link between surface water and groundwater systems, and help define the characteristics of many surface waterbodies.

Major surface water features of the District are illustrated in Figure 2.

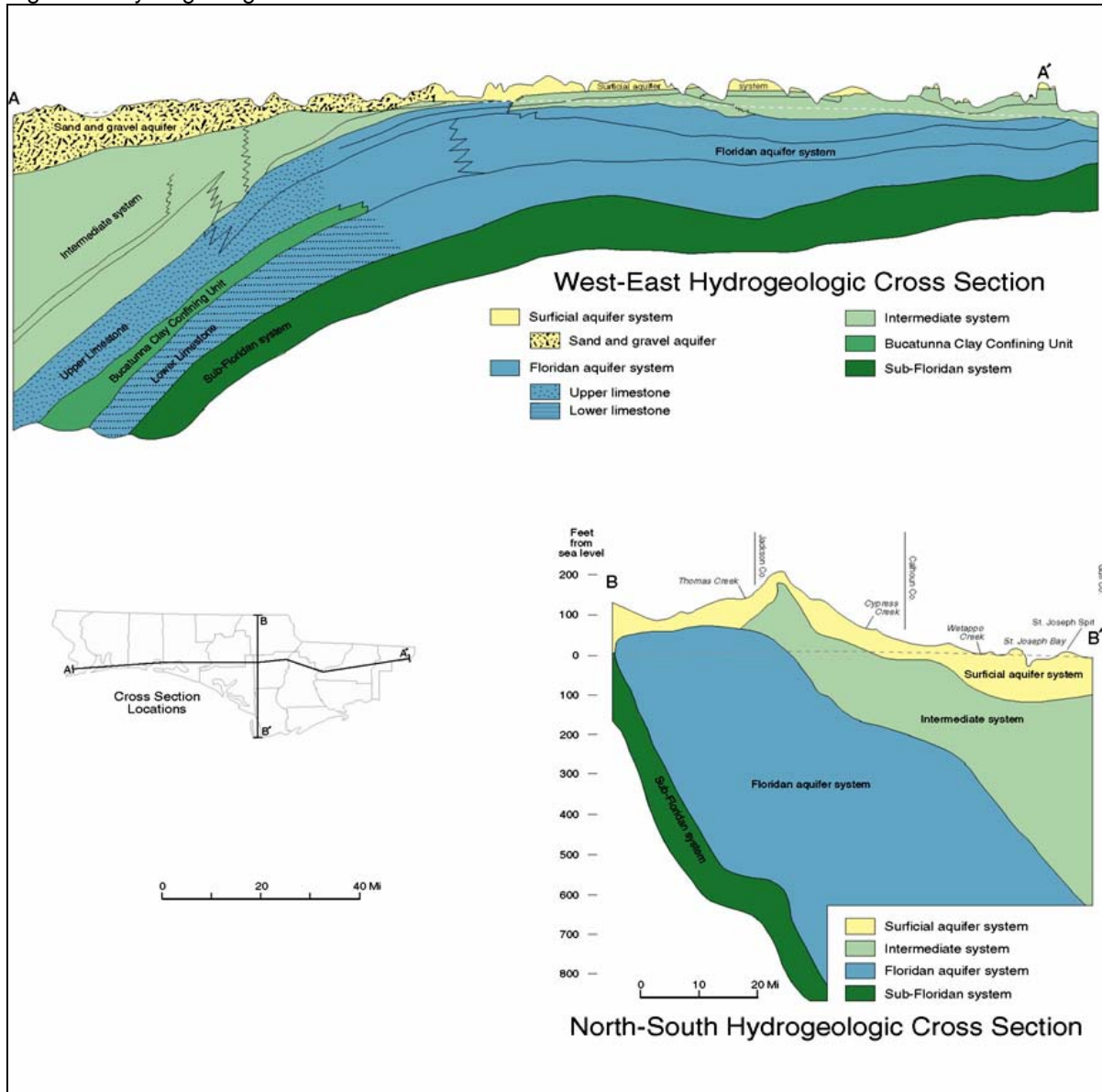
Figure 2. Surface Water Resources



GROUNDWATER HYDROLOGY

Groundwater is a relatively abundant resource in northwest Florida due to the region’s hydrogeology. The principal water bearing units for groundwater supply are the Surficial Aquifer System, which includes the Sand-and-Gravel Aquifer, and the Floridan Aquifer system. These units are illustrated by Figure 3. Details and graphic representations of these units and their spatial distribution within the Florida Panhandle may be found in *Hydrogeology of the Northwest Florida Water Management District* (NFWWMD 1996b).

Figure 3. Hydrogeologic Cross-Section



The thickness of the Surficial Aquifer System is variable, ranging from a few feet to more than 300 feet in the western portion of the District. In most of Santa Rosa County and in all of Escambia County, the Surficial Aquifer System is the primary source of potable water and is commonly called the *Sand-and-Gravel Aquifer*. As the name implies, the aquifer is composed of a mixture of sands, clays, and gravels, with sands being the primary component. East of the Choctawhatchee River, the Surficial Aquifer is relatively thin and is a minor water-bearing layer.

The *Floridan Aquifer System* is the most productive water-bearing unit in northwest Florida. It supplies more than 90 percent of the water needs of the District, and it is utilized in all counties except Escambia and Santa Rosa. The Floridan Aquifer System is primarily composed of limestone. This aquifer ranges in thickness from 100 to more than 1,000 feet within northwest Florida. In many areas, highly mineralized water occurs at the bottom of the aquifer, resulting in reduced productivity.

WATER LEVELS AND MOVEMENT OF GROUNDWATER

Groundwater tends to flow from areas where water levels are higher to areas with lower water levels. In northwest Florida, the water levels (potentiometric surface) associated with the Floridan Aquifer range from 210 feet above sea level to 100 feet below sea level. In northwest Florida, the potentiometric surface decreases toward the coast and toward streams or springs where water from the aquifer is discharged. Where large quantities of water are withdrawn from wells, a cone of depression may form in the potentiometric surface. This is evident along the coast in southern Okaloosa and Walton counties. In this area, water withdrawals from the Floridan Aquifer have resulted in water level declines of more than 200 feet near major pumping centers since the 1940s. Water levels within the Surficial Aquifer generally reflect land surface elevations and topography.

GROUNDWATER RECHARGE

Recharge to groundwater occurs indirectly or directly. The indirect process is where rainfall infiltrates the aquifer from overlying sediments in the form of leakage. Direct recharge occurs where the sediments comprising the aquifer lie at or near the land surface or where overlying sediments (i.e. confining units) are breached by karstic features (sinkholes), which allow rainfall to move directly into the aquifer. Both processes are important since they replenish the groundwater resources.

Groundwater in northwest Florida is influenced greatly by local recharge, with some out-of-state contributions. The Surficial Aquifer System is the most locally affected. For example, rain falling on a hilltop recharges the Surficial Aquifer, and the groundwater flows down gradient to discharge at the foot of the hill into a stream that dissects the aquifer. The entire area overlying the Sand-and-Gravel Aquifer is a recharge area. Discharge areas are at low elevations near perennial streams and coastal waterbodies.

There are two principal areas in northwest Florida where the limestones that comprise the *Floridan Aquifer* are at or near land surface or where overlying confining units are thin or absent. Recharge to the aquifer in these areas is higher relative to areas where the aquifer is confined. The Dougherty Karst Region, in the north central part of the District, encompasses Washington and Jackson counties and spans parts of Walton, Holmes, Bay, and Calhoun counties. The Woodville Karst Region spans parts of Liberty, Franklin, Wakulla, Leon, and Jefferson counties. Together, these two areas make up roughly two-fifths of the District.

For a more detailed overview and maps of the hydrogeology of northwest Florida, the *Hydrogeology of the Northwest Florida Water Management District* (NFWWMD 1996b), can be found at www.state.fl.us/nfwfwd.

F. WATER USE

Table 3 depicts 2000 average water use by category, as well as projected 2025 water use by category. In 2000, approximately 312 million gallons per day (Mgal/d) of fresh water were used in the District. The majority of fresh water used in the District is for public water supply. This category accounted for 166.16 Mgal/d or 53.3 percent of total water use in the District in 2000. Water use for public supply is projected to increase by approximately 53.5 percent to 255.01 Mgal/d by 2025, a larger increase than is projected for any other water use category. The steady increase in this water use category is primarily due to the growth of service areas and population demands. The greatest demand for increased public supply water use is expected to occur near urban centers and coastal regions.

District Overview

Because of the general abundance and good quality of groundwater in most of the District, few municipal or public water supply systems use surface water. About 73 percent of the total amount of water used for public water supplies is derived from groundwater sources.

Due to the rural nature of a majority of the District, many areas are not served by public water supply systems. All water used in the District for domestic self-supply and small public suppliers (less than 10,000 gallons per day) comes from groundwater sources.

Table 3. 2000 Water Use and 2025 Projected Water Use by Category in the NFWFMD

| WATER USE CATEGORY | 2000 WATER USE* | PERCENT OF TOTAL | 2025 WATER USE | PERCENT OF TOTAL | INCREASE MGAL/D | PERCENT INCREASE |
|-------------------------------------|------------------------|-------------------------|-----------------------|-------------------------|------------------------|-------------------------|
| Public Supply | 166.16 | 53.3% | 255.01 | 57.5% | 88.85 | 53.5% |
| Self-supplied/Small Public | 21.63 | 6.9% | 28.86 | 6.5% | 7.23 | 33.4% |
| Self-supplied/Commercial-Industrial | 76.28 | 24.5% | 99.10 | 22.4% | 22.82 | 29.9% |
| Agricultural Irrigation | 30.10 | 9.7% | 36.55 | 8.2% | 6.45 | 21.4% |
| Recreational Irrigation | 12.06 | 3.9% | 16.40 | 3.7% | 4.34 | 36.0% |
| Power Generation | 5.65 | 1.8% | 7.42 | 1.7% | 1.77 | 31.3% |
| TOTAL | 311.88 | 100% | 443.34 | 100% | 131.46 | 42.2% |

SOURCE: Water Supply Projections, 2005 - 2025 (NFWFMD 2003)

* Water Use Reported by water utilities; reported in million gallons per day (Mgal/d)

Water use in northwest Florida is projected to increase by about 42 percent from 2000 to 2025. An additional 131 million gallons per day will be needed to meet the needs of the District through 2025. Most of the increase is attributable to a projected 31 percent population increase in this period.

G. PUBLICLY OWNED CONSERVATION LANDS

Over two million acres District-wide are publicly owned. Figure 4 identifies District-owned lands and other publicly owned lands within the District. Two of the largest parcels of state-owned land in the District are the Blackwater River State Forest and Tates Hell State Forest. Federally owned land within the District totals approximately two million acres. Large federal government landholdings include Eglin Air Force Base, the Apalachicola National Forest, Tyndall Air Force Base, and the St. Marks National Wildlife Refuge. The Nature Conservancy, a private entity, acquires and manages environmentally sensitive land throughout Florida. The Nature Conservancy's landholdings include the Apalachee Bluffs and Ravines Preserve, the Choctawhatchee River Delta Preserve, the Rockhill Preserve, the John A. Phipps tract, the Davidson Ranch Preserve, and a large parcel on Dog Island. These areas are home to many native endangered and threatened species.

DISTRICT-OWNED LANDS

The District has acquired approximately 87 percent of the river frontage and neighboring floodplains along the Florida portion of both the Choctawhatchee and Escambia rivers, as well as several thousand acres along the Apalachicola River floodplain. These are three of the state's largest rivers in terms of flow rate. Although the majority of District-owned land is floodplains, the District has purchased more than 40,000 acres in the Econfina Creek (Sand Hill Lakes) groundwater recharge area of Washington and Bay counties. This area provides the majority of the base flow for Econfina Creek and the Deer Point Lake reservoir, which serves as the water supply source for most of Bay County. The primary purpose of this acquisition project is to provide for the protection and preservation of the groundwater recharge area critical to safeguarding and sustaining both the quantity (flows) and quality of the principal water supply source for over 150,000 residents.

Table 4. NFWWMD Lands (East to West)

| AREA* | ACRES ACQUIRED | AREA | ACRES ACQUIRED |
|--------------------------|----------------|---------------------------------------|----------------|
| Wakulla/St. Marks Rivers | 899 | Choctawhatchee River/ Holmes Creek | 61,706 |
| Lake Jackson | 516 | Yellow River/Shoal River | 17,446 |
| Ochlockonee River Basin | 312 | Blackwater River | 382 |
| Apalachicola River | 35,512 | Garcon Point | 3,245 |
| Chipola River | 8,187 | Escambia River | 34,938 |
| Econfina Creek | 42,257 | Total (both columns) | 205,400 |

*Fee and less-than fee ownership; current as of October 2005.

H. MAJOR ACCOMPLISHMENTS, TRENDS, AND NEW DIRECTIONS

Although northwest Florida is experiencing growth pressures, many of its natural areas are largely intact. The NFWWMD continues to help protect and preserve these areas and associated resources for existing and future generations through proper management, regulatory authority, and acquisition. The District has initiated and maintained effective programs in land acquisition, water quality improvement, water supply, floodplain mapping, wetlands mitigation, and more. Below are some of the District's major accomplishments and recent trends, and the new directions the District intends to pursue to meet its stated mission.

LAND ACQUISITION AND CAPITAL PROJECTS

Land Acquisition and Management

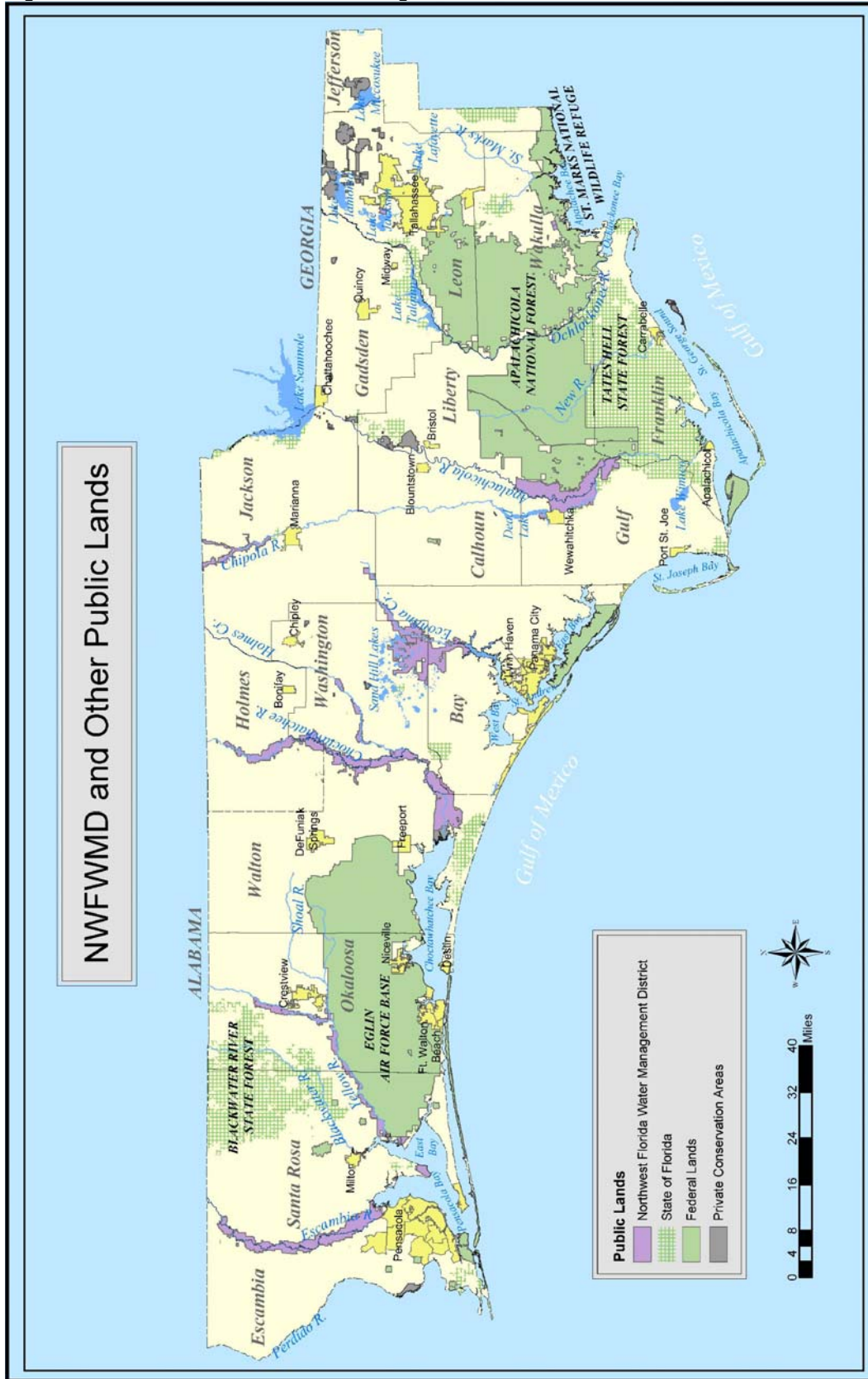
As of February 2005, the District had preserved more than 201,000 acres of land through fee-simple or less-than-fee acquisition. These lands help protect intact natural systems, floodplain functions, water recharge, water quality, and fish and wildlife habitat. The District has completed extensive environmental restoration and management on acquired lands. These include prescribed fire, erosion control, thinning, and replanting as necessary. District-owned lands are open to the public for recreational activities that are consistent with water resource protection.

Major watershed systems protected through District land acquisition and management efforts include Escambia River, Yellow River, Blackwater River, Garcon Point, Choctawhatchee River, Choctawhatchee Bay, Holmes Creek, Econfina Creek/Econfina Recharge Area, Chipola River, Apalachicola River, Lake Jackson, and the St. Marks River. The District has also assisted Escambia County in preserving Jones Swamp as a conservation and greenway area.

Florida Forever Program

In 1999, the Florida Legislature passed the Florida Forever Act (section 259.105, F.S.), which continues the state's long-term commitment to environmental land acquisition, restoration of degraded natural areas, and provision of high-quality outdoor recreation opportunities. The Act also expanded the scope of projects eligible for funding to include capital improvement projects, as well as land acquisition. Eligible capital improvement projects include water resource development, stormwater treatment, waterbody restoration, and public access and recreation facilities. A portion of the District's Florida Forever capital improvements funding will go toward its new Florida Forever Capital Improvement Grant Program.

Figure 4. Northwest Florida Water Management District and Other Public Lands



WATER SUPPLY

Regulatory Safeguards

Through its statutorily authorized regulatory programs, the NFWFMD continues to protect water resources from over withdrawal.

Water Resource Investigations

Years of work by the District in monitoring, modeling, and evaluating water resources resulted in a significantly enhanced level of understanding of major water resource systems, such as the Floridan Aquifer District-wide, the Sand-and-Gravel Aquifer in Escambia County, the Apalachicola River and Bay system, and the Econfina Recharge Area. As a result of these focused studies, the District and other cooperators have taken effective measures to protect resources of regional and statewide priority. Examples include the protection of over 40,000 acres in the Econfina Recharge Area, enhanced protection of the Sand-and-Gravel Aquifer in Escambia County, a dedicated state effort to ensure the long-term sustainability of the Apalachicola River and Bay system, and implementation of the Water Resource Development Work Program for Santa Rosa, Okaloosa, and Walton counties.

Regional Planning and Water Resource Development

Pursuant to section 373.036, F.S., the District established seven water supply planning regions and conducted a District-wide water supply assessment (Ryan et al. 1998). Following the assessment findings, the NFWFMD developed a Regional Water Supply Plan (RWSP) for Region II (Santa Rosa, Okaloosa, and Walton counties), for which projected water supplies were deemed inadequate to sustain the needs of both humans and natural systems. The plan included a Water Resource Development Work Program (WRDWP) to identify and develop additional water resources within the region. The District continues to implement the WRDWP. Both the RWSP and WRDWP are scheduled to be updated during FY 2004-2005.

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Water Supply Development Assistance

The District has:

- Obtained almost \$3 million in grant funding from the U.S. Environmental Protection Agency to assist the Fairpoint Regional System, Inc., in developing and constructing an inland Sand-and-Gravel Aquifer wellfield to meet the water supply needs of southern Santa Rosa County.
- Provided additional funding assistance to the City of Crestview to assist in repairs of an existing public supply well and new construction of another well.
- Initiated a water supply development assistance program in Franklin County, which includes test well development and aquifer performance testing projects.

FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT

Land Acquisition

As one means of achieving non-structural flood protection and floodplain function protection, the District has acquired substantial floodplain areas along major rivers and natural storage areas. These lands are managed so as to protect and, as necessary, restore floodplain functions. By protecting these floodprone areas, the District ensures that these areas will not be developed and that people will not be put at risk in such areas and in downstream locations where flood levels may

be made higher by the loss of natural water storage. To date, the District has acquired over 201,000 acres, largely in floodways along major river corridors.

Map Modernization

As Part of a Cooperating Technical Partner Agreement with the Federal Emergency Management Agency, the NFWFMD has accepted delegation of the flood hazard map modernization program for the 16 counties within its jurisdiction. The effort has been initiated in Escambia and Santa Rosa counties. The District vision for the map modernization initiative is to cooperatively develop a District-wide program that provides more accurate and complete flood hazard information for counties and communities within the District.

WATER QUALITY PROTECTION AND RESTORATION

Under the auspices of the SWIM program, the NFWFMD has effectively applied and leveraged state funding with federal and local resources for the protection and restoration of water quality and associated fish and wildlife habitat within priority watersheds. Through these efforts, cooperative stormwater retrofit projects have been designed and implemented to restore and protect historically degraded surface waters and associated habitats within the Pensacola Bay and Lake Jackson watersheds. Other accomplishments have been realized in the Choctawhatchee River and Bay, St. Andrew Bay, and Apalachicola Bay watersheds. The District has participated in the Lake Jackson sediment removal project and in making water quality improvements in Old Pass Lagoon. Funding for watershed management and restoration efforts historically were provided through the SWIM Trust Fund. In recent years, the District has used funding from the Water Management Lands Trust Fund and legislative appropriations, as well as grant funds, for watershed restoration.

NATURAL SYSTEMS PROTECTION AND ENHANCEMENT

Regional Wetland Mitigation

- In implementing the mitigation requirements of section 373.4137, F.S., the District has made important progress in the preservation, enhancement, and restoration of wetland resources to compensate for Florida Department of Transportation (DOT) wetland impacts within the Pensacola Bay System, the Choctawhatchee River and Bay watershed, the St. Andrew Bay watershed, and other areas throughout the District. Recently, the District has completed the ecological assessment, design, and development of a mechanism for lands acquired for the proposed 2,155-acre Sand Hill Lakes Mitigation Bank located in Washington County. Ecological management of the exceptional habitats within this property has been initiated, and regulatory approval of the banking instrument is anticipated in the near future. Wetland enhancement and restoration activities continued within Devil's Swamp in south Walton County, and were begun in other areas of the District, including the Escambia and Choctawhatchee river floodplains. These activities include hydrologic restoration, chopping and burning to institute proper fire regimes, and replanting with native wetland vegetation.
- In an effort to streamline the DOT mitigation process, the District has also drafted an innovative In-Lieu-Fee agreement with the U.S. Army Corps of Engineers. This agreement will match compensatory mitigation plans with proposed DOT wetland impacts for up to 10 years in the future. Early matching of mitigation projects with anticipated future wetland impacts will allow the District to ensure that those impacts are fully compensated in a timely and cost-effective manner while protecting water resources and critical wetland habitat.
- The District has worked in cooperation with Escambia County to acquire lands for the County's Jones Swamp Preserve. Funding for acquisitions and supporting technical assistance has been provided by the County, the SWIM Program, the U.S. EPA, the Florida Community Trust program, the DOT mitigation program, and local sources.

- The District has established a schedule and is conducting detailed studies in support of development of Minimum Flows and Levels for surface waters, springs, and aquifers that face risks from potential reduced water levels or flows.

Surface Water Improvement and Management (SWIM)

- The District has developed and is implementing SWIM Plans for Pensacola Bay System, Choctawhatchee River and Bay System, St. Andrew Bay system, Apalachicola River and Bay system, Lake Jackson watershed, and St. Marks River-Apalachee Bay watershed.
- The District will continue to develop, update, and implement watershed-based SWIM plans for major waterbodies of regional significance.
- Under the auspices of the SWIM program and through land management funding, state legislative appropriations, and state and federal grants, the District has initiated and participated in a number of major restoration projects. These include the Tates Hell Swamp restoration project, the Big Escambia Creek restoration project, Lake Jackson restoration, Bayou Chico retrofit and restoration efforts, Apalachicola River floodplain restoration, shoreline restoration projects, and restoration activities on District lands. Such restoration efforts are planned to complement ongoing District and other efforts to ensure long-term cumulative water resource benefits.

INFORMATION SHARING AND TECHNICAL SUPPORT

Efficient Transportation Decision Making

The District has entered into multi-party agency operating and funding agreements to assist DOT with the Efficient Transportation Decision Making (ETDM) process. This process creates linkages between land use, transportation, and environmental resource planning initiatives. It facilitates better interagency coordination and is intended to involve the District, as early as possible, in the planning and permitting process for DOT transportation projects. As a member of the Environmental Technical Advisory Team, the District's role includes evaluation of DOT projects with regard to potential water resource and wetland impacts, and the development of related data and information. DOT, local government, and other state and federal resource agencies, including the District, are able to use this information to streamline environmental planning and permitting processes, as well as plan for better and more timely wetland mitigation projects.

Hydrologic Conditions Reporting

A link on the District's website has been created as part of a new program to provide the public with current information about hydrologic conditions within the District's 16-county area. The information developed is intended for a wide audience and aids in facilitating a better understanding of the unique surface and groundwater resources in the District. It also provides suggested water conservation practices. Specific information posted for major water bodies, watersheds, and aquifers includes accumulated rainfall amounts, drought conditions, stream flows, lake levels, and groundwater levels. The information is updated at least every six months, and as conditions warrant.

I. DISTRICT PROGRAMS

The District's major water resource-related programs and activities are described in Table 5 below, organized according to the Executive Office of the Governor's (EOG) budget reporting categories for the water management districts. These budget categories were developed by the EOG in consultation with the water management districts, to provide a standard format for annual review of district budgets pursuant to section 373.536(5), Florida Statutes. A description of all the EOG reporting categories is contained in Appendix D (also see the NFWFMD *August 1, 2005, Standard Format Tentative Budget Submission*).

Table 5. District Programs and Activities

| EOG BUDGET REPORTING CATEGORIES | DISTRICT PROGRAM/ACTIVITY | DISTRICT DIVISION* | FL STATUTE REFERENCES |
|---|---|---------------------------|---------------------------------|
| 1.0 Water Resources Planning and Monitoring | | | |
| 1.1 District Water Management Planning | | | |
| 1.1.1 Water Supply Planning | o Regional Water Supply Planning (RWSP), Including Water Supply Assessments | RMD | 373.0361 |
| | o Water Resource Development Work Program | RMD | 373.536(6) |
| 1.1.2 Minimum Flows and Levels | o Minimum Flows and Levels | RMD | 373.042, .0421 |
| 1.1.3 Other Water Resources Planning | o District Water Management Plan and Progress Reports | RMD | 373.036(2) |
| | o SWIM Priority List and Plans | RMD | 373.453, .455 |
| | o Florida Forever Plan Update | LMD/RMD | 373.199 |
| | o Wetlands Mitigation Plans | RMD | 373.4137 |
| 1.2 Research, Data Collection, Analysis and Monitoring | o Ground and Surface Water Monitoring Networks | RMD | 373.083, .145 |
| | o Hydrologic Data Collection | | |
| 1.3 Technical Assistance | o Local, State, Tribal, and Federal Planning Support | RMD | 373.0391, .0395, .145; 189.4156 |
| 2.0 Acquisition, Restoration, and Public Works | | | |
| 2.1 Land Acquisition | o Save Our Rivers | LMD | 373.139, .59 |
| | o Florida Forever | LMD | 259.105, 373.139 |
| | o DOT Mitigation | LMD/RMD | 373.4137, .414 |
| 2.2 Water Source Development | | | |
| 2.2.1 Water Resource Development Projects | o RWSP and Water Resource Development Work Program Implementation | RMD | 373.0361, .0831 |
| | o Abandoned Artesian Well Plugging | RRD | 373.207, .209 |
| 2.2.2 Water Supply Development Assistance | o Financial and Technical Assistance | RMD | 373.0361, .0831 .1961, .1962 |
| 2.3 Surface Water Projects | o SWIM Restoration | RMD | 373.451 -.459 |
| | o Land Acquisition | LMD | 373.139 |
| | o Wetlands Mitigation | RMD | 373.4135 - .4137, .414 |
| 2.4 Other Cooperative Projects | o Local Government Assistance – Operation and Maintenance | RMD | 373.016, .083 |
| 3.0 Operation and Maintenance of Lands and Works | | | |
| 3.1 Land Management (Florida Forever) | o Management of Acquired District Lands | LMD | 373.1391, .59 |
| 3.2 Works | o Lake Jackson Regional Stormwater Treatment Facility | RMD | 373.084, .086 |
| 3.3 Facilities | o Administrative Buildings and Grounds | AFD | Chapter 373 |
| 3.4 Invasive Plant Control | o Routine Land Management | LMD | 369.22; 373.086, .59 |
| 3.5 Other Operation and Maintenance Activities | N/A | | |

| EOG BUDGET REPORTING CATEGORIES | DISTRICT PROGRAM/ACTIVITY | DISTRICT DIVISION* | FL STATUTE REFERENCES |
|---|---|---|--|
| 4.0 Regulation | | | |
| 4.1 Consumptive Use Permitting | o Consumptive Use Permitting | RRD | 373.216, .219, .223 |
| 4.2 Water Well Construction Permitting/Contractor Licensing | o Well Permitting | RRD | 373.308 |
| | o Contractor Licensing | RRD | 373.323, .324, et seq. |
| 4.3 Environmental Resource and Surface Water Permitting | o Management and Storage of Surface Waters | RRD | 373.085, .413, .414, .4145, .416; 403.927 |
| | o Forestry/Silviculture Water Management Permitting | RRD | |
| | o Works of the District | RRD | |
| 4.4 Other Regulatory and Enforcement Activities | N/A | | |
| 5.0 Outreach | | | |
| 5.1 Water Resource Education | o Waterways Program | PI | 373.016, .026, .0391, .185, .1961, .227, .250, .413, .453, .536, 403.064 |
| | o SWIM Education | PI | |
| 5.2 Public Information | o SWIM Public Awareness | PI | |
| | o Water Conservation Materials | PI | |
| | o Annual Report | PI | |
| * RMD - Division of Resource Management LMD - Division of Land Management and Acquisition RRD - Division of Resource Regulation | | AFD - Division of Administration and Finance PI - Public Information | |

J. FUNDING

The five water management districts all have similar water management responsibilities; however, the districts have varying financial resources to address their responsibilities. Funding for NWFWM District programs comes from a combination of sources, including ad valorem tax, general revenue appropriations from the Florida Legislature, trust funds, other state programs and grants, and contractual services to local governments, regional utility authorities, and other government agencies.

AD VALOREM

The Northwest Florida Water Management District is limited by the Constitution to one-twentieth of the ad valorem taxing authority of the other four districts (0.05 mil as compared to 1.0 mil). This funding inequity requires the District to carefully prioritize its efforts to ensure that the water management issues of greatest regional importance are addressed in an efficient yet effective manner. The District relies heavily on state and other funds to conduct its programs and is unable to implement some of the programs the other districts implement (e.g. environmental resource permitting). Even with supplemental state funding, its limited ad valorem taxing capability sometimes prevents the District from adequately addressing its water resource problems, which at this stage could still be resolved relatively economically compared to other areas of the state.

WATER MANAGEMENT LANDS TRUST FUND

The Water Management Lands Trust Fund, which resides in the DEP, provides funds pursuant to s. 373.59, F.S., for the Save Our Rivers Program. These funds are used to fund management, maintenance, and capital improvements on District- owned lands, for payment-in-lieu-of-taxes to qualified counties, to fund the District’s SWIM Program and for regional water supply planning and water resource development.

FLORIDA FOREVER

The program authorizes issuance of up to \$3 billion in bonds over a ten-year period. The Florida Forever Trust Fund provides funds to the District for the acquisition of land and for implementation of

capital improvement projects. It is expected that half of the NFWWMD's share of Florida Forever funds will go toward land acquisition, with the remainder going to eligible capital improvements and water resource development projects.

OTHER STATE REVENUE

The DEP and other state agencies often contract with the District to provide technical knowledge, skills, and abilities relative to the District's mission and the individual state agencies' needs. These agencies offset the costs of the services being performed. As a participant in the DOT mitigation and ETDM programs, the District receives DOT funds to help avoid unnecessary impacts and plan and accomplish mitigation for affected lands.

FEDERAL REVENUE

The DEP and other state agencies often use federal funds in their contracts with the District. These funds are granted to the state agency and disbursed to the District as pass-through or sub-grantee funds. The District also receives funds directly from federal entities through grant programs and/or contracts with federal agencies. Federal funding is often obtained on a competitive basis that requires matching funds.

Because of limited ad valorem tax revenues and uncertain state funding from year to year, the District has a number of dedicated reserve accounts (sinking funds) to accumulate money for necessary large expenditures. These include reserves for minimum flows and levels, water supply planning, water resource and supply development, land acquisition and management, surface water projects, and other uses. In addition, the District has set up a budget stabilization reserve, based on the state model, in the event that its combined revenues become insufficient to fund District obligations. The allocation of staff, available funds, and other District resources is conducted strategically to stretch limited resources and obtain maximum efficiency.

Given the District's financial constraints, it is important to realize that this District Water Management Plan is not self-executing. The implementation of programs and activities to achieve the policies and objectives stated in the plan depends on the appropriation of funds for specific purposes.

K. INTER-DISTRICT AND DISTRICT/DEP COORDINATION MECHANISMS

The NFWWMD works cooperatively with DEP and the other water management districts through various mechanisms, not the least of which is the development of the district water management plans. Other coordination mechanisms include:

- The annual water management conference
- Periodic interagency meetings for various programs, such as land acquisition, wetland mitigation, and permitting
- Planning coordination on the DWMP and other plans
- Joint training sessions
- Formally executed Governing Board-approved Cooperative agreements, and letters of agreement between the DEP Secretary and the Executive Director

Chapter VII, the Integrated Plan chapter, addresses interagency coordination more fully, and includes coordination with DEP, other water management districts, other state and regional agencies, and local governments.

II. Water Management Goals and Policies

The following mission statement, water management goals, and policies provide overall long-range guidance for the Northwest Florida Water Management District, upon which its objectives, strategies, and detailed plans are based.

A. MISSION STATEMENT

Protect and manage the water resources of northwest Florida in a sustainable manner for the continued welfare of its residents and natural systems.

B. WATER RESOURCE ISSUES

The water resource issues affecting the District are interrelated, and they overlap each of the District's four areas of responsibility as defined by Chapter 373, F.S. (water supply, flood protection and floodplain management, water quality, and natural systems). Consequently, these issues are cross-referenced in each AOR chapter in the respective strategies tables to show what issues and objectives are addressed by each strategy. Related objectives are listed in each AOR chapter and also are cross-referenced in the strategies tables. Issues affecting District water resources include the following:

1. Existing and anticipated water supply problems and areas of special concern have been identified in several areas of the District.
2. Some water supplies are vulnerable to contamination due to excessive demand or inadequate pollution controls.
3. Development and encroachment into floodprone areas has been shown to result in substantial threats to residents and property across the District. Such encroachment also may diminish floodplain functions, which may further increase flood hazards and harm natural systems.
4. Existing floodplain maps across the District tend to be outdated or otherwise inaccurate or imprecise.
5. A number of surface and groundwaters have been degraded or are threatened by point and nonpoint sources of pollution.
6. Watersheds in northwest Florida cross county boundaries and extend well into Alabama and Georgia, making them subject to alteration and pollution impacts from activities in those states.
7. Cumulative effects of consumptive uses can reduce downstream flows and/or otherwise adversely affect natural water resource systems and watershed functions.
8. Natural systems altered through past land use practices have lost water resource benefits and functions, and need restoration and/or improved management.
9. Cumulative impacts from development, urban stormwater runoff, and other nonpoint sources of pollution significantly degrade the quality or result in losses of wetlands, shorelines, aquatic habitats, and other water-related resources throughout the District.
10. Many areas that were developed prior to implementation of current stormwater regulations need retrofitting to provide for water quality treatment and flood protection.

C. WATER MANAGEMENT GOALS

The major goals of the Northwest Florida Water Management District address the issues described above, by area of responsibility.

WATER SUPPLY GOAL:

Promote the availability of sufficient water for all existing and future reasonable-beneficial uses and natural systems.

The District will continue to work with local governments, utilities, and state and federal agencies to appropriately plan for and ensure the availability of sufficient water supplies in a manner that meets the needs of the human community and sustains associated natural systems.

FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT GOAL:

Maintain natural floodplain functions and minimize harm from flooding.

Emphasizing a non-structural approach, the District will work to protect and, where necessary, restore natural floodplain functions and help to protect the health, safety, and welfare of the region's residents and integrity of the region's natural systems.

WATER QUALITY GOAL:

Protect and improve the quality of the District's water resources.

The District will continue to work with local governments, state and federal agencies, and regional stakeholders to protect and, where necessary, restore water quality.

NATURAL SYSTEMS GOAL:

Protect and enhance natural systems.

The District will continue to work in cooperation with state and federal agencies, local governments, and regional stakeholders to protect natural resources of regional significance in a comprehensive, integrated manner, in order to preserve and restore natural systems and maintain public benefits and compatible uses.

The NFWMD will address these goals through a watershed approach, recognizing the interrelated nature of land and water resource issues, and will maintain its overall water management capabilities, expertise, and capacity to provide technical assistance for local needs.

D. POLICIES

The District conducts its programs and activities consistent with the water resource-related policies set forth in the Water Resources Act, the State Comprehensive Plan, and the Water Resource Implementation Rule. These policies are listed in Appendix B, *Policy Framework*. Some of the overarching policies within that framework are:

- Maintain, as one of the state's primary economic assets, the environment, including clean air and water, beaches, forests, historic landmarks, and agricultural and natural resources. (Chapter 187, F.S.)
- Take into account cumulative impacts on water resources and manage those resources in a manner to ensure their sustainability. (Chapter 373, F.S.)
- Encourage nonstructural solutions to water resource problems and give adequate consideration to nonstructural alternatives whenever structural works are proposed. (Chapter 62-40, F.A.C.)

- Avoid the expenditure of public funds that encourage or subsidize incompatible new development or significant expansion of existing development in high-hazard flood areas. (Chapter 62-40, F.A.C.)
- Emphasize the acquisition and maintenance of ecologically intact systems in all land and water planning, management, and regulation. (Chapter 187, F.S.)
- Promote the availability of sufficient water for all existing and future reasonable-beneficial uses and natural systems. (Chapter 373, F.S.)
- Encourage the development of local and regional water supplies within water management districts rather than transporting surface water across district boundaries. (Chapter 187, F.S.)
- Promote water conservation as an integral part of water management programs as well as the use and reuse of water of the lowest acceptable quality for the purposes intended. (Chapter 187, F.S.)

District Rules contain the following policies consistent with those in the statutory policy framework:

- ...Manage the water resources of the District to promote the conservation, development, and proper utilization of surface and groundwater, and to encourage and promote water conservation and the reuse of reclaimed water. (Chapter 40A-2, F.A.C.)
- ...Assure that activities relating to the management and storage of surface waters will not be harmful to the water resources and will provide for the safety of life and property within the District. (Chapter 40A-4, F.A.C.)
- ...Assure that agricultural and forestry projects relating to the management, storage, and drainage of surface waters will not be harmful to the water resources, and will provide for the safety of life and property. (Chapter 40A-4, F.A.C.)

The remaining chapters of the District Water Management Plan describe the District's major objectives and strategies to address the four areas of responsibility.

III. WATER SUPPLY

A. GOAL

The District's overall water supply goal is to promote the availability of sufficient water for all existing and future reasonable-beneficial uses and natural systems.

B. RESOURCE ASSESSMENT

Although northwest Florida has a relatively abundant supply of ground and surface water to serve the needs of the region, there are existing or anticipated water supply problems in specific areas that will need to be addressed through development of alternative or new sources.

PLANNING UNITS

Since its creation, the District has been involved in a variety of cooperative water supply planning efforts, which have tended to focus on areas where water supply problems were already manifest or appeared imminent. The District's primary water supply planning efforts have addressed issues in the coastal areas of Santa Rosa, Okaloosa, and Walton counties.

Pursuant to Executive Order 96-297 and Chapter 97-160, Laws of Florida, the NFWFMD commenced a new District-wide water supply planning initiative in 1996 with the identification of seven water supply planning regions (Figure 5). Within some of these regions, "Areas of Special Concern" (ASCs) were identified. The ASCs are sub-regional areas that have an identified water supply problem or are considered to be susceptible to development of future problems. Separate water demand projections were prepared for each ASC for the purpose of comparing the demand projections to the estimated amount of water available from existing sources in the particular area.

The primary factors considered in delineation of the regions were county boundaries and similarity of current water supply conditions. County boundaries were used because independent population projections are readily available at this level and are needed as a foundation for projecting smaller units. Also, agricultural information needed for estimating water use is typically available at the county level. The water supply conditions considered when delineating the regions included primary water sources used, relative availability of water and the presence or absence of current water supply problems or issues.

The discussion of water supply is divided into two sections: *Needs and Sources* and *Source Protection*. The *Needs and Sources* section provides an assessment of the availability of water for anticipated future needs of the region. The *Source Protection* section includes an assessment of contamination threats to water supply sources and District efforts to protect against them.

NEEDS AND SOURCES

Water Supply

Interrelated, variable factors, including population levels, household income, land use, and climate, influence water use in northwest Florida. Table 6 depicts the 2000 water use for each county. Escambia County used the largest amount of water in the District, approximately 84 Mgal/d. Liberty County used the least, about 1.6 Mgal/d.

In June 1998, the NFWFMD completed the first District-wide water supply assessment, which contained projections for water use. In 2003, the District conducted a five-year update of the water supply demand projections through 2025 (NFWFMD 2003). The updated projections indicate that water use in the District will increase 42 percent during the 2000 - 2025 planning timeframe, or an additional 132 million gallons per day (Mgal/d). This increase is largely attributable to the projected population growth and increasing water demands of seasonal residents.

Figure 5. Water Supply Planning Regions

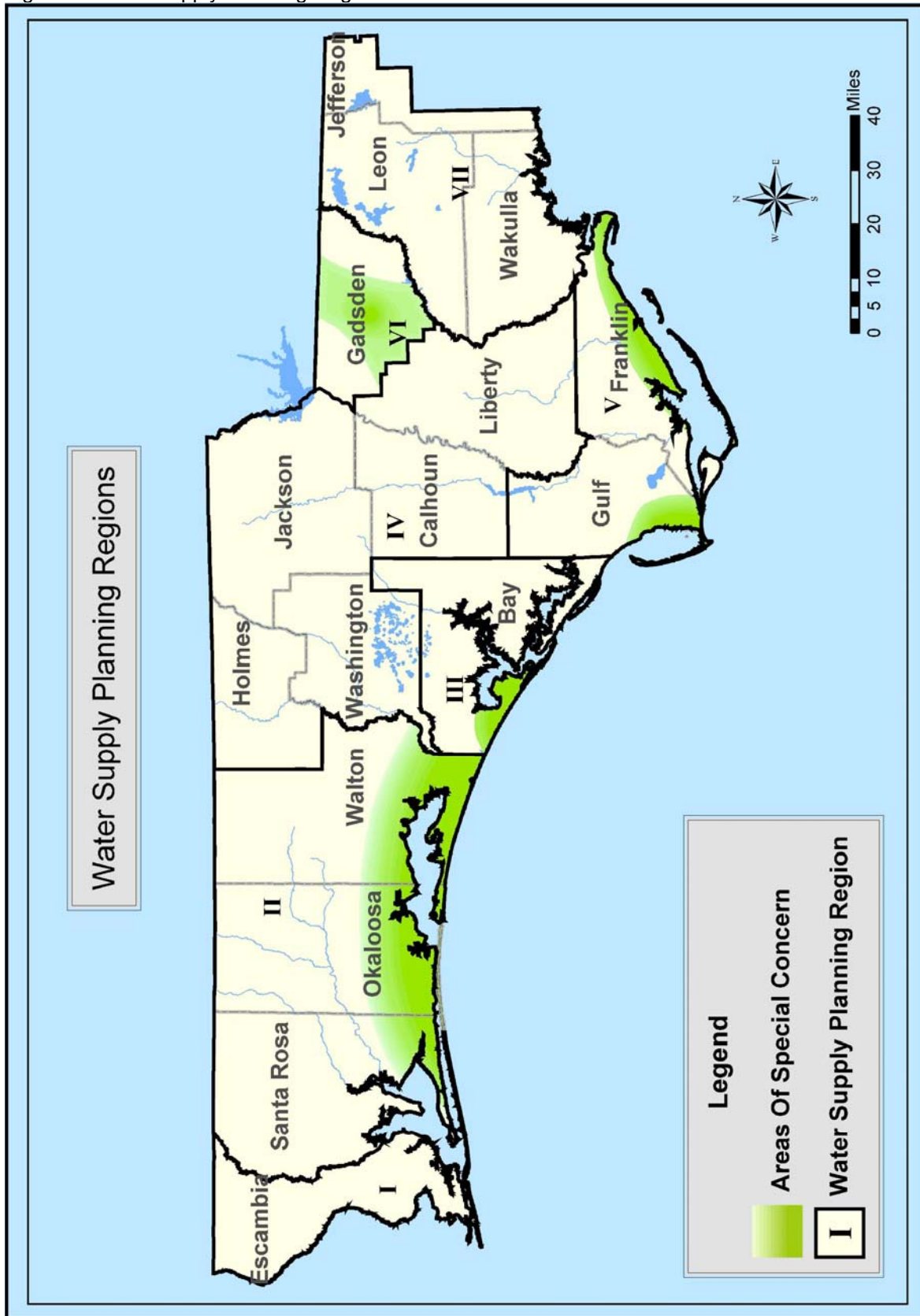


Table 6. NFWWMD Water Use by County and Water Supply Planning Region

| PLANNING REGION | TOTAL AVERAGE WATER USE (MGAL/D) ¹ | | PUBLIC SUPPLY PER CAPITA (GAL/D) | PRIMARY WATER SOURCE |
|--|---|---------------------------------------|----------------------------------|---------------------------------------|
| | 2000 | 2025 | 2000 | |
| REGION I ESCAMBIA | 83.93 | 112.34 | 156 | Sand-and-Gravel Aquifer |
| REGION II SANTA ROSA OKALOOSA WALTON | 22.80 32.56 8.89 | 39.88 50.31 17.11 | 132 145 188 | Floridan and Sand-and-Gravel aquifers |
| REGION III BAY | 55.71 | 79.51 | 206 | Deer Point Lake Reservoir |
| REGION IV HOLMES WASHINGTON JACKSON CALHOUN LIBERTY | 2.99 4.18 20.74 4.99 1.62 | 3.89 5.42 23.30 7.49 2.03 | 235 153 150 178 141 | Floridan Aquifer |
| REGION V GULF FRANKLIN | 3.47 2.08 | 3.19 2.86 | 142 207 | Floridan Aquifer/ St. Joe Canal |
| REGION VI GADSDEN | 13.68 | 15.28 | 157 | Floridan Aquifer |
| REGION VII LEON WAKULLA JEFFERSON | 43.41 5.22 5.61 | 64.93 8.72 7.08 | 179 235 143 | Floridan Aquifer |
| Total | 311.88 | 443.34 | 164(Avg.)² | |
| <p>¹ The water demand projections do not factor in the effects of ongoing water conservation efforts. Current and future water conservation are taken into account in addressing projected needs.</p> <p>² Calculated by dividing year 2000 Public Supply water use by the population served</p> | | | | |

SOURCE: *Water Supply Projections, 2000-2025 (NFWWMD 2003)*

The 1998 District Water Supply Assessment concluded that “existing and reasonably anticipated sources of water and conservation efforts” are not adequate “to supply water for all existing legal uses and reasonably anticipated future needs, and to sustain the water resources and related natural systems” in the planning region that encompasses Santa Rosa, Okaloosa, and Walton counties (Region II). This assessment was supported by the 2003 update (NFWWMD 2003). Current water resources were determined to be adequate through 2025 for the remaining areas of northwest Florida. Table 7 summarizes the Water Supply Assessment conclusions by planning area. The updated water supply demand projections did not affect these conclusions.

As described earlier, substantial areas of the District are subject to rapid population growth and associated land use change. Such changes come with increasing demands on potable water supplies. Considerable growth remains focused within Region II, continuing the long-term water resource issues affecting that three county area.

Table 7. Summary of Water Supply Source Conditions

| REGION | CONCLUSIONS | | PRIMARY SOURCE LIMITATION(S) IDENTIFIED | 2020 ALTERNATIVE SOURCES |
|--|---------------------------|------------------------------------|---|--------------------------|
| | Average Daily Demands Met | Year 2025 Demands Met ¹ | | |
| I ESCAMBIA | All | All | Surface Contaminants | N/A |
| II SANTA ROSA OKALOOSA WALTON | All Except Public Supply | Not Determined beyond 2020 | Saltwater Intrusion ² | Not Determined |
| III BAY | All | All | Saltwater Intrusion Extreme Drought ² | Yes |
| IV CALHOUN HOLMES JACKSON LIBERTY WASHINGTON | All | All | Surface Contaminants | N/A |
| V FRANKLIN GULF | All | All | Saltwater Intrusion ² | Yes |
| VI GADSDEN | All | All Except Agriculture | >10 Year Return Period ¹ Droughts | Yes |
| VII JEFFERSON LEON WAKULLA | All | All | Surface Contaminants | N/A |
| ¹ For Greater than 1-in-10 Year Drought | | | | |
| ² The primary source limitation is in the Area of Special Concern (ASC) in these regions. | | | | |

SOURCES: District Water Supply Assessment (NFWWMD 1998); Water Supply Projections 2005-2025 (NFWWMD 2003).

SOURCE PROTECTION

Groundwater

Source protection for groundwater supply involves delineation of areas surrounding and contributing to public supply wells, and the identification of groundwater recharge areas and their characteristics for the protection of both quality and quantity.

Groundwater is the primary source of water used for public consumption, including potable supply. Groundwater sources are most vulnerable to contamination where the aquifer used for potable supply is unconfined. This occurrence is prevalent in the western portion of the District where the unconfined Sand-and-Gravel Aquifer is used for potable supply, and in portions of Washington, Bay, Jackson, Wakulla, and Leon counties where the Floridan Aquifer is unconfined or poorly confined due to karst features. Areas of the Sand-and-Gravel Aquifer in southern Escambia County used for public supply have been contaminated by chemical contaminants, such as dry cleaning solvents, pesticides, or petroleum products. A number of public supply wells have been affected. Significant contamination of the Floridan Aquifer was also identified in Jackson County, where an agricultural pesticide affected over 400 domestic wells (NFWWMD 1989).

Delineated areas with relatively low recharge rates to the Floridan Aquifer are significant from the perspective of water supply and demand. In many cases, aquifer recharge in these delineated areas

occurs indirectly, via leakage from "source" beds (i.e., Surficial Aquifer System), which overlie the aquifer. Due to the confinement of the Floridan Aquifer, the leakage is quite low, resulting in limited replenishment of the groundwater resource. This is true in Okaloosa and Walton counties. Water levels in the Floridan Aquifer historically have been declining in the coastal areas of these counties, where a regional depression is the result of significant pumping in the vicinity. Salt water encroachment in this area is also of concern. Thus, managing the aquifer's limited quantity relative to human demand is important.

Areas of higher recharge to the Floridan Aquifer occur where the aquifer is at or near land surface and where karst processes have broken through the overlying confining unit. The high recharge and transmissive characteristics allow for an abundant groundwater resource. However, these characteristics make the resource easily susceptible to groundwater contamination.

Surface Water

Deer Point Lake Reservoir is the primary source of drinking water for Bay County. The City of Port St. Joe in Gulf County is making a transition from using groundwater to withdrawing water from the Gulf County Canal, which is fed by the Chipola River. As the region grows, surface water may continue to increase in importance as a source for future water supply.

Surface waters used for public supply in northwest Florida are most susceptible to contamination from nonpoint source (NPS) pollution, which can include runoff from highways; construction activities; and urban, agricultural, mining, and silviculture land uses. Planning and implementation of best management practices (BMPs) are important to preventing impacts from NPS pollution. Deer Point Lake Reservoir has documented NPS pollution problems, and its quality could be diminished if the watershed is not carefully managed to protect water quality.

Water Resource Caution Areas

Where demand is incompatible with water resources, problems develop and water use must be modified to cope with the limitations. Such areas are designated as Water Resource Caution Areas (WRCAs). The WRCA designation subjects all non-exempt withdrawals to more rigorous scrutiny to ensure that the proposed withdrawal does not result in unacceptable impacts to the resource. Consumptive Use permittees within a WRCA also have increased water use reporting requirements, must implement water conservation measures, and must improve water use efficiencies. They are required to perform an evaluation of the technical, environmental, and economic feasibility of providing reclaimed water for reuse, and, within the designated WRCA, a reasonable amount of reuse of reclaimed water is to be required, where determined feasible.

In response to existing and anticipated water supply problems, the NFWFMD Governing Board designated two WRCAs: the coastal areas of Santa Rosa, Okaloosa, and Walton counties, and the Upper Telogia Creek drainage basin in Gadsden County. Figure 6 delineates these two areas. The Upper Telogia Creek basin WRCA designation is due primarily to agricultural water demands and the limited amount of water available to the agricultural community during extreme drought conditions.

In addition to the WRCA requirements described above, the coastal area WRCA designation prohibits use of the Floridan Aquifer for new non-potable purposes. Since this designation, no new or expanded non-potable use has been permitted in the area, allowing for improved management of the resource and allocations consistent with the public interest. As development in this area proceeds at an accelerated pace, this designation and the successful implementation of related requirements are cornerstones to achieving the long-term sustainability of the resource.

Figure 6. Water Resource Caution Areas

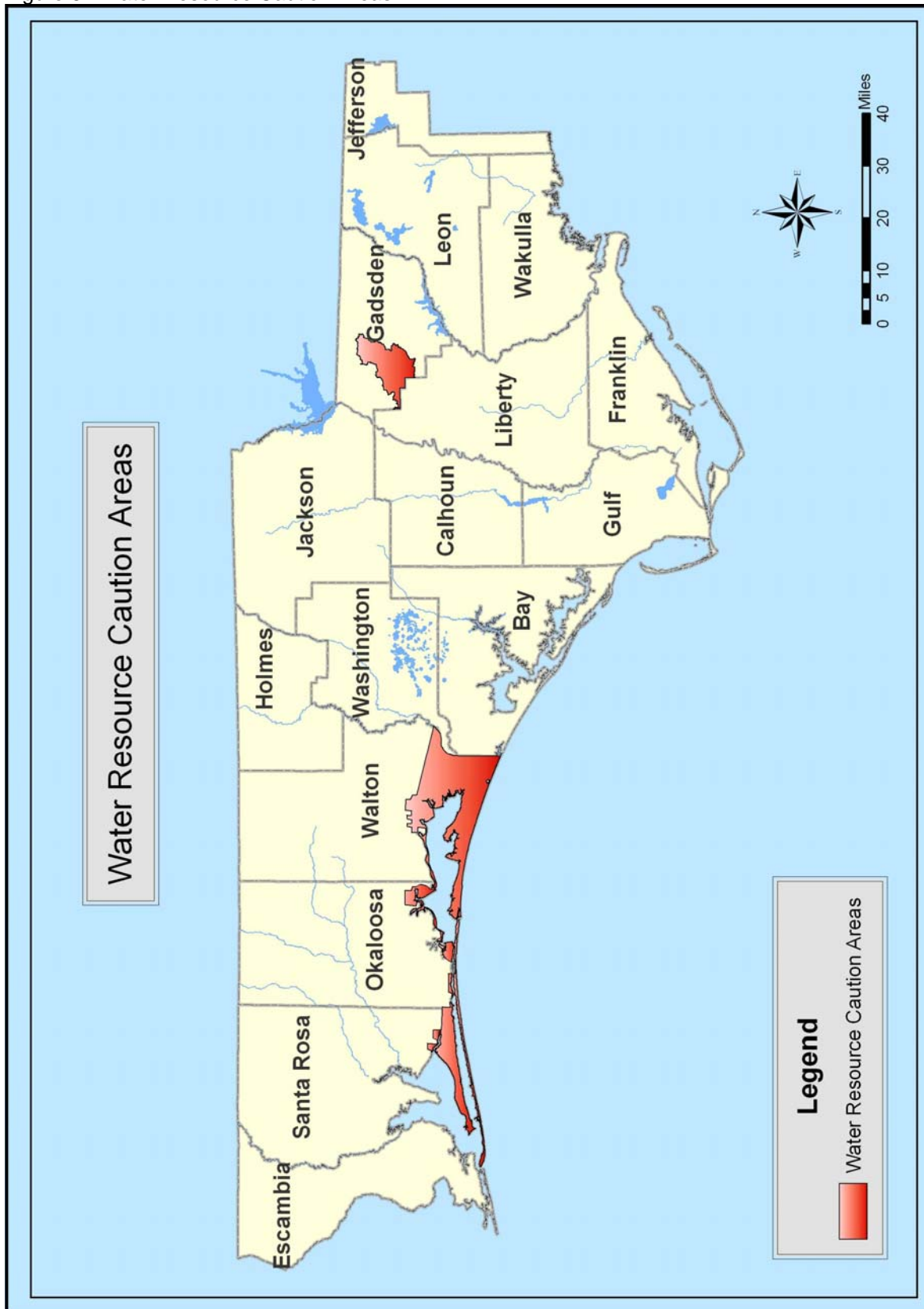


Table 8 summarizes the recommendations of the 1998 District Water Supply Assessment by water supply planning region.

Table 8. 1998 Water Supply Assessment Recommendations

| REGION | | WATER SUPPLY ASSESSMENT RECOMMENDATIONS |
|--------|---|---|
| I | ESCAMBIA | <ul style="list-style-type: none"> No RWSP Needed Efforts to protect supplies from surface contamination should continue. Available reuse water should be provided for uses that reduce consumption of Sand-and-Gravel Aquifer water. |
| II | SANTA ROSA OKALOOSA WALTON | <ul style="list-style-type: none"> RWSP Needed* Activities to closely monitor water resources and regulate and monitor water consumption should continue. Water reuse programs should be implemented to the maximum extent feasible. |
| III | BAY | <ul style="list-style-type: none"> No RWSP Needed Panama City Beach should implement alternatives to existing wells, preferably using water from Deer Point Lake Reservoir.* |
| V | HOLMES WASHINGTON JACKSON CALHOUN LIBERTY | <ul style="list-style-type: none"> No RWSP Needed |
| V | GULF, FRANKLIN | <ul style="list-style-type: none"> No RWSP Needed Future Floridan Aquifer withdrawals in Franklin County should be located away from the coast and closely monitored. City of Apalachicola wells should be closely monitored. Additional efforts should begin to monitor ground water resources. |
| VI | GADSDEN | <ul style="list-style-type: none"> No RWSP Needed Telogia Creek flows and withdrawals should continue to be closely monitored. Adequate spacing should be maintained between large wells in central Gadsden Co. Watershed management efforts should be implemented in the Quincy Creek basin.* Water reuse programs should be implemented to the maximum extent feasible. |
| VII | LEON WAKULLA JEFFERSON | <ul style="list-style-type: none"> No RWSP Needed Available reuse water should be provided for uses that reduce consumption of Floridan Aquifer water. |

* These recommendations have been implemented.

C. WATER SUPPLY OBJECTIVES AND MEASURES

OBJECTIVES

In order to meet the challenges discussed above and to effectively address the general issues described in Section II, the District has established the following water supply objectives:

In order to meet the challenges discussed above and to effectively address the general issues described in Section II, the District has established the following water supply objectives:

- WS 1. Develop water resources in Santa Rosa, Okaloosa, and Walton counties to meet long-term water supply needs according to the schedule in the RWSP for Region II and the associated Water Resource Development Work Program.
- WS 2. Continue to assist local governments and utilities in the development of local water supplies within Region II and other areas with known or anticipated water supply problems.
- WS 3. Address anticipated water shortages as soon as possible to protect water resources and water users.
- WS 4. Continue to regulate water withdrawals and well construction to protect groundwater supplies from contamination and over-withdrawal.
- WS 5. Conduct appropriate water resource evaluations when necessary to provide information to local entities for development and protection of water supply sources.
- WS 6. Acquire lands, pursuant to the Florida Forever Land Acquisition Work Plan, important to the protection of water supplies.
- WS 7. Enhance public awareness, understanding, and participation in the efficient and sustainable management of water supplies District-wide.
- WS 8. Promote water conservation and reuse throughout the District, with priority emphasis on Region II in accordance with the Regional Water Supply Plan and the schedule provided in the Water Resource Development Work Program.
- WS 9. Conduct water supply planning on a regional level to address identified or anticipated water resource problems.
- WS 10. Continue to actively support implementation of the statewide Conserve Florida water conservation program.

MEASURES

Performance measures related to water supply are contained in the resource- or region-specific plans and projects referenced in this section and in Chapter IX, Procedures for Plan Development.

D. WATER SUPPLY IMPLEMENTATION STRATEGIES

Identified below in Table 9 are strategies and schedules for achieving the water supply goal and objectives, thereby addressing the issues listed in Chapter II relevant to water supply. The strategies are cross-referenced to the issues by number, and to the objectives listed above. In addition, the table shows the division or program responsible for implementing a given strategy, and the related component plans and documents. More detailed information can be found in the related documents identified in the table and in the discussion following the table.

| Table 9. Water Supply Strategies | | | | | |
|--|---|----------------------|-------------------------------------|-------------|--|
| STRATEGIES | SCHEDULE | DIVISION/ PROGRAM | RELATED ISSUES AND OBJECTIVES | | RELATED DOCUMENTS* |
| | | | ISSUES | OBJS. | |
| Conduct Water Supply Assessment, Planning, and Monitoring | | | | | |
| Complete Floridan Aquifer Sustainability Analysis | 2006 | RMD | 1,2 5,7 | 1-5 | Five-Year WRDWP; Region II RWSP |
| Conduct surface water supply feasibility monitoring and assessment | 2004-2009 | RMD | 1,2 5,7 | 1,2, 5,9 | Five-Year WRDWP; Region II RWSP |
| Hydrologic data collection and analysis | Ongoing | RMD | 1,2,6 7,8,9 | 4,5,9 | Five-Year WRDWP; Region II RWSP |
| Develop regional water management strategies and RWSP updates in Region II | Ongoing | RMD | 1,2,7 | 1,2,9 | Five-Year WRDWP; Region II RWSP |
| Identify surface water source alternatives within Region II | 2006 | RMD | 1,2,7 | 1,2 8,9 | Five-Year WRDWP; Region II RWSP |
| Develop conservation projects Districtwide | Ongoing | RMD | 1,2,7 | 1,2,8 | Five-Year WRDWP; Region II RWSP |
| Analyze Feasibility of Aquifer Storage and Recovery within Region II | 2005-2010 | RMD | 1,2,7 | 1,2 5,9 | Five-Year WRDWP; Region II RWSP |
| Work with local governments and utilities to identify groundwater contamination problems and devise strategies to protect groundwater supply sources. | Ongoing | RMD | 1,2,5 | 2,5,9 | RWSP |
| Water Flows and Levels Monitoring | Ongoing | RMD | 1,2 | 1 | MFL Priority List |
| Establish Minimum Flows and Levels for priority waterbodies | Per MFL Priority List | RMD | 1,2 | 1 | MFL Priority List |
| Implement Water Resource Development and Provide Water Supply Development Assistance | | | | | |
| Implement water resource development projects in Regional Water Supply Plan | 2005-2010 | RMD | 1,2,7 | 1,6,8 | Region II Regional Water Supply Plan |
| Coordinate reuse and conservation efforts among utilities in Region II Water Supply Planning Area | 2005-2010 | RMD RRD | 1,2,7 | 2,8,10 | Five-Year WRDWP; Region II RWSP |
| Acquire lands for protection and development of water resources for water supply, particularly in the Econfina Recharge Area and Inland Yellow & Blackwater River region | See schedule in FL Forever Land Acq. Workplan | LMD RMD | 1,2,7 | 1,2,6 | Florida Forever Land Acquisition Work Plan |
| Continue abandoned well plugging efforts through RWSP and resource regulation | Ongoing | RRD RMD | 2 | 4 | 40A-2, F.A.C.; Five-Year WRDWP |

| Table 9. Water Supply Strategies | | | | | |
|--|-----------|---|-------------------------------------|------------------|--|
| STRATEGIES | SCHEDULE | DIVISION/ PROGRAM | RELATED ISSUES AND OBJECTIVES | | RELATED DOCUMENTS* |
| | | | ISSUES | OBJS. | |
| Manage District-owned Lands in a manner to protect and enhance water supplies | Ongoing | LMD RMD | 1,5 6,9 | 1 | Florida Forever Five-Year Work Plan |
| Conduct Effective Regulatory Programs | | | | | |
| Regulate consumptive uses of water | Ongoing | RRD | 1,2,7 | 4 | 40A-2, F.A.C. |
| Well Construction Regulatory Program | Ongoing | RRD | 1,2 | 4 | 40A-3, F.A.C. |
| Artificial Recharge Regulatory Program | Ongoing | RRD | 1,2,7 | 1,2 | 40A-2, F.A.C. |
| Revise and implement the Water Shortage Plan | As needed | RRD | 1,2,7 | 3,7,9 | 40A-21.001, F.A.C. |
| Address known or anticipated resource issues within WRCAs through specified regulatory guidelines | Ongoing | RRD | 1,2 5,7 | 4 | 40A-2, F.A.C. |
| Provide Education, Outreach, and Technical Assistance | | | | | |
| Raise awareness of water supply issues through WaterWays Education Program | Ongoing | PI | 1,2 5,7,9 | 7,8,10 | <i>WaterWise, Xeriscape Guide, Retrofit It, Watering Wisely, 50 Ways to Save Water</i> |
| Continue to support implementation of the Conserve Florida program | Ongoing | RMD RRD | 1,2,7 | 1,2 7,8,10 | Five-Year WRDWP; Region II RWSP |
| Provide technical assistance, as needed; promote intergovernmental coordination with state and federal agencies, utilities, and local govts. | Ongoing | RMD RRD | 1,6 7,9 | 1,2,5, 8,9,10 | Five-Year WRDWP |
| * RMD - Division of Resource Management | | LMD - Division of Land Management and Acquisition | | | |
| RRD - Division of Resource Regulation | | PI - Public Information | | | |

REGIONAL WATER SUPPLY PLAN

The District completed its Region II Regional Water Supply Plan (RWSP) for Santa Rosa, Okaloosa, and Walton counties in July 2000. As part of the RWSP, the District also completed a five-year water resource development work program that is updated annually to describe ongoing and anticipated efforts and expenditures to implement the RWSP. Major activities encompassed within the program include a surface water feasibility analysis, Floridan Aquifer Sustainability model analysis, and Inland Sand-and-Gravel Aquifer model analysis.

The RWSP is being updated during 2005-2006. In keeping with recent legislative requirements and state priorities, as well as to address resource challenges associated with growth within the region, the plan revisions will emphasize alternative water supply development and will update the water resource development component and other portions of the plan.

Cost Effectiveness of Water Supply Alternatives

The RWSP includes an analysis of the relative costs of various water source options. The plan concluded that identified water supply alternatives would result in cost savings, and produce public benefits such as obtaining water supply without harming natural resources or other water users. The planning-level cost estimates for water supply were estimated at \$1 - \$2 per 1,000 gallons. This amounted to less than one percent of the per capita income at the time.

Local Implementation of the Regional Water Supply Plan

In cooperation with the District, utilities in Santa Rosa, Okaloosa, and Walton counties have made considerable progress toward development of alternative water supplies. The District has entered

into several cooperative agreements with local governments and utilities to assist in this process. In 1997, for example, the District provided funds to South Walton Utility Company and Destin Water Users (WRP, Inc.) to determine the feasibility of utilizing brackish groundwater as a water supply source. A lower Floridan Aquifer well was installed and tested as part of the assessment. In 1998, an agreement with Okaloosa County provided funding to evaluate a new Floridan Aquifer source area. Additionally, the District assisted in obtaining approximately \$3 million in federal grant funding to develop an inland wellfield as an alternative water supply for the Fairpoint Regional Utility System. The update to the RWSP will provide for continued cooperative assistance with local governments and utilities, to include alternative water supply development.

The District also provides assistance to local governments with water supply planning responsibilities through review of local government ten-year water supply facilities work plans required by Section 163.3177, F.S. District staff review plans submitted through proposed comprehensive plan amendments for consistency with the RWSP. For local governments not located in a RWSP, District staff will evaluate proposed amendments for consistency with the DWMP.

SOURCE PROTECTION

For surface waters that are used for public supply, source protection involves implementation of comprehensive watershed management programs to protect surface waters from pollution and prevent excessive withdrawals. Watershed management programs typically include land planning programs and regulations to ensure that Class I water quality standards are maintained.

The District has assisted with watershed protection for the Deer Point Lake Reservoir in Bay County through the Surface Water Improvement and Management (SWIM) program and has recommended strategies for long-term watershed management to Bay County. In an effort to implement one of these management strategies, the District purchased over 40,000 acres of land in the Deer Point Lake watershed, including substantial frontage on Econfina Creek, a number of springs, and a large portion of the recharge area for the springs.

Strategies for groundwater source protection include aquifer protection, well permitting, and wellhead protection. The District has been able to fully implement well-construction permitting District-wide. The District's approach to wellhead protection and recharge area delineation has included assessments for key areas, including the Econfina Recharge Area in Washington and Bay counties and the Sand-and-Gravel Aquifer in Escambia County. Studies completed of the Econfina Recharge Area, for example, have provided for delineation of the Floridan Aquifer zone of contribution for Econfina Creek and Deer Point Lake Reservoir and identification of groundwater flow patterns within the recharge area (NFWMD 1997, 2004c, 2004d).

The District also provides technical assistance and detailed hydrologic and hydrogeologic data to support local governments in development of local aquifer and wellhead protection strategies. This has included completion of a number of groundwater investigations with funds provided by local governments, regional utility authorities, and state and federal grants. The District is continuing to provide financial and technical support to Emerald Coast Utilities Authority and Escambia County to update delineated wellhead protection areas and the Escambia County groundwater model. The previously delineated wellhead protection areas can be found in a 1997 report posted on the District's internet site under the title: *Wellhead Protection Area Delineation in Southern Escambia County, Florida* (NFWMD 1997c).

Abandoned wells also pose a continuing risk to groundwater sources. Using funds from the DEP and other sources, the District has worked with utilities to identify and plug a number of large abandoned wells. The District also facilitates the proper plugging of abandoned wells through the well construction regulatory program. This approach has resulted in the plugging of more than 15,000 wells since 1980.

WATER CONSERVATION

The District promotes water conservation District-wide through educational publications and programs. The highest priority is to promote and assist in water conservation within Region II in accordance with the RWSP. Due to existing efforts and regulatory emphasis, a high level of conservation has been achieved within Region II. Rule 40A-2, F.A.C., for example, requires new consumptive use permits within the WRCA to provide for development and implementation of water conservation programs and associated activities with standards and schedules to reduce annual average per capita consumption to no more than 110 gallons per day. As a result of these and other efforts, it is estimated that only up to a 2.5 Mgal/d additional water could be made available through additional conservation efforts (NFWFMD 2000b).

Although the amount of water to be developed through this program is relatively small, the District will work to enhance its conservation program through the development of specific projects to ensure that successful conservation practices will continue through and beyond the RWSP's 20-year planning horizon. As specific projects are determined to be viable and cost effective, increased funding may be made available for implementation, as necessary. The District will continue to provide an array of educational guidance documents and brochures to utilities, local governments, and citizens. An estimated 77,000 such documents have been distributed since 1996. Additionally, the District is participating in water conservation for hotels and motels and in mobile irrigation lab initiatives.

The District is participating in a statewide study to identify impacts of water rate pricing and structures on public supply water demand, research potential conservation techniques that could be applied in the region, and collect background data concerning residential conservation habits and practices. The District will continue to participate in statewide water conservation initiative activities begun in 2001.

REUSE

The District supports the implementation of reuse throughout northwest Florida. The priority, however, is to promote and assist in reuse within Region II in accordance with the RWSP. Within Region II, it is estimated that 5 Mgal/d of withdrawals from the coastal Floridan Aquifer can be replaced with reclaimed wastewater (NFWFMD 2000b). While the cost of developing and distributing reclaimed water may be expensive compared to traditional sources, its use has substantial environmental benefits when properly applied for irrigation purposes. Achieving reuse goals depends in part on DEP's ability to require wastewater treatment plants to provide sources of reuse water. District reuse activities for Region II are described in the Water Resource Development Work Program (NFWFMD 2004).

As opportunities arise, the District will work with interested parties to develop reuse projects, including funding assistance for projects eligible for grants through the District's Florida Forever capital improvement grant program. This will include continuation of efforts to facilitate reuse by local utilities and water users. Coordination with DEP on wastewater regulatory and NFWFMD consumptive use permitting decision-making, as well as opportunities to participate in rulemaking activities that further the beneficial use of reclaimed water, will also continue.

WATER SHORTAGE PLANNING

The District's water shortage plan is contained in 40A-21.001, Florida Administrative Code. The purposes of the plan are to protect the water resources of the District from serious harm; to assure equitable distribution of available water resources among all water users during times of shortage, consistent with the goals of minimizing adverse economic, social and health-related impacts; to provide advance knowledge of the means by which water apportionments and reductions will be made during times of shortage; and to promote greater security for water use permittees. This detailed plan includes: provisions for declaring and implementing a water shortage; emergency provisions in the event that water shortage conditions appear inadequate to protect the water resource or individual users; monitoring and enforcement provisions; a classification system based on source of water supply, type of water use, and method of withdrawal; and specific restrictions for each water shortage phase and water use class.

RECENT LEGISLATION

2004 Water Resource Legislation

The 2004 Legislature enacted House Bill 293, which, among other things, authorizes the water management districts to:

- Adopt rules to identify preferred water supply sources that will provide new water supply for reasonable-beneficial uses while sustaining existing water resources and natural systems.
- Require the use of reclaimed water under specified circumstances.
- Impose certain requirements on reuse projects cooperatively funded by the District.

The bill requires the water management districts to:

- Work with specified interests to develop landscape irrigation and xeriscape design standards for new construction.
- Provide more specificity in their water resource development work programs with regard to the water supply benefits of the projects.

The NFWFMD will incorporate the requirements of HB 293 into its programs and activities, and will evaluate the necessity and cost of implementing any new discretionary authorities the bill conveys to the water management districts.

2005 Water Resource Legislation

The 2005 Legislature enacted two bills, Senate Bill 444 and Senate Bill 360, which together enhance linkages between regional water supply plans and local comprehensive plans. Significant funding (nonrecurring and recurring) is provided for water supply and water quality projects, including for alternative water supply development. Additional requirements and revisions to regional water supply planning are included, in particular how they relate to comprehensive plans and local capital improvement elements. The legislation also provides for SWIM funding and has additional provisions relating to TMDLs and other related water resource programs. The District will continue to work with local governments and state agencies to implement provisions of the legislation.

E. SCHEDULE FOR RECHARGE MAPPING AND RECHARGE AREA DESIGNATION

Rule 62-40.520, F.A.C., requires that the District Water Management Plans include a schedule for recharge mapping and recharge area designation. The rule defines “prime recharge areas” as areas that are generally within high recharge areas and are significant to present and future groundwater uses, including protection and maintenance of natural systems and water supply.

In 1997, the District completed a study that delineated the Floridan Aquifer zone of contribution to Econfina Creek and Deer Point Lake Reservoir (NFWFMD 1997). Further studies (NFWFMD 2004c; NFWFMD 2004d) provided a greater understanding of processes within the zone of contribution, demonstrated the existence of individual springsheds, and provided preliminary identification of groundwater flow patterns within the recharge area. To date, the District has acquired over 40,000 acres in the Econfina Recharge Area of Washington and Bay counties. This acquisition provides protection and preservation of the groundwater recharge area critical to safeguarding and sustaining both the quantity and quality of the principal water supply source for over 150,000 people. Further information on land acquisition projects can be found in the District’s Land Acquisition Work Plan (NFWFMD 2004b).

As delineated and described in the Hydrogeology of the Northwest Florida Water Management District (NFWFMD 1996b), most of Escambia County, outside of streams and coastal discharge areas, comprises a recharge area for portions of the Sand-and-Gravel Aquifer critical for public water supply. The District continues to work in cooperation with the county and the Escambia County Utility

Authority to define resource risks and identify appropriate protective strategies (see NFWWMD 1997c).

F. LIMITATIONS AND ASSUMPTIONS

As explained in the *District Overview* (Chapter I), the NFWWMD has greater funding constraints than the other water management districts. This is a continuing limitation. However, the District seeks whenever it can to solicit funding support from state and federal sources and to create funding partnerships with local and regional agencies and groups. The District must also carefully set priorities that enable it to make maximum use of its human and available financial resources to the best advantage of the region's residents and natural systems.

- A dedicated source of funding is not available to expand long-term stream flow monitoring or groundwater monitoring networks or to adequately analyze and report the data that would become available from these networks on a long-term basis. However, additional funding will continue to be requested to accomplish these tasks. The District will continue to maintain existing monitoring to the extent funding will allow through programs such as SWIM and RWSP and associated cooperative efforts with local governments.
- Due to a lack of dedicated funding, the abandoned well-plugging program is implemented as funds become available. General funds are not adequate to plug all wells identified in the abandoned well inventory. Funding for the District to plug additional wells will be requested from DEP. However, many abandoned wells have been properly plugged through enforcement of District rules.
- General funds for technical assistance are limited. Technical assistance with large staff demands will require outside funding from grants or contracts with local governments or other agencies. Review of local government comprehensive plans, DRIs, and external permits and development plans is constrained by limited funding and staff resources.

IV. FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT

A. GOAL

The District's flood protection and floodplain management goal is to maintain natural floodplain functions and minimize harm from flooding.

B. RESOURCE ASSESSMENT

PLANNING UNITS

The District addresses flood protection and floodplain management issues on a county and watershed basis, as appropriate. Priorities for floodplain and hydrologic data acquisition are generally set on a watershed basis, while flood hazard mapping and associated technical assistance are generally planned and prioritized through the affected communities on a county basis.

FLOOD PROTECTION

Flooding is a natural occurrence that becomes a problem when certain land uses are located in areas prone to seasonal or predictable inundation. These areas are called floodplains or floodprone areas. The term "floodplains" typically refers to streams and rivers, while the term "floodprone" refers to floodplains, lakes, wetlands, closed basins, sinkholes, other natural and man-made drainage features, and coastal areas that may experience periodic inundation. District ownership and preservation of major river floodplains as natural open space has limited human habitation there. However, activities such as filling, land clearing, constructing levees, and adding impervious surface, may aggravate flooding in any areas subject to inundation.

Northwest Florida, with its extensive river networks and other water resources, has a long history of flooding events, which makes it clear that such events will re-occur and that it is necessary to plan accordingly. The greatest riverine floods tend to occur along the Choctawhatchee and Apalachicola rivers and their tributaries, although all rivers, streams, wetlands, low-lying areas, coastal areas, and closed basins are subject to significant flooding (Figure 7). Flooding is particularly problematic in high-growth and densely populated coastal areas. Flooding impacts appear to be aggravated by inadequate public awareness of the potential for flooding events and associated consequences.

Major sustained flooding occurred during the summer of 1994, when tropical storms Storm Alberto and Beryl passed inland between Destin and Fort Walton Beach within weeks of each other, followed in October by a tropical depression. The Choctawhatchee, Apalachicola, Shoal, Pea, Ochlockonee, Chipola, Blackwater, and Yellow rivers and Holmes Creek all experienced major floods. The Escambia and St. Marks rivers experienced minor flooding. Sheet floods, saturated soils, and sustained standing water developed in many areas of the District. The following year, Hurricane Opal made landfall east of Pensacola and caused very damaging coastal flooding and storm surge impacts across much of the Panhandle.

In the fall of 2004, hurricane and tropical storm activity created storm surges that caused major damage to homes, businesses, roads, and other infrastructure along the Panhandle coast. Hurricane Ivan caused extensive damage to coastal communities in the western counties, with estimated insured damages of \$3 billion to \$10 billion. Electrical power, water supply, sewer and telephone service were out across the Panhandle. Parks and beaches were closed due to flooding and related damages. The most severe damages occurred in Escambia and Santa Rosa counties.

In addition to events associated with tropical systems, significant flooding events periodically affect riverine floodplains and other low-lying areas due to major storm fronts and other sustained periods of rainfall.

A critical information need for floodplain management and planning is an accurate delineation of the floodplain, including its topography and physiography. The NFWFMD has not had adequate funding to implement a District-wide floodplain delineation project, and has used information from other agencies, such as the U.S. Geological Survey, to aid this process. However, through the SWIM program, floodplain vegetation has been mapped in some of the priority watersheds. In addition, the District has developed hydrologic and hydratic models to predict peak flood elevations in some areas through stormwater assessments conducted for local governments. Although outdated, FEMA maps are typically used to identify floodprone areas.

FLOODPLAIN MANAGEMENT

Floodplains provide a number of functions essential to sustaining natural systems and protecting human communities. Among these functions are storage and regulation of runoff, attenuation and conveyance of flood water velocity, erosion control, water quality protection, fish and wildlife habitat, and primary production.

There are no major flood control facilities in northwest Florida; nor does the District own or operate any facilities that provide flood protection. All major dams in northwest Florida were constructed primarily for water supply, hydropower, recreation, or navigation purposes, and they have limited flood storage capacity. Because a structural approach to flood protection is more expensive, more detrimental to natural resources, and involves greater risks than a nonstructural strategy, the District has implemented nonstructural flood protection measures, including floodplain acquisition, a flood hazard map modernization effort in cooperation with the Federal Emergency Management Agency (FEMA), discouragement of development in floodprone areas, and regulation of certain impoundments.

The District's only significant involvement in structural flood protection (facilities) programs is through its Management and Storage of Surface Waters (MSSW) rule, Chapter 40A-4, F.A.C. However, this program as implemented by the District is a non-structural flood protection measure. The primary intent of Chapter 40A-4, F.A.C., in terms of flood protection, is to verify that construction of non-agricultural impoundments that exceed the permit exemption thresholds meet appropriate design criteria for safety based on the particular characteristics of the site. General permits, which can be issued by District staff, are required for facilities between ten and 25 feet high and with storage capacities ranging between 50 and 100 acre-feet. Standard permits, which must be approved by the Governing Board, are required for impoundments that exceed these criteria or affect stream flow at a point with more than five square miles of watershed upstream. No permits are required from the District for impoundments that are less than ten feet high and have less than 50 acre-feet of storage capacity. Also, no permit is required from the District for impoundments five feet high or less, regardless of the amount of water impounded.

As part of the District's MSSW permitting process, discharge rates from the proposed impoundments are analyzed to determine if sufficient capacity exists for appropriate design storm events. The design storm events are selected based on the potential for loss of life and property should a failure occur. Most of the permits for flood control facilities issued by the District under the provisions of Chapter 40A-4, F.A.C., are either associated with large regional stormwater treatment facilities for new development or dam repairs on older impoundments.

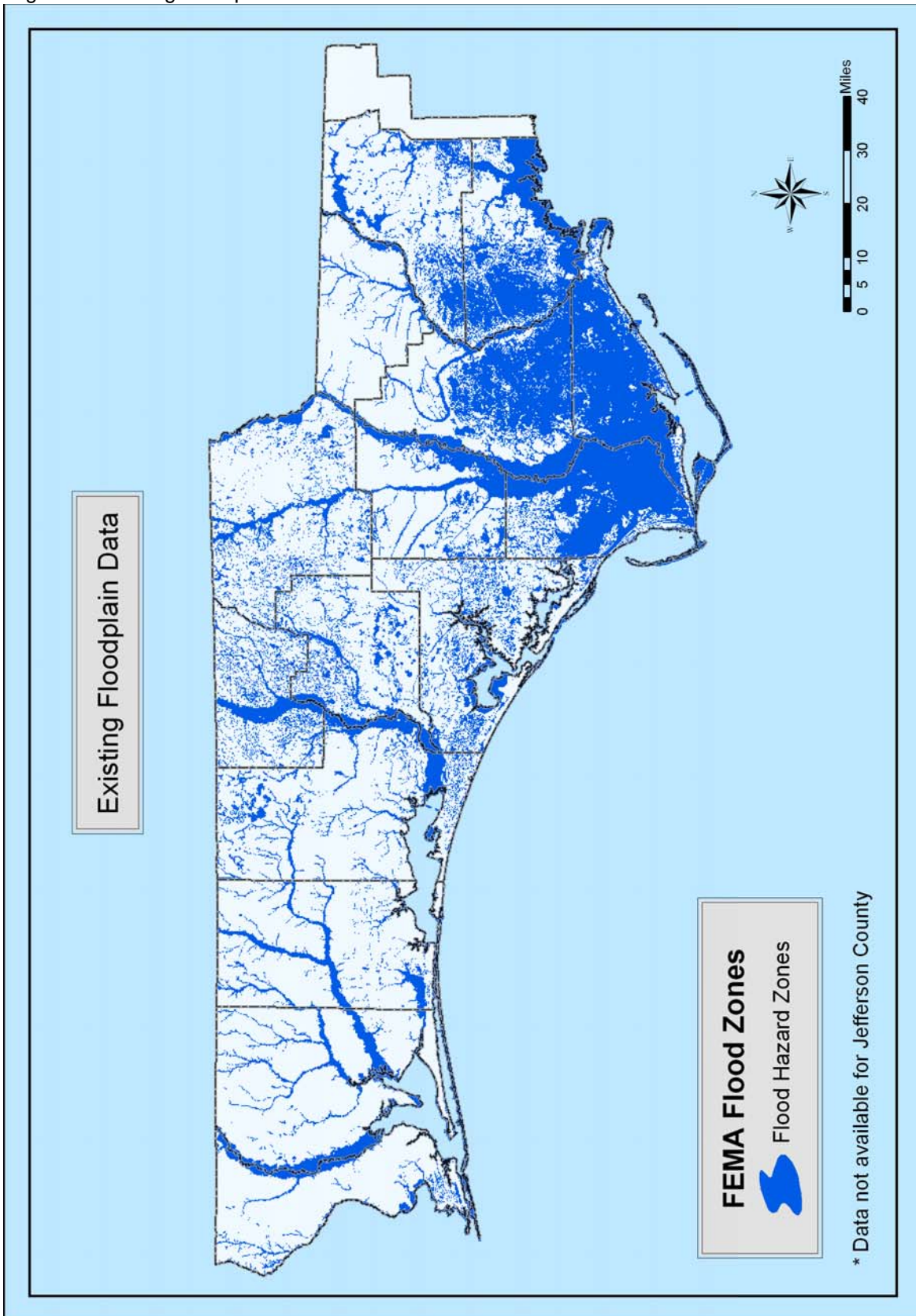
Most of the smaller, on-site stormwater treatment systems constructed to serve new development in northwest Florida do not address flows. While these systems are required to obtain DEP stormwater management permits, DEP review is based solely on water quality and, if necessary, wetland protection, rather than flood protection. Impacts of development on stormwater discharge rates are not analyzed for projects that are below the District's rule thresholds. Consequently, land use conversions and associated effects on water quantity are not addressed in a comprehensive manner.

Because Environmental Resource Permitting (ERP) is not funded and is therefore not implemented within the Northwest Florida Water Management District, there are significant gaps in the regulation of stormwater runoff from development and the protection of isolated wetlands. The ERP program,

which is implemented in the other four water management districts, comprehensively addresses stormwater regulation and wetlands protection. However, through the comprehensive planning process and local permitting programs, some local governments consider flood protection and isolated wetland protection.

Local governments have important responsibilities with respect to floodplain management. Among these are the enactment and implementation of comprehensive plans and land development regulations that protect floodplain functions and protect residents from potential flood hazards. Local governments are also responsible for stormwater management, ownership and operation of facilities, local implementation of the federal flood insurance program, and local mitigation strategies.

Figure 7. Existing Floodplain Data



C. FLOOD PROTECTION OBJECTIVES AND MEASURES

OBJECTIVES

Flooding along major rivers and coastlines in the District can be widespread. In order to meet the challenges discussed above and to effectively address the issues described in Section II, the District has established the following flood protection and floodplain management objectives:

- FP 1. Protect and manage floodprone areas through land acquisition pursuant to the Land Acquisition Five-Year Work Plan.
- FP 2. Ensure proper construction and management of impoundment structures by performing approximately 1,300 compliance inspections of permitted surface water management facilities through 2010.
- FP 3. Provide more accurate and complete flood hazard information to counties and communities within the District by 2010.
- FP 4. Enhance public access to more detailed floodplain maps and associated mapping data in accordance with schedule in the FEMA Flood Hazard Map Modernization Five-Year Business Plan.
- FP 5. Enhance public awareness and understanding of flooding issues and the importance of protecting floodplain functions pursuant to the FEMA Flood Hazard Map modernization program and WaterWays education program.
- FP 6. Assist communities in implementation of multi-purpose stormwater retrofit projects that provide for flood hazard protection, as well as water quality improvement.
- FP 7. Participate in interagency coordination and planning for flood hazard protection and response.
- FP 8. Restore hydrologic functions on District-owned lands, as necessary.

MEASURES

Performance measures related to flood protection and floodplain management are contained in the resource- or region-specific plans and projects referenced in this section and in Chapter IX, Procedures for Plan Development.

D. FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT IMPLEMENTATION STRATEGIES

Identified below in Table 10 are strategies and schedules for achieving the flood protection and floodplain management goal and objectives, thereby addressing the issues listed in Chapter II relevant to this area of responsibility. The strategies are cross-referenced to the issues by number, and to the objectives listed above. In addition, the table shows the division or program responsible for implementing a given strategy, and the related component plans and documents. More detailed information can be found in the related documents identified in the table and in the discussion following the table.

| Table 10. Flood Protection and Floodplain Management Strategies | | | | | |
|--|----------------------|----------------------|-------------------------------------|-------------|--|
| STRATEGIES | SCHEDULE | DIVISION/ PROGRAM | RELATED ISSUES AND OBJECTIVES | | RELATED DOCUMENTS |
| | | | ISSUES | OBJS. | |
| Conduct Assessment, Planning, and Monitoring | | | | | |
| Participate as FEMA's MMMS for Flood Hazard Map Modernization Program | 2004 - 2010 | RMD | 3,4 | 3,4,5 | FEMA Flood Map Modern. Program 5-Year Business Plan |
| Implement Nonstructural Floodplain Management | | | | | |
| Floodplain Land Acquisition | See related plan | LMD | 3,8,9 | 1 | FL Forever Land Acquis. Workplan |
| Management of District-Owned Lands | Ongoing | LMD, Partners | 3,8,9 | 1 | FL Forever Land Acquis. Workplan |
| Conduct hydrologic restoration on District-owned lands | Ongoing, as needed | LMD, RMD | 3,8,9 | 8 | FL Forever Land Acquis. Workplan, Regional Mit. Plan |
| Provide funding support for stormwater retrofit projects, consistent with SWIM Plans | Ongoing | RMD | 3,8 9,10 | 6 | SWIM Plans, FL Forever CI Plan |
| Conduct Effective Regulatory Programs | | | | | |
| Management and Storage of Surface Waters | Ongoing | RRD | 3,9 | 2 | Ch. 40A-4, F.A.C. |
| Works of the District | Ongoing | RRD | 3,8 9,10 | 2 | Ch. 40A-6, F.A.C. |
| Agriculture and Forestry surface water projects | Ongoing | RRD | 2,3 5,9 | 2 | Ch. 40A-44 F.A.C. |
| Provide Education and Technical Assistance | | | | | |
| WaterWays Education Program | Ongoing | PI | 3,9 | 5 | WaterWays Publications |
| Technical assistance and intergovernmental coordination related to comprehensive plan review and FEMA Flood Hazard Map Modernization | Ongoing through 2010 | RMD | 3,4,6 8,9,10 | 2,3, 4,5 | FEMA Flood Map Modern. Program 5-Year Business Plan |
| Provide technical design assistance for stormwater retrofit projects | As needed | RMD | 10 | 6 | SWIM Plans |
| Participation on Interagency Hazard Mitigation Team, State Emergency Operations, and Annual State Hurricane Exercise | Ongoing | RMD | 3,8,9 | 7 | Continuity of Operations Plan |
| * RMD - Division of Resource Management LMD - Division of Land Management and Acquisition RRD - Division of Resource Regulation PI - Public Information | | | | | |

NONSTRUCTURAL FLOOD PROTECTION

The District implements the following aspects of a comprehensive nonstructural program, as funding allows, in areas of highest priority relative to potential impacts to floodplain resources.

- Floodplain acquisition
- Assistance in development and implementation of local stormwater management plans as part of the Technical Assistance Program and inter-related SWIM program activities
- Regulatory strategies

- Implementation of a comprehensive, District-wide floodplain delineation project, including:
 - Implementation of FEMA's Flood Hazard Map Modernization as the Cooperating Technical Partner
 - Mapping of topographic data, floodplains, watershed features, and land use risk analysis using a Geographic Information System
 - Dissemination of floodplain mapping data and products to local governments and state and federal agencies
- Assessment of proposed developments and comprehensive plan amendments with regard to flood hazards and protection of floodplain functions

Land Acquisition and Management

Central to the District's flood protection efforts is the land acquisition and management program, which is largely focused on the acquisition and preservation of riverine floodplains and floodprone areas associated with coastal and inland wetlands. Acquisition of floodprone areas can be accomplished by a variety of means including fee simple transactions, gifts, and less-than-fee approaches, such as conservation easements. District lands are managed for preservation of natural floodplain functions, as well as for other water resource protection and restoration purposes, and passive recreational uses. With passage of the Florida Forever Act in 1999, floodplain land acquisitions will be able to continue for the next decade, adding to the previous acquisitions that were funded through the Save Our Rivers and Preservation 2000 programs. Florida Forever also funds restoration priorities and access improvements. The District's Land Acquisition Work Plan (NFWFMD 2004b) and annual Florida Forever reports provide details on land acquisition priorities and accomplishments.

Local Government Coordination and Technical Assistance

Technical assistance and stormwater planning projects undertaken by the District have recommended both structural and nonstructural strategies for reducing flood damages. The least expensive and most environmentally sensitive way to prevent flood impacts is through nonstructural means. This entails preventing incompatible land uses in floodprone areas through comprehensive planning and land development regulations. Floodproofing of structures also minimizes the disturbance and filling in of floodprone areas and thereby avoiding the alteration of the natural hydrologic functions of these areas, which could result in higher flood stages upstream and downstream. District assistance activities have also included stormwater retrofit projects for previously developed areas that provide both water quality protection and flood hazard abatement.

Other nonstructural programs include review of local government comprehensive plan amendments and various DEP and Army Corps of Engineers permits, which allow the District to recommend floodplain management strategies to be implemented by other governmental agencies and private landowners. Technical assistance is also available to local governments to aid in developing and implementing local flood protection programs.

Prevention of incompatible land uses in floodprone areas is typically accomplished through either acquisition of floodprone areas or land use or local development regulations. The more typical forms of regulation are restrictive zoning for floodprone areas, buffer zone requirements, and site development restrictions. Land use regulation is the responsibility of local government, while various governmental and private entities can carry out acquisition.

Floodplain Mapping

As FEMA's Map Modernization Management Support (MMMS) partner, the NFWFMD has accepted delegation of and responsibility for the flood hazard map modernization program for the counties within its jurisdiction. This work is being funded largely by FEMA, with some District matching. The District's role in this program has been formally defined through a cooperating technical partner agreement and subsequent mapping activity statements.

At FEMA's request, the District has developed a *FEMA Flood Map Modernization 5-year Business Plan (2004 - 2009)* to be updated annually, detailing its approach to implementing the initiative and

describing how the mapping activities will contribute to FEMA's multi-hazard flood map modernization goals and objectives. The plan outlines how the program will be funded, as well as how to meet or exceed FEMA's Government Performance Rating Assessment goals, which include:

- 100 percent of District population (by counties) with digital GIS flood data on line by 2010
- 100 percent of District population (by counties) with adopted final flood maps by 2010
- Percent leveraged effort toward digital GIS flood data
- Allocation percentages of funding through to state and local cooperating technical partners

The Business Plan also describes the anticipated benefits of the program, which include:

- More detailed mapping of critical flood hazard areas, including coastal areas, secondary tributaries and closed basins
- Long-term map maintenance approach through closer communication and cooperation with communities
- Provide local communities tools and resources for managing, assessing, and planning for development and construction in flood prone areas to save lives and protect property.
- Immediate and local public access to updated flood data, which will enhance a community's risk management applications and operations.

E. SCHEDULE FOR FLOODPLAIN MAPPING

As described above, the District is participating in the FEMA Flood Hazard Map Modernization Program, which is scheduled to be completed in 2010.

F. LIMITATIONS AND ASSUMPTIONS

- Regulatory actions, such as zoning, performance standards, and the establishment of buffers or other development restrictions, are the responsibility of local government.
- Funding Issues:
 - General funds for providing technical assistance are limited. Thus, any technical assistance with large staff demands will require outside funding from grants or contracts with local governments or other agencies.
 - The District will need to continue to rely on available data and resources from local and state agencies in order to leverage federal funding support for floodplain mapping initiatives.
 - Review of local government comprehensive plans, Developments of Regional Impact and external permits and development plans is limited because of funding.
 - Permit fees are not sufficient to fund surface water permitting and facilities inspection; general revenue funds are limited and state funding is dependent upon yearly appropriations.
 - Funding for surface water levels and flow monitoring programs is limited and is typically related to special projects or related SWIM program activities. Funding is not adequate for data analysis and reporting.
 - Flood hazard map modernization and maintenance will require continued funding support from FEMA.

V. Water Quality

A. GOAL

The District's water quality goal is to protect and improve the quality of the District's water resources.

B. RESOURCE ASSESSMENT

PLANNING UNITS

Planning and management for the quality of surface water and associated groundwater is best addressed on a watershed basis. The District, therefore, uses hydrologic watershed boundaries as the preferred planning units. The major watersheds of the District are depicted in Chapter I, District Overview, and are assessed briefly below. For purposes of detailed planning, the District focuses its efforts on its SWIM priority waterbodies. Water quality protection is one of the four broad goals of the SWIM program, along with natural systems preservation and restoration, cooperative activities, and watershed management. Activities of the SWIM program are discussed in the implementation section of this chapter and also in Chapter VI, Natural Systems and Chapter VIII, Watershed Management.

Groundwater issues within the District also relate to the unique geology of a given area, and the District tries to respond to these problems with area-specific strategies. Regulatory strategies are typically implemented on a District-wide basis, with some emphasis on regional problem areas such as the designated Water Resource Caution Areas. Relative to regional groundwater quality for water supply, the District uses the water supply planning units. Where groundwater issues relate more directly to surface conditions and land uses, watershed planning and restoration are also an important part of related water resource protection. In such cases, the SWIM program has a direct bearing on long-term ground and surface water quality.

An excellent source for detailed information on the hydrogeology of the District is *Hydrogeology of the Northwest Florida Water Management District* (NFWMD 1996b), which is available for download from the District's website.

WATER QUALITY CONDITIONS

In general, surface and ground water quality throughout the District are relatively good. However, localized problems have occurred, mostly in or near urbanized or industrial areas and where other land use practices have caused widespread nonpoint source pollution or disruption of natural hydrology. The larger river basins originate north of the District within Georgia and Alabama, and these rivers and streams tend to have water quality problems that result from activities in these states. Sedimentation and resulting turbidity and suspended solids are common problems.

District-wide, major sources of pollution include both point and nonpoint source pollution. Point sources include both domestic and industrial wastewater treatment facilities. The effects can be significant and result in ongoing needs for improved wastewater treatment infrastructure. There is general consensus, however, that NPS pollution presents the most significant water quality challenge. Urban stormwater runoff problems are significant in a number of areas, requiring investments in stormwater retrofits and new stormwater treatment systems. Among the potential sources of NPS pollution are construction activities, agriculture, silviculture, and unpaved roads. Continued and improved implementation of BMPs are important for abatement and prevention of NPS pollution-related impacts.

SURFACE WATER QUALITY EVALUATION

A key source of District-wide surface water quality data is an ambient monitoring network that has been operated by the District and funded by the U.S. Environmental Protection Agency (EPA)

through the DEP. This program is typically funded year-to-year, as funding becomes available from the state and federal government. Other sources of surface water quality information include projects undertaken by the SWIM program; storm water monitoring studies the District conducts for Leon, Bay, and Escambia counties and the city of Pensacola; university research; regional water supply planning; and local projects funded by local, state, and federal agencies.

Summary information presented here is based primarily on District SWIM plans and special reports, as well as basin status reports and planning lists prepared by FDEP pursuant to the state Impaired Waters Rule (Section 62-303, F.A.C.).

Apalachicola River and Bay System

Overall, the Apalachicola River and Bay watershed has good water quality due to the largely forested and rural character of the watershed, the presence of a large river floodplain, and extensive areas protected as public conservation lands. A District watershed assessment (NFWMD 1998) noted generally excellent water quality, particularly in forested (silvicultural and natural) basins. Water and stream habitat quality was variable in agricultural basins with some apparent problems relating to nutrients, bacteria, and suspended solids. An assessment of stormwater inputs to Apalachicola Bay (Marchman 2000) identified some water quality impacts, particularly from Apalachicola and Eastpoint. These were attributed to urban stormwater runoff and inadequate wastewater infrastructure. Parameters of concern include nutrients, bacteria, suspended solids, and metals. A number of sub-basins have also been identified as potentially impaired, primarily due to bacteria (FDEP 2002).

The hydrology of Tates Hell swamp was historically altered to establish pine plantations. Resulting impacts diminished wetland habitats and functions and adversely affected water quality in the upper portion of Apalachicola Bay. Cooperative efforts are underway to restore natural hydrology in the swamp. Continuing impacts on water and habitat quality have resulted from channel maintenance within the Apalachicola River and associated deposition of dredged material within the floodplain. Past and present dredging disposal practices have buried about 25 miles of riverbank and floodplain, causing habitat loss and a continuing source of sedimentation.

Interstate water allocation for the Apalachicola-Chattahoochee-Flint (ACF) river system is important to water and habitat quality throughout the system. A primary concern for the bay, for example, is the potential for adverse ecological effects from salinity changes caused by increased upstream water consumption that results in reduced flows. Flow manipulation resulting from reservoir management activities has also been observed to adversely affect floodplain functions and tributary habitat.

Apalachicola Bay supports important commercial fisheries, and the estuary has been designated a resource of regional, state, national, and international importance. Needs for addressing water quality include planning for urban best management practices (BMPs), effective stormwater and wastewater treatment; protection of floodplains, wetlands, and riparian habitats; stormwater retrofit, wastewater infrastructure improvements, and continuing implementation of agricultural and silvicultural BMPs.

Pensacola Bay System

Historical studies identified significant water quality problems due to point and nonpoint source pollution in a number of areas of the Pensacola Bay System. Problems were particularly evident in urbanized bayous, such as bayous Chico, Texar, and Grande, as well as in Escambia Bay, Pensacola Bay, and the Escambia River. Sediment contamination and enrichment patterns reflect long-term pollutant loading, and aquatic and wetland habitats have been lost or degraded due to cumulative impacts (DeBusk et al. 2002). About two-thirds of the Pensacola Bay system watershed is within Alabama. Thus, the river and its associated estuary may be affected by point and nonpoint source pollution and floodplain modifications within that state.

Sedimentation and turbidity continue to present challenges in the Escambia River watershed, among other areas. The middle and lower reaches of the river and its floodplain appear to act as a sink prior

to discharge into the bay. The Yellow, Blackwater, and Escambia rivers have been issued health advisories limiting consumption of largemouth bass due to high concentrations of mercury.

Extensive investments have been made to improve industrial and domestic wastewater treatment and to retrofit stormwater systems. Improvements in water and habitat quality have been observed. Within the Carpenters Creek and Bayou Chico watersheds, for example, cooperative stormwater retrofit efforts on the part of the District, DEP, local governments, and other agencies have resulted in noteworthy improvements.

Needs for addressing water quality include planning for urban BMPs; effective stormwater and wastewater treatment; protection of floodplains, wetlands, and riparian habitats; and continuing implementation of agricultural and silvicultural BMPs.

Choctawhatchee River and Bay System

Water quality within the Choctawhatchee River and Bay watershed is generally good. The river and its tributaries, however, have been affected by sedimentation and nonpoint source pollution, such as from unpaved roads and agricultural areas. Several tributaries have shown improvement, including Holmes Creek, since direct wastewater discharges have been removed. The majority of the watershed is north of the state line. Thus, the river and its associated estuary are affected by point and nonpoint source pollution in Alabama.

Water, sediment, and habitat quality have been degraded by long-term urban stormwater runoff. Past studies have identified sediment contamination and enrichment, particularly within the urbanized bayous. Portions of the Choctawhatchee watershed are affected by rapid population growth. Particularly in the vicinity of the bay, substantial areas are changing from rural to urban or suburban in character. The potential for existing and new intensive land use to generate nonpoint source pollution is among the most significant threats to future environmental quality in the watershed. Thus, treatment of stormwater runoff from new development, investments in facilities to treat existing stormwater discharges, and planning to avoid new direct and secondary impacts on sensitive habitats are watershed priorities.

Other actions needed to address water quality include developing and implementing urban BMPs; effective wastewater treatment and improvements in domestic wastewater infrastructure; protection of floodplains, wetlands, and riparian habitats; and continuing implementation of agricultural and silvicultural BMPs.

St. Andrew Bay Watershed

St. Andrew Bay generally has good water quality. The estuary has been adversely affected, however, by urban development and associated point and nonpoint source pollution. Seagrass declines observed in West Bay may be associated with historic or continuing water quality problems, as well as physical disturbance from past activities.

Urbanized bayous in particular have been affected by nonpoint source pollution. Direct point source pollution has also been a problem within portions of St. Andrew Bay. Concentrations of heavy metals and other chemical contaminants reflect long-term pollutant loading.

Deer Point Lake Reservoir is a Class I waterbody that provides Bay County with its drinking water. Water quality in the lake and its tributaries tends to be quite good. Suburban development and inadequate wastewater management in the lake basin, however, may comprise increasing threats to the lake's water quality. Both the lake and Econfina Creek have limited fish consumption advisories due to mercury contamination.

The Sand Hill Lakes region basin provides critical recharge area for Econfina Creek and Deer Point Lake and is home to rare and endangered plant communities. District acquisition of the Econfina Recharge Area has provided long-term protection for these communities and has increased overall water resource protection and opportunities for restoration and public access.

St. Marks River-Apalachee Bay Watershed

Most of the St. Marks and Wakulla rivers, as well as the Big Bend Seagrass Aquatic Preserve in Apalachee Bay, are classified as Outstanding Florida Waters. The watershed in general has excellent water quality, although water quality problems have been noted in some areas. Among these are lakes affected by urban stormwater runoff, such as Lafayette and Munson. Increasing trends in nitrate concentrations have also been observed in Wakulla Springs (Chelette et al. 2002), where hydrilla blooms, filamentous algae blooms, and decreases in wildlife populations have occurred. A number of watershed segments have been identified as potentially impaired (FDEP 2003a), with parameters of concern including nutrients, bacteria, dissolved oxygen, and mercury in fish.

The watershed's geology presents distinct challenges for water resource protection, as karst topography dominates much of the landscape. A number of the lakes in the northern portion of the watershed are internally drained, and the Floridan Aquifer is poorly confined in the lower portion of the watershed. As a result, surface and ground waters are closely interconnected, and land use practices readily affect the quality of underlying ground water and associated surface waters.

Ochlockonee River and Bay Watershed

The Ochlockonee River and Bay watershed includes the Ochlockonee River; lakes Jackson and Iamonia, which are normally internally drained; Lake Talquin; and Ochlockonee Bay. Over half of the watershed is within Georgia, and water and habitat quality are affected by point and nonpoint source pollution within that state, as well as in Florida. Substantial areas within Georgia are agricultural in land use, while the majority of the watershed in Florida is forested. A basin water quality assessment report (FDEP 2003a) identified several sub-basins as impaired. Parameters of concern include nutrients, bacteria, and dissolved oxygen.

The Lake Jackson SWIM plan incorporates a cooperative effort between the District, local governments, and state agencies to address long-term water quality problems that have been primarily attributed to nonpoint source pollution. As a result, substantial investments have been made in stormwater retrofits and major restoration projects. Additional work is ongoing or is in the planning stages. Ongoing challenges for the watershed include continuing needs for stormwater retrofit, implementation of BMPs, and wastewater infrastructure improvements.

Perdido River and Bay Watershed

Historically, water quality problems have been noted in the lower Perdido River and Perdido Bay. Perdido Bay has been adversely affected by sustained pollutant loading from paper mill discharge into Eleven Mile Creek, which, in turn, discharges into the bay. The state, Emerald Coast Utilities Authority, and International Paper are working together to improve industrial and domestic wastewater treatment to enhance water quality within the creek and bay.

Florida and Alabama share the watershed, the main stem of the Perdido River, and the shoreline of Perdido Bay. Water and habitat quality are affected by land uses and management practices in both states.

Portions of the watershed in southern Escambia County are subject to accelerating population growth and land use change. Priorities for water resource protection include implementation of urban BMPs; effective stormwater and wastewater treatment; and protection of floodplains, wetlands, and riparian habitats. Conservation land acquisition and wetland mitigation initiatives by the District, the state, and local governments will help provide long-term protection of priority habitats and associated water quality and watershed functions.

GROUNDWATER QUALITY EVALUATION

Over the years, the District has performed a number of groundwater-related assessments and special projects to gain insight into the physical and chemical characteristics of the aquifers that underlie northwest Florida. The results of these special projects have been used to enhance groundwater

quality protection programs, best management practices, and remediation alternatives. Many of these studies were funded through cooperative relationships with various federal, state, and local governments. Among these are the U.S. EPA, USGS, U.S. Navy, Florida DEP, Florida DOT, Emerald Coast Utilities Authority, the Walton, Okaloosa, Santa Rosa Regional Utility Authority, and the City of Tallahassee. Some of the major investigations undertaken by the District include:

- ❖ Water supply/saltwater intrusion sustainability modeling project in Santa Rosa, Okaloosa and Walton counties
- ❖ Water supply/contaminant transport/saltwater intrusion modeling project in Escambia County
- ❖ Nitrate loading evaluation for the lower St. Marks River watershed
- ❖ Karst characterization project in Leon County
- ❖ Solid waste landfill evaluation project in northwest Florida
- ❖ Pesticide contamination characterization study in Jackson County
- ❖ Drainage well/water quality impact project in Calhoun County
- ❖ Western subregional wellfield modeling project for the Walton/Okaloosa/Santa Rosa Regional Utility Authority
- ❖ Cross-sectional solute transport modeling in Okaloosa County
- ❖ A flow model of the Floridan Aquifer in Santa Rosa, Okaloosa, and Walton counties
- ❖ Wellhead protection delineation in Escambia County
- ❖ Groundwater risk analysis system in Escambia County

The chemical quality of groundwater in northwest Florida reflects the chemistry of the geologic sediments. Generally, groundwater found within the aquifers is of a satisfactory quality for most uses. Locally, however, concentrations of certain constituents of the water may exceed desirable limits. These limits vary according to water use, with drinking water having the highest standards. The most common naturally occurring constituents that can cause problems are sodium, iron, hydrogen sulfide, and chlorides.

The concentrations of naturally occurring dissolved minerals in water from the Surficial Aquifer System (including the Sand-and-Gravel Aquifer) are much lower than those found in the Floridan Aquifer. The mineral content in the Surficial Aquifer System is lower because the sands through which water in this layer flows are practically insoluble. In addition, the Surficial Aquifer is characterized by a low pH (acidity level), which tends to corrode metals.

Mineral content in water from the Floridan Aquifer System is much higher because of the greater solubility of the carbonates (limestone) that make up the aquifer. Additionally, the dissolved mineral concentrations vary, depending on the recharge characteristics of the aquifer and proximity to sea water. In areas with relatively high recharge rates, the dissolved mineral concentrations are lower because the water has not been in contact with the sediments for a prolonged period. However, in those areas with lower recharge rates, the dissolved mineral concentrations increase, especially with depth. For much of Gadsden, Liberty, Calhoun, Bay, Gulf, and Franklin counties, the Floridan Aquifer is thick but contains highly mineralized water within the lower portion of the aquifer. Consequently, the productive thickness of the aquifer for this region is limited.

As the Floridan Aquifer dips deeper beneath the land surface in the western part of the Panhandle, the water within the aquifer increases in dissolved mineral content. As a result, in much of Escambia and Santa Rosa counties, the Floridan Aquifer is so saline that it is not used for potable water; hence, the dependence upon the Sand-and-Gravel Aquifer in this region for potable water supply.

Degradation of groundwater quality due to human impacts is a principal concern in certain regions of the Panhandle. The major types of contaminants include agricultural chemicals, industrial chemicals, gasoline products, and chemicals associated with certain types of businesses. Occurrences of groundwater contamination are usually directly related to the recharge characteristics of the aquifer and to the overlying land use.

In the case of the Surficial Aquifer System, and especially for the Sand-and-Gravel Aquifer, the recharge area is the same as the area of the aquifer. Thus, the Surficial Aquifer is susceptible to

contamination throughout northwest Florida. In southern Escambia County, historical land use by certain industries has resulted in localized contamination of groundwater in the Sand-and-Gravel Aquifer, affecting a significant number of public supply wells. Although remediation technology, such as granular-activated carbon systems, is capable of filtering these contaminants, such treatment increases the costs of operating the wells.

For the Floridan Aquifer System, areas susceptible to contamination coincide with areas delineated by higher recharge characteristics. In northeastern Jackson County, the agricultural pesticide ethylene dibromide (EDB) has contaminated groundwater resources in many areas. Although EDB has been banned by the U.S. EPA for many years, this pesticide is persistent and has affected over 400 domestic water wells in the region. In addition, high nitrate concentrations are of concern in Wakulla County due to the prevalence of karst features and use of septic tanks in many areas.

DEP INTEGRATED REPORT

The DEP *Integrated Water Quality Assessment for Florida: 2004 305(b) Report and 303(d) List Update* (DEP 2004) provides an overview of Florida’s surface water and groundwater quality trends. Report facts and findings relevant to the NFWFMD include:

- Primary contact and recreation use support and shellfish harvesting use support are sometimes limited by the presence of bacteria in the water column.
- In many waters, fish consumption use support is limited by excessive concentrations of mercury in fish tissue.
- Sediments in many urban estuaries, such as the Pensacola and Choctawhatchee bays, contain heavy metals and organic contaminants.
- The following groundwater quality issues were detected:

| | NUTRIENTS | | BIOLOGICALS | | PRIMARY METALS | | SECONDARY METALS | |
|---------------------------|-----------|-------|-------------|-----|----------------|-----|------------------|-----|
| | UNCON* | CON** | UNCON | CON | UNCON | CON | UNCON | CON |
| APALACHICOLA-CHIPOLA | • | • | • | | • | • | • | • |
| CHOCTAWHATCHEE-ST. ANDREW | • | • | | | • | • | • | • |
| OCHLOCKONEE-ST. MARKS | • | • | • | • | • | • | • | • |
| PENSACOLA | • | | | | • | • | • | • |
| PERDIDO | • | | | | • | • | • | • |

* Unconfined Aquifer **Confined Aquifer

C. WATER QUALITY OBJECTIVES AND MEASURES

OBJECTIVES

In order to meet the challenges discussed above and to effectively address the issues described in Section II, the District has established the following water quality objectives:

- WQ 1. Work with local governments and state and federal agencies to retrofit inadequate stormwater treatment systems through the SWIM and Florida Forever programs.
- WQ 2. Work with Alabama and Georgia to better define the sources of interstate problems and potential problems.
- WQ 3. Work with the state and other partners to monitor the quality of the District’s ground and surface waters.
- WQ 4. Prevent and clean up point and nonpoint sources of pollution going to surface and ground waters in accordance with the SWIM priority list and individual SWIM plans and special projects.

- WQ 5. Continue Deer Point Lake Reservoir protection efforts through the St. Andrew Bay SWIM Plan.
- WQ 6. Prevent saltwater contamination through timely source analysis and assisting in the identification and development of alternative water supplies.
- WQ 7. Work with local governments, utilities, and water well contractors to accomplish the proper abandonment and plugging of approximately 3,000 wells through 2010.
- WQ 8. Enhance public awareness, understanding, and participation in surface and ground water quality protection and management.

MEASURES

Performance measures related to water quality are contained in the resource- or region-specific plans and projects referenced in this section and in Chapter IX, Procedures for Plan Development.

D. WATER QUALITY IMPLEMENTATION STRATEGIES

Identified below in Table 11 are strategies and schedules for achieving the water quality goal and objectives, thereby addressing the issues listed in Chapter II relevant to water quality. The strategies are cross-referenced to the issues by number, and to the objectives listed above. In addition, the table shows the division or program responsible for implementing a given strategy, and the related component plans and documents. More detailed information can be found in the related documents identified in the table and in the discussion following the table.

| Table 11. Water Quality Strategies | | | | | |
|---|--|----------------------|-------------------------------------|---------------|--|
| STRATEGIES | SCHEDULE | DIVISION/ PROGRAM | RELATED ISSUES AND OBJECTIVES | | RELATED DOCUMENTS |
| | | | ISSUES | OBJS. | |
| Conduct Assessment, Planning, and Monitoring | | | | | |
| Review SWIM Priority List, update as necessary | Every 5 years, pursuant to statute | RMD | 5,6 7,8 | 1,4 | SWIM Priority List |
| SWIM Plan development and revision | Revise every 3 to 5 years, as needed | RMD | 5,6 7,8,9 | 1,2, 4,5 | SWIM Plans |
| Surface Water Monitoring | Ongoing | RMD | 5,6 7,8,9 | 3,4 | RWSP, SWIM Plans, FEMA Bus. Plan |
| Groundwater Monitoring | Ongoing | RMD | 5,7 | 3,4,6 | Specific Project Reports |
| Implement Pollution Prevention and Restoration | | | | | |
| SWIM Plan implementation | See specific SWIM Plans | RMD | 5,6 7,8,9 | 1,2, 4,5,8 | SWIM Plans |
| Land Acquisition | See Florida Forever Land Acq. Workplan | LMD | 2,5 6,8,9 | 4 | Florida Forever Land Acquisition Work Plan |
| Management of District-owned Lands | Ongoing | LMD, Partners | 2,5 6,8,9 | 4 | Florida Forever Land Acquisition Work Plan |
| Operation and Maintenance of Lake Jackson Stormwater Facility | Ongoing | RMD, Leon Co. | 2,5,8 | 1 | |
| Abandoned Well Plugging | Ongoing | RMD | 2 | 4 | Five-Year WRDWP |
| Participate in ETDM Program | Ongoing | RMD | 2,9 | 4 | DOT Interagency Agreements |

| Table 11. Water Quality Strategies | | | | | |
|--|----------|--|-------------------------------------|-------|---|
| STRATEGIES | SCHEDULE | DIVISION/ PROGRAM | RELATED ISSUES AND OBJECTIVES | | RELATED DOCUMENTS |
| | | | ISSUES | OBJS. | |
| Protect and restore water quality through implementation of water resource special projects | Ongoing | RMD | 3,5,6 8,9,10 | 1, 4 | SWIM Plans, Florida Forever Capital Improvement Plan |
| Conduct Effective Regulatory Programs | | | | | |
| Regulation of Agricultural and Forestry Surface Water Management Projects | Ongoing | RRD | 2,5,9 | 4 | 40A-44 F.A.C. |
| Well Permitting | Ongoing | RRD | 2,5 | 4 | 40A-3, F.A.C. |
| Regulation of Artificial Recharge Facilities | Ongoing | RRD | 2,5 | 4 | 40A-3, F.A.C. |
| Consumptive Uses of Water Regulatory Program | Ongoing | RRD | 2 | 6 | 40A-2, F.A.C. |
| Provide Education and Technical Assistance | | | | | |
| WaterWays Education Program | Ongoing | PI | 2,5 8,9 | 8 | WaterWays Publications |
| Technical Assistance and Intergovernmental Coordination related to comprehensive plan review, SWIM projects, and special ground water projects | Ongoing | RMD | 5,6,8, 9,10 | 1,6,7 | Specific Project Reports, SWIM plans, Cooperative Agreements |
| * RMD - Division of Resource Management | | LMD - Division of Land Management and Acquisition | | | |
| RRD - Division of Resource Regulation | | PI - Public Information | | | |

SURFACE WATER QUALITY IMPROVEMENT AND MANAGEMENT

In northwest Florida, a number of parties are involved in the implementation of programs to protect and improve surface water quality, with the primary participants being the District, DEP, and local governments. Secondary participants include the Florida Fish and Wildlife Commission, United States Geological Survey, U.S. Army Corps of Engineers, Natural Resource Conservation Service, Alabama, Georgia, and private interests. Surface water quality planning is primarily focused on the SWIM program priority watersheds. SWIM plans have been developed for the Apalachicola River and Bay System, Lake Jackson, the Pensacola Bay System, the St. Andrew Bay Watershed, the St. Marks River-Apalachee Bay Watershed, and the Choctawhatchee River and Bay System.

The District has a long and varied history of involvement in surface water quality improvement efforts. Projects include development of comprehensive stormwater plans, development of regional stormwater facilities retrofit plans, the Lake Jackson Megginnis Arm stormwater treatment system, the Old Pass Lagoon restoration project, and numerous water quality assessment projects. The SWIM program has played a major role in such efforts. The program, for example, is responsible for the restoration of Megginnis Arm of Lake Jackson through hydraulic dredging, the expansion and upgrading of the Lake Jackson Megginnis Arm stormwater treatment system, extensive intergovernmental coordination; water quality assessments; watershed land use and cover mapping; and diagnostic assessments for priority SWIM waterbodies. Through the program, the District has designed and assisted in the construction of major stormwater retrofit facilities in Escambia County and has implemented other retrofit and related projects benefiting Pensacola, Choctawhatchee, St. Andrew, and Apalachicola bays. This includes the award-winning stormwater retrofit facility for a portion of the Bayou Chico watershed in Escambia County. Among the outreach efforts the District has implemented through the SWIM program is the award-winning WaterWays program. This program provides water quality and other water resource protection information through workbooks, teachers' guides, and educational videos to middle school students in northwest Florida.

Cooperators and other government agencies use many of the studies undertaken by the District to enhance their programs. For instance, the Leon County karst study was incorporated as an important element of the Leon County/City of Tallahassee's aquifer protection program. The Jackson County pesticide study formed the basis for the DEP pesticide monitoring program in the area, as well as facilitating special permitting requirements for new wells planned in the area. The Escambia County groundwater and contaminant transport model is utilized by the Escambia County Utility Authority as a decision-support tool in managing the groundwater resource of the Sand-and-Gravel Aquifer. In addition, the model will be the primary analytical tool in the development of the forthcoming wellhead protection areas in the county.

As a regional agency, the District is concerned with ensuring consistency between local governments in planning for surface waters that have multi-jurisdictional watersheds. The District's review of developments of regional impact and other development projects includes assessment of impacts to surface water quality that could result from proposed activity. Reviews of local government comprehensive plans and plan amendments also consider whether future land use patterns will adversely impact surface water quality. Technical assistance is provided by the District upon request to help ensure that local land planning programs consider potential surface water quality impacts. The District also conducts stormwater planning for local governments on a contractual basis.

The District continues to work with DEP in implementing the Florida Springs Initiative. This effort is encompassed within the surface and ground water monitoring strategies listed above, and the information developed will be applied to SWIM plan updates. Floridan Aquifer spring inventories are completed for the Choctawhatchee River, Econfina Creek, and Chipola River basins. Work scheduled includes spring inventories in the Wakulla and St. Marks river basins, which will complete Floridan Aquifer spring inventories in the NFWFMD. The Florida Springs Initiative also supports ground water basin delineations, which have been performed for Jackson Blue Spring in Jackson County and for Wakulla Springs in Leon and Wakulla counties, both 1st magnitude springs. Basin delineations are scheduled for 2005-2006 for St. Marks Rise (Leon County) and Morrison Spring (Walton County).

In northwest Florida, DEP implements stormwater quality permitting and most wetland regulatory programs, rather than the District. Due to financial constraints, the District's surface water regulatory program is limited to regulation of silvicultural and agricultural surface water management activities and the regulation of surface water impoundments. Stormwater quantity (not related to dam safety) and non-agricultural impacts to isolated wetlands are not currently regulated in northwest Florida.

GROUNDWATER QUALITY REGULATORY PROGRAMS

District regulation of activities for the protection of groundwater quality includes well construction permitting, artificial recharge permitting, consumptive use permitting, and water well permitting in contaminated areas. The well construction, artificial recharge, and well permitting in contaminated areas programs are intended to prevent groundwater quality degradation that could result from improperly constructed wells. Consumptive use permitting is intended to ensure that groundwater withdrawals do not degrade the resource by increasing the movement of various contaminants, thereby avoiding saltwater intrusion or upcoming problems with water supply.

Abandoned wells can be a threat to groundwater quality if the well casing allows water of inferior quality to enter a higher quality aquifer. In response to the problem of abandoned wells, the District works with utilities to identify and plug significant abandoned wells. The District also accomplishes abandoned well plugging through its well permitting regulatory and enforcement programs, which have resulted in the plugging of more than 15,000 wells since 1980.

In northwest Florida, the District, DEP, and local governments are the primary parties involved in the implementation of regulation programs to protect and improve groundwater quality. The District also coordinates with Suwannee River Water Management District regarding groundwater quality issues along the Districts' shared boundary. The District's groundwater quality programs are integrated with

land planning primarily through providing hydrogeologic information to local governments for use in the development of their local comprehensive plans and land development regulations. The District's reviews of local comprehensive plan amendments and developments of regional impact include evaluation of potential impacts to surface and groundwater quality that could result from the proposed activity. The District provides technical assistance upon request to help draft local ordinances and ensure that local land planning programs minimize water quality impacts.

LAND ACQUISITION

Land acquisition for water quality preservation purposes is also one of the District's responsibilities. Pursuant to Chapter 373, F.S., the District is authorized to acquire property for the conservation and preservation of water resources. The District acquires lands that meet multiple criteria for preservation, and one of these criteria is the protection of groundwater quality.

The District now protects over 200,000 acres District-wide. These lands include areas within most of the major watersheds that provide interrelated resource benefits, including water quality protection, aquatic and wetland habitat protection and restoration, and public access for compatible recreational activities. Among current lands, the District owns over more than: 57,000 acres along the Choctawhatchee River and Holmes Creek, 35,000 acres along the Apalachicola River, 34,000 acres along the Escambia River, and 17,446 acres along the Yellow River. These lands protect water quality, associated habitat, and watershed functions. In 1998, the District began acquisition of the Econfina Recharge Area (now covering more than 40,000 acres) in Bay and Washington counties to protect groundwater quality, recharge for surface water supply, and other water and related resources.

DEP TOTAL MAXIMUM DAILY LOAD PROGRAM

The Department of Environmental Protection is implementing a federally mandated water quality program called Total Maximum Daily Loads (TMDLs). A TMDL is the maximum amount of a given pollutant that a waterbody can assimilate and still maintain its designated uses (e.g., drinking, fishing, swimming, shellfish harvesting). One waterbody may have several TMDLs, one for each targeted pollutant. Under Section 303(d) of the federal Clean Water Act and the Florida Watershed Restoration Act, TMDLs must be developed for all waters that are not meeting their designated uses and, consequently, are defined as "impaired waters." Section 403.067, Florida Statutes, sets out the state's process for assessing impaired waters and developing and implementing TMDLs.

TMDLs are developed, allocated, and implemented through a watershed management approach (managing water resources within their natural boundaries) that addresses the state's 52 major hydrologic basins in five groups. Each group will undergo a cycle of five phases on a rotating schedule:

Phase 1: *Preliminary Evaluation* of water quality

Phase 2: *Strategic Monitoring and Assessment* to verify water quality impairments

Phase 3: *Development and Adoption of TMDLs* for waters verified as impaired

Phase 4: *Development of Basin Management Action Plan (B-MAP)* to achieve the TMDL

Phase 5: *Implementation* of the BMAP and monitoring of results

Table 12 below shows the hydrologic basins in the NFWFMD where DEP has established and will establish TMDLs, and the general timeframe for TMDL development and implementation. TMDL implementation will build upon existing efforts within the affected areas, helping to coordinate local and regional plans and activities.

Table 12. NFWWMD TMDL Basins

| PHASE | GROUP 1 BASIN | GROUP 2 BASIN | GROUP 3* BASIN | GROUP 4* BASIN | GROUP 5* BASIN |
|--------------|-----------------------------------|----------------------------------|--|---------------------------|---------------------------|
| | OCHLOCKONEE- ST. MARKS | APALACHICOLA- CHIPOLA | CHOCTAWHATCHEE- ST. ANDREWS | PENSACOLA BAY | PERDIDO BAY |
| 1 | 2000/01 | 2001/02 | 2002/03 | 2003/04 | 2004/05 |
| 2 | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 |
| 3 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 |
| 4 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 |
| 5 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 |

*Projected years for phases 3, 4, and 5 may change due to accelerated local activities, length of plan development, legal challenges, etc.

While the NFWWMD does not have the staff or funding to participate fully in the TMDL program, its SWIM program and other water quality efforts may assist local communities and DEP efforts in meeting adopted TMDLs. As part of its SWIM plans for improvement and management of priority waterbodies, the District considers the state’s adopted verified list of impaired waters and uses this information to help guide its own efforts in making improvements to these waters. Waters within the NFWWMD that have been verified by the DEP and approved by the U.S. Environmental Protection Agency as impaired can be found on the DEP website (see Section X, *References*).

Discussion on TMDL development in specific northwest Florida watersheds is contained in Chapter VIII, *Watershed Management*.

E. LIMITATIONS AND ASSUMPTIONS

- Funding for the District-wide ambient monitoring and groundwater monitoring programs has been provided on a year-to-year basis by DEP. Funding is not adequate for analysis and reporting of data acquired through this program. Funding for the Leon County stormwater monitoring network is provided by the City of Tallahassee and Leon County.
- The lack of dedicated funding has caused the abandoned well-plugging program to be implemented incrementally, as funds become available. General funds are not adequate to plug all wells identified in the abandoned well inventory. Funding to plug additional wells will be requested from DEP. However, many abandoned wells have been properly plugged through enforcement of District rules.
- General funds for technical assistance are limited. Thus, any technical assistance with large staff demands will require outside funding from grants or contracts with local governments or other agencies. Review of local government comprehensive plans, DRIs and external permits and development plans is limited because of funding difficulties.
- The funding provided by DEP for staff resources and well permitting in contaminated areas is adequate; however, it is a year-to-year funding source. If funding is not provided by the DEP, the District will not be able to perform the permitting responsibilities associated with this program.

VI. Natural Systems

A. GOAL

The District's natural systems goal is to protect and enhance natural systems.

B. RESOURCE ASSESSMENT

PLANNING UNITS

The District takes a watershed management approach to assessing and identifying regionally significant water-related resources. This approach requires the consideration of entire basins (see major watersheds in Chapter 1, *District Overview*) and the interdependence and relative importance of specific water-related resources within each basin. In general, types of regionally significant water-related resources include the following:

- Major rivers, streams, and lakes
- Major estuaries, bays, and bayous
- Floodplains
- Major wetland systems
- First and second magnitude springs
- Important groundwater recharge areas
- Surface waters used for public supply

According to the *1998 Water Resources Atlas of Florida* (Fernald and Purdum 1998), northwest Florida's climate and geologic history have produced perhaps the greatest diversity of plants and animals of any other comparably sized region in the United States or Canada. Many rare, threatened, and endangered species are listed by both state and federal agencies as occurring within the District, and there are large numbers of endemic plants and animals. Even though much of northwest Florida has vast tracts of relatively undeveloped land, many of its original natural areas have been replaced or fragmented by urban and residential development, agriculture, or silviculture.

Most of the rivers within northwest Florida are in a relatively natural state and have few major impoundments or other structures to alter their floodplains or control their flow rates. With the exception of the Apalachicola River, there is relatively little stream channelization and associated floodplain impacts. Due to the interstate nature of the major watersheds, however, rivers within the District are subject to alteration within Alabama and Georgia.

Estuaries within the District are diverse and support a many habitat types. These include major seagrass systems, particularly in Apalachee, St. Joseph, St. Andrew, Apalachicola, and Choctawhatchee bays. Major tidal wetland systems, shellfish beds, and other habitats contribute greatly to the ecological diversity and productivity of the District's natural systems.

As discussed above, substantial areas of the District are being transformed from forested and rural in character to suburban and urban. Much of this growth is located proximate to sensitive habitats and resources. Such change therefore places regional wetland systems and other sensitive habitats at risk from loss, degradation, and fragmentation. Additionally, water quality is at increasing risk from widespread nonpoint source pollution.

Through a number of programs, primarily the SWIM and land acquisition and management programs, the District conducts regional studies of water-related resources to identify priorities for preservation and restoration. Periodic revisions to the SWIM priority list, SWIM plans, and the Florida Forever Five Year Plan are the primary methods of formally identifying regionally important water-related resources. District land acquisition programs that target major river and stream corridors help reduce

flood damage, since these lands must remain in their natural state once they are purchased for water quality protection and for preservation purposes.

The preceding chapters on water supply, flood protection and floodplain management, and water quality identify other programs the District is implementing that help reduce and correct impacts to natural systems.

C. NATURAL SYSTEMS OBJECTIVES AND MEASURES

OBJECTIVES

In order to meet the challenges discussed above and to effectively address the issues described in Section II, the District has established the following natural systems objectives:

- NS 1. Establish minimum flows and/or levels required to protect natural systems and existing users, according to the annually updated schedule.
- NS 2. Minimize the impacts of land alteration and stormwater runoff through integrated land and water resource management programs in accordance with the activities and schedules indicated in the SWIM and Land Acquisition work plans.
- NS 3. Restore degraded water resources, wetlands, and other related natural systems on a regional watershed and landscape basis in accordance with the activities and schedules established in the SWIM, Regional Mitigation, In-Lieu Fee, and Land Acquisition work plans.
- NS 4. Preserve priority lands and habitats through land acquisition and less-than-fee protection in accordance with the Land Acquisition Five-Year Work Plan.
- NS 5. Enhance public awareness, understanding, and participation in the protection and management of water resources and associated natural systems.

MEASURES:

Performance measures related to natural systems are contained in the resource- or region-specific plans and projects referenced in this section and in Chapter IX, Procedures for Plan Development.

D. NATURAL SYSTEMS IMPLEMENTATION STRATEGIES

Identified below in Table 13 are strategies and schedules for achieving the natural systems goal and objectives, thereby addressing the issues listed in Chapter II relevant to natural systems. The strategies are cross-referenced to the issues by number, and to the objectives listed above. In addition, the table shows the division or program responsible for implementing a given strategy, and the related component plans and documents. More detailed information can be found in the related documents identified in the table and in the discussion following the table.

| Table 13. Natural Systems Strategies | | | | | |
|---|--|----------------------|-------------------------------------|--------|----------------------|
| STRATEGIES | SCHEDULE | DIVISION/ PROGRAM | RELATED ISSUES AND OBJECTIVES | | RELATED DOCUMENTS |
| | | | ISSUES | OBJ.S. | |
| SWIM Program | | | | | |
| Surface Water Monitoring | Ongoing | RMD | 2,5,6 8,9,10 | 2,3 | SWIM Plans |
| Review SWIM Priority List, update as necessary | Every 5 years | RMD | 2,5,6 8,9,10 | 3 | SWIM Priority List |
| SWIM Plan development, revision, and implementation | Revise plans every 3 to 5 years, as needed | RMD | 2,5,6 8,9,10 | 2,3 | SWIM Plans |

| Table 13. Natural Systems Strategies | | | | | |
|---|---|--|-------------------------------------|-------|--|
| STRATEGIES | SCHEDULE | DIVISION/ PROGRAM | RELATED ISSUES AND OBJECTIVES | | RELATED DOCUMENTS |
| | | | ISSUES | OBJS. | |
| Minimum Flows and Levels | | | | | |
| Water Flows and Levels Monitoring | Ongoing; depends upon sampling network | RMD | 6,7 8,9 | 1 | MFL Priority List |
| Establish Minimum Flows and Levels for priority waterbodies | Per MFL Priority List | RMD | 6,7 8,9 | 1 | MFL Priority List |
| Natural Systems Protection and Restoration | | | | | |
| Restore water and habitat quality through stormwater retrofit and habitat restoration projects in SWIM plans | Project-specific | RMD, LMD | 3,5,6 8,9,10 | 3 | SWIM Plans |
| Protect and restore water and habitat quality through implementation of water resource special projects | Ongoing | RMD | 3,5,6 8,9,10 | 3 | SWIM Plans, Florida Forever Capital Improvement Plan |
| Management of District-owned Lands | Ongoing | LMD, Partners | 3,5 6,8,9 | 2,4 | Florida Forever Land Acquisition Work Plan |
| Acquire natural areas for preservation | See schedule in plan | LMD | 3,5 8,9 | 2,4 | Land Acquisition Work Plan |
| Plan and implement regional wetland mitigation | See schedule in plan (updated annually) | RMD | 3,8,9 | 2,3,4 | DOT Regional Mitigation Plan; In- Lieu Fee Plan |
| Permit and implement Sand Hill Lakes Mitigation Bank | Credit Release Schedule 2005- 2010; Long-term maintenance in perpetuity | RMD | 3,8,9 | 3 | Mitigation Banking Instrument; Funding/operating agreements with DOT |
| Participate in ETDM Program | Ongoing | RMD | 3,8,9 | 2 | EST/DOT Interagency Agreements |
| Implement Effective Regulatory Programs | | | | | |
| Consumptive Uses of Water Regulatory Program | Ongoing | RRD | 7,9 | 1 | 40A-2, F.A.C. |
| Implement WRCA requirements in designated WRCAs | Ongoing | RRD | 1,5 7,9 | 1,5 | 40A-2, F.A.C. |
| Provide Education and Technical Assistance | | | | | |
| WaterWays Education Program | Ongoing | PI | 3,5,6 7,8,9 | 5 | WaterWays publications |
| Technical assistance and intergovernmental coordination related to comprehensive plan review, alternative water supply, SWIM projects, and floodplain mapping | Ongoing | RMD | 2,3, 4,6,7,8 ,9,10 | 2,3 | Cooperative Agreements |
| * RMD - Division of Resource Management RRD - Division of Resource Regulation | | LMD - Division of Land Management and Acquisition PI - Public Information | | | |

While virtually all of the District's programs are related to natural systems protection or restoration, many address only single components in the realm of comprehensive protection strategies. The purpose of this section is to identify water-related resources of *regional* significance in need of preservation and/or restoration and the mechanisms for attaining these objectives. The NFWFMD's

Natural Systems

primary tools for natural system management and protection are the SWIM program, establishment of MFLs, land acquisition and management, the DOT wetland mitigation and related ETDM programs, intergovernmental coordination, and technical assistance. District regulatory programs also include protective measures for many of the region's particularly sensitive or important water-related resources.

District efforts complement those of other resource management and regulatory agencies to regulate, manage, and preserve natural systems. Such efforts include protection and management of state and federal lands, designation and management of state aquatic preserves, designation and protection of Outstanding Florida Waters, DEP's TMDL program, and local government resource protection initiatives.

MINIMUM FLOWS AND LEVELS

Section 373.042, F.S., requires that the water management districts or DEP establish and administer minimum flows and levels (MFLs) for all surface watercourses, and minimum levels for groundwater resources within the District, to protect them from significant harm. In addition, the districts are mandated by Section 373.0391, F.S., to provide information concerning MFLs local governments.

The purpose of establishing minimum flows and levels is to regulate the withdrawal or diversion of surface and groundwater resources to prevent degradation of natural systems, while protecting the needs of existing users. The District also utilizes best available information in the permitting of consumptive uses of water to assess the cumulative impact of multiple withdrawals and potential harm to water resources and associated natural systems.

Minimum flows and levels are under development at the District. The District's overall strategy for development and establishment of MFLs is as follows:

- (1) On the basis of existing information, establish the priority list and schedule based on the importance of the waters to the state or region.
 - Priority for MFL establishment is based on the importance of the water resource to the state or a region and the existence of or potential for significant harm to the water resources or ecology of the state or region, and should include those waters which are experiencing or may reasonably be expected to experience adverse impacts. Using the best information available, the District has identified areas where establishment of minimum flows and levels is most important to the protection of existing water resources and associated natural systems. These flows and levels will identify the extent to which surface and groundwater can be withdrawn or diverted without becoming harmful to the water resources or ecology of the area.
 - The water management districts annually update their lists and schedules for establishing MFLs on priority surface water bodies and aquifers, after review by the Department of Environmental Protection. The NFWFMD's priority list for the development of minimum flows and levels can be found at <http://www.nfwfmd.state.fl.us/rmd/mfl/mfl.htm>.
- (2) Assess existing information and characterize the waters on the priority list through SWIM or water resource planning programs or any other program with sources of funding that may be used to examine the availability of surface water or groundwater resources.
- (3) Using best available information, develop the data and MFL methodology for the waters on the priority list. Modeling of surface and groundwater is used to predict potential future demand for water resources and important climatological and hydrologic conditions that affect minimum flows and levels. Modeling is also used to estimate the encroachment of salt water into the ground.

- (4) Determine and implement the minimum flows and levels.
- Establishment of minimum flows and levels is determined on the basis of whether the proposed withdrawal, in combination with other existing and proposed withdrawals, would cause significant harm to the water resources and associated natural systems.
 - The District may also reserve by rule water from use by permit applicants that may be required for protection of fish and wildlife or public health and safety.

LAND ACQUISITION PRIORITIES

District land acquisition and management have protected priority lands across the District. This provides public benefits, including water quality and water supply protection, protection of regional biodiversity and ecological diversity, protection of large-scale wetland and floodplain functions, and provision of public recreation and education opportunities. District land acquisition, restoration, and management complement related efforts of other agencies, including DEP, Florida Fish and Wildlife Conservation Commission, Florida Department of Agriculture and Consumer Services Division of Forestry, federal agencies, private conservation landowners, and local governments. District land acquisition is funded primarily by the Florida Forever and DOT mitigation programs.

As described in its Land Acquisition Work Plan (NFWFMD 2004b), the District acquires land that is necessary to protect, preserve, and enhance water resources for current and future generations. Since the program began, the District has acquired more than 200,000 acres, located predominantly along major river corridors. Chapter I, *District Overview*, contains more detailed information about the District's land acquisition efforts.

SURFACE WATER IMPROVEMENT AND MANAGEMENT (SWIM) PROGRAM

Management plans are developed for priority SWIM waterbodies. Each plan identifies strategies that will lead to the long-term preservation or restoration of both the waterbody and its associated natural systems. This typically includes identification and assessment of point and nonpoint sources of pollution, assessing alteration and degradation of natural systems, and identification of research needed to further understand the preservation and restoration needs of the particular waterbody.

To date, SWIM plans have been developed and projects have been initiated for the following waterbodies: Apalachicola River and Bay, Lake Jackson, the Pensacola Bay System, St. Marks River, Choctawhatchee River and Bay, and St. Andrew Bay (including Deer Point Lake, St. Joseph Bay, and the Sand Hill Lakes). The Apalachicola and St. Andrew Bay programs have included extensive mapping of the land uses and land cover of the watershed and integrated nonpoint source assessments, while the Lake Jackson and Pensacola Bay programs have focused primarily on urban stormwater retrofit. The Choctawhatchee SWIM program has included projects to provide stormwater retrofit and ecological restoration. The Pensacola Bay and Apalachicola River and Bay programs also address management of point sources of pollution, and the Apalachicola program includes a major interstate effort to establish minimum freshwater flows to the bay. Each of these plans includes numerous specific projects, which together comprise a watershed management approach. The SWIM program has also assisted in identifying and acquiring lands that serve to further preservation objectives and implement watershed management.

Through the SWIM program, the District is able to effectively leverage state and federal grant funding, as well as local participation, to facilitate planning and implementation of major resource protection and restoration projects that would not otherwise be possible. For example, the District has been very effective at obtaining and implementing projects funded by the U.S. EPA's 319 program for the Apalachicola River and Bay, Choctawhatchee River and Bay, St. Marks River Watershed, St. Andrew Bay Watershed, Lake Jackson, and the Pensacola Bay System.

Because the SWIM Program is the vehicle for watershed management in the District, the program is discussed in more detail in Chapter VIII, *Watershed Management*.

REGIONAL WETLAND MITIGATION

Through the Regional Mitigation Plan 2002 - 2005 (October 2001), the District plans and implements wetland mitigation projects for DOT in accordance with Section 373.4137, F.S., and the federal Clean Water Act. Additionally, the District is in the process of developing an In-Lieu Fee Regional Mitigation Plan for federal wetland mitigation. The plan is integrated with SWIM, other District restoration and preservation programs, and the DOT ETDM program. Implementation of these programs includes acquisition and restoration of wetlands for long-term preservation.

EFFICIENT TRANSPORTATION DECISION MAKING (ETDM)

Through agreement with DOT, the District is participating in the ETDM program. Through this program, potential impacts of proposed transportation projects are identified early in the planning process to avoid impacts and mitigate for unavoidable impacts.

E. LIMITATIONS AND ASSUMPTIONS

SWIM program funds have generally been adequate; however, the year-to-year funding aspect of the program limits the ability of the District to initiate long-term projects. This is particularly true for waterbody assessment projects. At times, the matching funding requirement has presented problems for the District due to its limited ad valorem taxing authority. Consequently, the District has pursued partnerships with local governments in SWIM program areas to assist in meeting match requirements.

The Florida Forever program provides a major source of restoration, as well as land acquisition, funding. Additional sources of funding include state legislative appropriations, the water management lands trust fund, and state and federal grants. Also, a special management account has been established for the E.K. Phipps property in Leon County.

General revenue funding for technical assistance is limited. Thus, technical assistance with large staff demands may require outside funding from grants or contracts with local governments or other agencies. Review of local government comprehensive plans, DRIs and external permits and development plans is limited by funding and staff resources.

VII. Integrated Plan

This chapter describes the integration of water resource management with local government responsibilities and activities at the local, regional, and state levels. Provided here is a description of how the NFWFMD coordinates with and assists in local, regional and state efforts. The chapter includes a summary of water resource issues and District activities in each county within its jurisdiction.

A. GENERAL COORDINATION ACTIVITIES

The District's intergovernmental coordination strategy is based on working partnerships with other levels of government that have water management responsibilities through their planning, regulatory, land acquisition, and service delivery programs.

Chapter 373, Florida Statutes, the Water Resources Act, provides the NFWFMD authority and directives for the management of water, but does not authorize direct involvement in many important water-related issues. The primary example is land use planning and regulation. Land use decisions are the responsibility of local units of government, and many land use decisions can have far-reaching effects on water resources and associated natural systems. A role of the District is to work cooperatively with local governments where land and water planning and regulatory processes may be drawn closer together.

The District's approach to intergovernmental coordination is based on shared interest and communication. By maintaining close working ties with federal, state, regional, and local agencies, the District can draw on important resources, technical expertise, knowledge, and statutory authority.

The general process for establishing and maintaining coordination includes the following:

- **District staff attend meetings of councils, commissions, boards, and committees that act on water-related issues.** As necessary, District staff regularly coordinate with other agencies and local governments through these formal mechanisms.
- **The District disseminates water resources data, reports, and maps.** The NFWFMD monitors rainfall, water levels and flows, water quality, and selected aquatic ecosystems. This information is made available to other agencies and the public. Information on topography, soils, hydrography, floodplains, public lands, and ownership is also available through the District.
- **The District reviews and comments on various planning and regulatory activities of local governments and other regional, state, and federal agencies.** The District's review and comment can effectively increase awareness of local and regional water management issues and discourage activities detrimental to water resources.
- **District staff communicate regularly via contacts and correspondence with officials on a wide range of subjects.**
- **District staff participate in ad hoc working groups and committees.** The NFWFMD also forms working groups or committees as the need arises, for the time needed. District staff also participate in the various groups and committees of other agencies as requested or necessary.
- **The District's Governing Board holds monthly meetings.** These meetings are open to the public, and opportunities are provided for officials and citizens to address policies, plans, programs, and budgets. The general meeting of the Governing Board is held monthly, and workshops are scheduled as needed to discuss specific subjects. At least two meetings per year are scheduled away from District headquarters to ensure that local governments and citizens in other parts of the District have opportunities to address the Governing Board.

- **The District’s Executive Director communicates regularly with legislative members and staff.** Each year the Florida Legislature considers proposed legislation that addresses water management. The NFWFMD maintains contact with legislators and legislative staff to provide technical information and consultation on water-related bills.
- **The Executive Office of Governor reviews District management plans.** District staff submit annual programmatic budgets to the Executive Office of the Governor (EOG) and communicate with the EOG staff concerning significant water resource issues affecting northwest Florida.

Water-related responsibilities of specific agencies with which the NFWFMD cooperates are shown in Table 14 below, along with actions the District takes to establish and maintain communication. The intent is to encourage information sharing and mutual support in addressing water management issues.

Table 14. Interagency Coordination

| WATER-RELATED RESPONSIBILITIES | NFWFMD COORDINATION ACTIVITIES |
|---|---|
| FLORIDA LEGISLATURE | |
| Exercises authority over budget and composition of guiding statutes. | <ul style="list-style-type: none"> • Implements statutory directives. • Implements budget per statutes. • Submits annual budget request. |
| LOCAL UNITS OF GOVERNMENT | |
| Land use planning and regulation, water supply planning, water supply services, recreational and health services, stormwater management | <ul style="list-style-type: none"> • Coordinates with local governments on an as-needed basis, including technical staff meetings, workshops, presentations to local governing bodies, and other verbal and written correspondence. • Responds to local government requests for information or technical assistance relating to specific local government projects or proposals. • Performs various water resource projects for local governments through contractual arrangements. • See section on County Issues and District Activities for more detail. |
| ALABAMA AND GEORGIA | |
| Water quality and quantity management at the state level | <ul style="list-style-type: none"> • Establishes contacts with state, local, regional, and federal agencies in Alabama and Georgia to address interstate water management issues. • The District has recognized a need to increase coordination with Alabama and Georgia governments and agencies - interstate coordination efforts have been focused on the Apalachicola-Chattahoochee-Flint river system, but coordination is needed to ensure that other interstate rivers are being properly managed. |
| EXECUTIVE OFFICE OF THE GOVERNOR | |
| Coordination of interagency review of development projects and grant applications | <ul style="list-style-type: none"> • Reviews and comments on materials received from the Office of the Governor and provides assistance, when needed, to planning programs and advisory bodies established by the Governor. |

| WATER-RELATED RESPONSIBILITIES | NFWFMD COORDINATION ACTIVITIES |
|--|---|
| FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) | |
| <p>General supervisory authority over water management districts; establishing statewide water quality standards; permitting industrial waste, landfills, dairies, dredge and fill, and wetlands; administers state funds for the SWIM program, the Save Our Rivers and Florida Forever programs, the Groundwater Quality Assurance Program; development of State Water Policy and the Florida Water Plan; and supervision of pass-through funding from the U.S. EPA</p> | <ul style="list-style-type: none"> • Chair of the NFWFMD Governing Board participates as a member of the Water Resources Coordination Council (WRCC), composed of the chairmen of the five water management districts and the Secretary of DEP. The WRCC meets regularly to coordinate water management activities. • Coordinates with DEP on a range of programs, including SWIM, Groundwater Quality Assurance, and grant programs. • Participates on DEP/WMD technical committees and groups are to improve coordination and consistency in district plans, programs, and regulations • Requests DEP participation on issue-specific technical groups and committees. • Participates on Mitigation Bank Review Team. • May receive grant funding through the Florida Coastal Management Program. |
| FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS (DCA) | |
| <p>Review and approval of local comprehensive plans, state-level National Flood Insurance Program coordination, and emergency management. Administers some grants and federal pass-through funding from DHS.</p> | <ul style="list-style-type: none"> • Reviews water-related content of developments of regional impact and local comprehensive plans and plan amendments and provides comments to the DCA. • Provides assistance for water-related aspects of emergency management and requests DCA participation on issue-specific technical groups and committees. • Coordinates with the DCA Area of Critical State Concern program by providing technical assistance and participation on the resource planning and management committee. |
| FLORIDA DEPARTMENT OF HEALTH (DOH) | |
| <p>Public health aspects of water used by citizens from domestic wells and permitting onsite wastewater disposal systems</p> | <ul style="list-style-type: none"> • Requests Department of Health participation on issue-specific technical groups or committees. • Has been involved in cooperative research with DOH regarding septic system performance. |
| FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES (DACS) | |
| <p>Water resource education, agricultural research, development of agricultural and silviculture Best Management Practices for the protection of water quality and quantity</p> | <ul style="list-style-type: none"> • Works with the Division of Forestry (DOF) and Soil and Water Conservation Districts in the development and implementation of BMPs for silviculture and agriculture. • Develops agreements with DOF for the management of NFWFMD lands, and invites DOF to participate on issue-specific technical groups and committees. • Participates with the FDACS Water Policy Advisory Committee. • Works with DACS shellfish staff in SWIM program and related watershed activities. |

| WATER-RELATED RESPONSIBILITIES | NFWFMD COORDINATION ACTIVITIES |
|--|--|
| FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION (FWCC) | |
| Responsible for research on freshwater aquatic life, marine life, wild animal life and their habitats, enforcement of FWC laws, boating safety, and enforcement of environmental laws | <ul style="list-style-type: none"> • Develops agreements with FWCC for enforcement of hunting laws and assistance in enforcing NFWFMD land management rule. • Involves FWCC in the development of cooperative planning and technical projects through SWIM, including riverine and estuarine studies, lake restoration, and monitoring fish, wildlife, and biological conditions. • Regularly requests FWCC participation on issues-specific technical groups or committees. • Works together with FWCC land acquisition projects. |
| FLORIDA DEPARTMENT OF TRANSPORTATION (DOT) | |
| Construction and maintenance of highways and other facilities that may impact drainage, water quality, and wetlands | <ul style="list-style-type: none"> • Works in partnership with DOT to develop and implement regional wetland mitigation plan. • Works in partnership with DOT as part of the ETDM process. • Requests DOT participation on issue-specific technical groups and committees. • Has worked with the DOT to resolve issues concerning mitigation of wetlands and stormwater impacts resulting from DOT construction projects. |
| REGIONAL UTILITY AUTHORITIES (RUAs) | |
| Water supply, sewage collection, treatment, and disposal, including reuse | <ul style="list-style-type: none"> • Works in conjunction with the RUAs and local utilities to pursue development of alternative sources to meet existing and projected water supply demands. • Assists RUAs in implementing the RWSDP Addendum through contractual agreements for technical assistance. |
| REGIONAL PLANNING COUNCILS (RPCs) | |
| Development of strategic regional policy plans which provide guidelines for local comprehensive plans; technical assistance to local governments, including plan development; grants assistance for environmental programs; local emergency planning | <ul style="list-style-type: none"> • Governor appoints District officials to act as ex officio, non-voting, members of the two RPCs in the District, as required by Chapter 186.504(d), F.S. • Participates as a member of the District II Local Emergency Planning Committee. • Assists in the development of regional impact review process. • Requests RPC participation on issue-specific technical groups or committees. |
| WATER MANAGEMENT DISTRICTS | |
| The other four Florida water management districts have similar responsibilities to the NFWFMD | The districts meet regularly to share information and coordinate programs of common interest on a wide range of administrative, planning, land acquisition, and technical issues. |
| FEDERAL EMERGENCY MANAGEMENT ADMINISTRATION (FEMA) | |
| Development of Flood Hazard Map Modernization Program | <ul style="list-style-type: none"> • Coordinates with FEMA and counties as a Cooperating Technical Partner in the Flood Hazard Map Modernization Program. |

| WATER-RELATED RESPONSIBILITIES | NFWFMD COORDINATION ACTIVITIES |
|---|---|
| UNITED STATES GEOLOGICAL SURVEY (USGS) | |
| Data collection and analysis of quantity and quality characteristics of rivers, streams, and lakes | <ul style="list-style-type: none"> • Coordinates with USGS on stream and lake gauging efforts. • Invites USGS to participate on issue-specific technical groups and committees. • Contracts with USGS to implement special projects. |
| UNITED STATES NATURAL RESOURCES CONSERVATION SERVICE (NRCS) | |
| Prevention of flooding, soil erosion, and degradation of water quality; watershed planning; development and implementation of cost sharing BMPs designed to protect water quality; soil analysis and mapping | <ul style="list-style-type: none"> • Supports development and distribution of soils data for use in water management. • Requests NRCS participation on issue-specific technical groups and committees. |
| UNITED STATES ARMY CORPS OF ENGINEERS (USACOE) | |
| Maintenance of navigation; permitting of docks, seawalls, and projects that impact wetlands; water supply studies; flood prevention projects; floodplain and wetland delineation; water allocation in major rivers, and operation of water control structures | <ul style="list-style-type: none"> • Reviews and comments on USACOE permits. • Requests USACOE participation on issue-specific technical groups or committees, particularly those regarding Apalachicola River and Bay issues. • Reviews USACOE activities which impact District lands for consistency with District land management policies. • Participates on Mitigation Bank Review Team. |
| NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) | |
| Water resources research; weather and flood forecasting | <ul style="list-style-type: none"> • Provides rainfall and river stage data to the National Weather Service (NWS) arm of NOAA for use in river flooding forecasts. • Disseminates flood forecasts to the public. • Requests NWS participation on issue-specific technical groups and committees. |
| UNITED STATES FISH AND WILDLIFE SERVICE (USFWS) | |
| Fish and wildlife research; management of various areas within the District | <ul style="list-style-type: none"> • Requests USFWS participation on issue-specific technical groups and committees. • Works in partnership with USFWS staff on restoration projects, watershed planning, and wetland mitigation reviews. • Participates on Mitigation Bank Review Team. |

Interagency coordination frequently plays an important role in land acquisition. For example:

- In 1994, the District contributed \$3,500,000 toward the acquisition of Tates Hell Swamp, a 29,000-acre parcel located between the Apalachicola River and Whiskey George Creek. Additional Preservation 2000 funds provided by the Florida Fish and Wildlife Conservation Commission and the Recreational Lands program made this acquisition possible.
- In 1992, the District and the City of Tallahassee jointly purchased the Elinor Klapp Phipps tract, a 670-acre parcel bordering Lake Jackson. The city assumed title to part of the tract and responsibility for management of the entire parcel.
- The District helped obtain U.S. EPA and state Florida Communities Trust funding to enable Escambia County to complete the initial acquisition of the Jones Swamp Preserve. The District has been able to follow this up by applying DOT mitigation funding for acquisition of mitigation

lands that increased the area and ecological importance of the preserve. Additionally, the District reached agreement with the County to expand this preserve area to a southern Escambia County greenway system that connects with several key state and federal preservation areas.

B. STATUTORY LINKS BETWEEN LAND USE AND WATER MANAGEMENT

Florida Statutes make the following links, among others, with regard to land use and water resource management:

- **163.3177, F.S.**, requires in local government comprehensive plans inclusion of the water supply sources necessary to meet and achieve the existing and projected water use demand, a consideration of water management district regional water supply plans, and the development of 10-year water supply facility work plans.
- **163.3177(11)(d)1, F.S.**, requires DEP, in cooperation with the water management districts and others to provide technical assistance to local governments for the development of innovative land use planning techniques for rural lands.
- **373.0395, F.S.**, requires local governments to review the groundwater basin resource availability inventory provided to them by a water management district, for consistency with their local government comprehensive plan, and to consider them in future revisions of their comprehensive plan.
- **373.0391 and 189.4156, F.S.**, require that water management districts provide technical assistance to local governments for their comprehensive plans, addressing at a minimum, information about:
 - District regulations, programs & schedules
 - Surface water basins, floodprone areas, surface runoff characteristics, and topography regarding floodplains, wetlands, and recharge areas
 - Groundwater characteristics, including existing and planned wellfield sites, existing and anticipated cones of influence, highly productive groundwater areas, aquifer recharge areas, deep well injection zones, contaminated areas, an assessment of regional water resource needs and sources for the next 20 years, and water quality
 - Existing and potential water management district land acquisitions
 - Minimum flows and levels
- **373.185, F.S.**, requires districts to assist local governments within its jurisdiction by providing them with a model Xeriscape code and other related technical assistance.

C. Strategy for Coordinating with and Assisting Local Entities

Information Resources and Access

The NFWFMD provides information and technical assistance to local governments upon request. In addition, the District maintains a website (see Section X, *References*) that contains a number of informational materials and technical reports, including:

- Descriptive and technical information on water resources in northwest Florida, including maps
- Information on existing hydrologic conditions, including rainfall, stage, and temperature data
- Water conservation information
- Permitting rules and forms
- The District budget
- Water resource availability studies
- Water quality studies
- Water supply and demand projections

- Planning documents
 - District Water Management Plan
 - Region II Water Supply Plan
 - SWIM priority list and plans
 - Minimum Flows and Levels priority list
 - Water Resource Development Work Plan
 - Florida Forever Land Acquisition Work Plan
 - Florida Forever Capital Improvements Plan
 - Flood Map Modernization 5-year plan

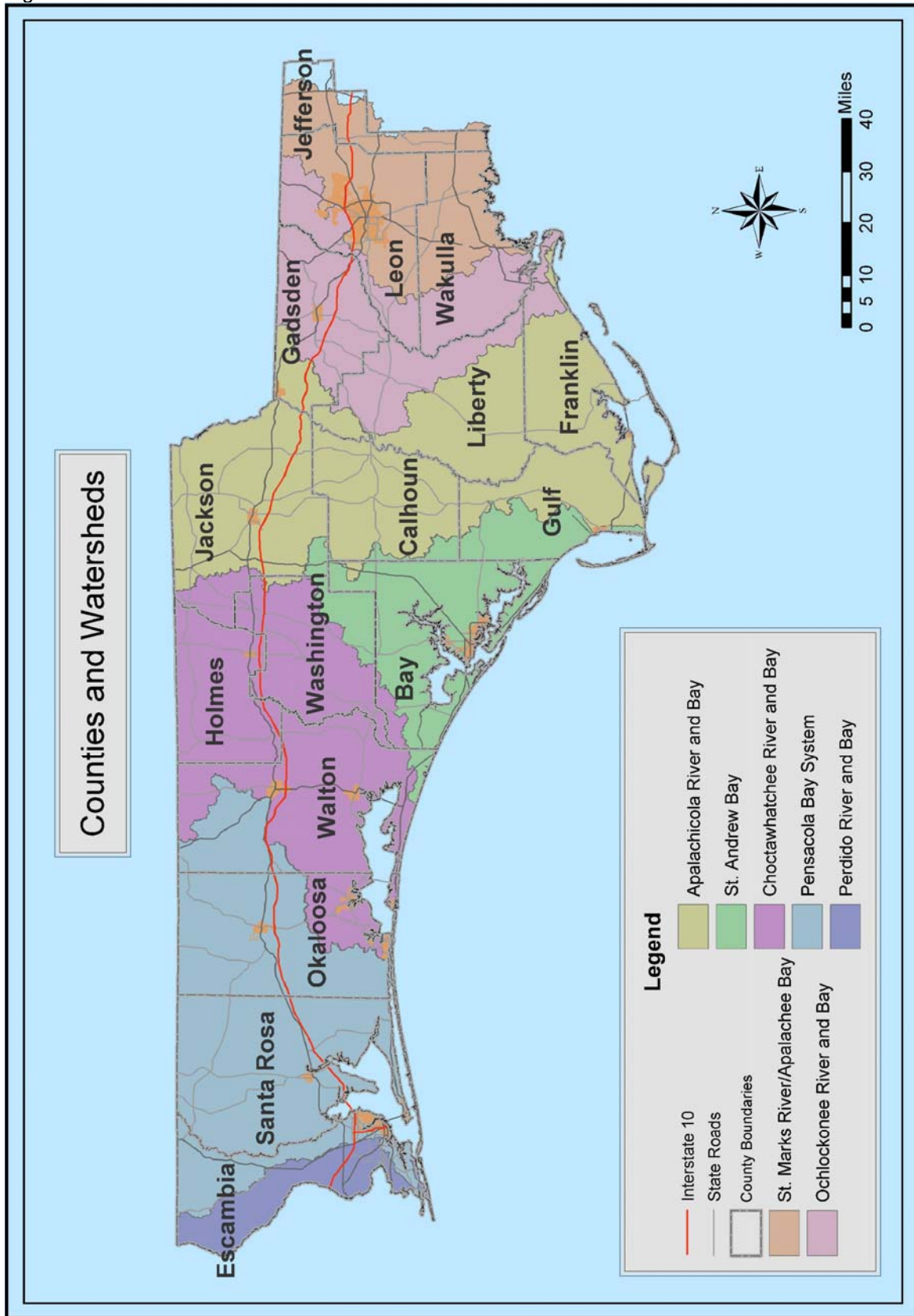
LAND USE PLANNING CONSIDERATIONS

The District is concerned with ensuring that sound water management practices are implemented by local governments that affect multi-jurisdictional water resource systems. The District's review of developments of regional impact, local comprehensive plan amendments, and other development plans includes assessment of potential impacts on water resources and related natural systems. Reviews of local government comprehensive plans and plan amendments consider whether future land use patterns will adversely affect water resource aspects of ecosystems. Based on staff availability and funded priorities, the District also participates in interagency review of the siting of such permitted activities as pipelines, roads, and bridges. In the course of these reviews, the District attempts to minimize environmental impacts. Where impacts are unavoidable, the District assists in the development of appropriate mitigation plans, which may include the restoration of natural system features on District lands.

D. County Issues and District Activities

The following pages summarize the key water resource issues for each county in the District, and the District's activities that affect those issues. Figure 8 below shows a map of the counties with the District's surface water basins overlaid.

Figure 8. Counties and Watersheds



| Table 15. County Issues and District Activities | |
|---|---|
| KEY ISSUES | DISTRICT ACTIVITIES |
| BAY COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ Depends on surface water for public supply (Deer Point Lake Reservoir). ▪ Deer Point Lake Reservoir potentially affected by rapid population growth, development, NPS pollution, and increased demand for potable supply. ▪ 2003 Water Supply Assessment determined water supplies are sufficient to meet projected needs of humans and natural systems. ▪ Quality of resource depends on land use, nonpoint source pollution prevention, and recharge area protection in Bay and Washington counties. | <ul style="list-style-type: none"> ▪ Stringent application of consumptive use permit thresholds to majority of Bay County. ▪ Implementation of Water Shortage Plan if necessary. ▪ SWIM Program implementation to help protect water quality. ▪ Land acquisition to protect water quality and recharge for potable supplies. ▪ Groundwater monitoring. ▪ Fresh water needs assessment for North Bay. |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ Much of the county is floodprone (about 25 percent). ▪ Major floodplains associated with Econfina, Bear, Little Bear, Bayou George, Burnt Mill, and Cedar creeks. ▪ 56 percent of soils rated severe for construction and buildings. | <ul style="list-style-type: none"> ▪ FEMA Flood Hazard Map Modernization Program. ▪ Review and comment on permits and proposed land use changes that could affect floodplains in the county. ▪ Management of District-owned lands to preserve natural hydrology, maintain wetlands that help store and slow flood waters, and prevent development in floodprone areas. ▪ Review of transportation projects via ETDM process. |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ Several wastewater treatment systems discharge to surface water. ▪ Point and nonpoint source runoff have degraded St. Andrew Bay. ▪ Much of the county's soils have severe limitations for septic tanks. ▪ Adequate, clean fresh water flow to St. Andrew Bay estuarine system from Deer Point Lake Reservoir potentially affected by increased demand for potable supply. ▪ Groundwater in the Floridan Aquifer in areas immediately adjacent to the coastline somewhat mineralized and may, in certain instances, exceed water quality standards. | <ul style="list-style-type: none"> ▪ SWIM Program: water quality and biological monitoring/system-wide assessment project; preservation of lake natural resources, water quality, and related habitat; public education. ▪ Management of District-owned lands along Econfina Creek to maintain natural hydrology, vegetation, and public access. ▪ Regulatory authority over agricultural and silvicultural surface water management activities. ▪ Ambient monitoring that includes quarterly sampling from Bay County surface waters. ▪ Groundwater quality monitoring. ▪ Permitting for well construction. ▪ Consumptive use permitting. ▪ Abandoned well plugging. ▪ Fresh water needs assessment for North Bay. ▪ Capital improvement projects through Florida Forever and special appropriation. ▪ Participation on and assistance to the Bay Environmental Study Team. ▪ Logistical assistance to the Resource Management Association. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |

| Table 15. County Issues and District Activities | |
|--|---|
| KEY ISSUES | DISTRICT ACTIVITIES |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ Important estuarine habitats: oyster reefs, tidal marshes, extensive seagrass beds. ▪ Important upland habitats: Coastal Strand, Sand Pine Scrub, Slope Forest. ▪ Other significant areas: “Unique” mesic community near Gainer Springs and two “exemplary” Karst lakes (Florida Natural Areas Inventory). ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Management of District-owned lands to protect and restore ecological quality and integrity, and provide public recreation consistent with environmental sensitivity. District-managed areas: Econfina Creek Water Management Area; Choctawhatchee River Water Management Area. ▪ Regulate water withdrawals to protect natural systems from excessive withdrawal impacts. ▪ Fresh water needs assessment for North Bay. ▪ Participation on the Bay Environmental Study Team. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. |
| CALHOUN COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ No major threats to current water supply sources; they are considered adequate to meet the future needs of Calhoun County, while sustaining the water resources and natural systems. | <ul style="list-style-type: none"> ▪ Regulate water withdrawals to protect water supply sources from excessive withdrawal impacts. ▪ Provide consumptive use and groundwater level data to assist local government and utility water supply planning. ▪ Water well construction permitting program to ensure that wells are constructed in a manner that prevents groundwater contamination. |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ An estimated 38 percent of the county is wetland (and potentially floodprone); both the Apalachicola and Chipola rivers are subject to extensive flooding. ▪ The majority of the county is composed of poorly drained soils. | <ul style="list-style-type: none"> ▪ FEMA Flood Hazard Map Modernization. ▪ Provide review and comment on permits and proposed comprehensive plan amendments that could affect floodplains in the county. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ Target floodplain lands along the Apalachicola and Chipola rivers for acquisition. ▪ Review of transportation projects via ETDM. |

Table 15. County Issues and District Activities

| Table 15. County Issues and District Activities | |
|--|--|
| KEY ISSUES | DISTRICT ACTIVITIES |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ Agricultural nonpoint source pollution has been identified as a problem; NRCS has been working with other agencies and the community to implement BMPs. ▪ The northern and central portions of the county have potential for agricultural-related erosion. ▪ About three-fourths of the county is composed of soils rated severe for septic systems. ▪ Groundwater quality is considered good; however, the Floridan Aquifer is exposed in parts of the extreme north of the county; protection from contamination near Altha is a concern. ▪ No known instances of groundwater contamination, but the degree of recharge to the Surficial Aquifer makes pollution a risk, especially from septic tanks. | <ul style="list-style-type: none"> ▪ The Apalachicola River and Bay system is the top priority SWIM waterbody, with the Chipola River included as a sub-basin within the SWIM Plan. ▪ Regulation of agricultural and silvicultural surface water management through Chapter 40A-44, F.A.C. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters in Calhoun County. ▪ Monitor groundwater quality in Calhoun County as part of Ambient Groundwater Quality Monitoring Program network. ▪ Well construction and consumptive use permitting to prevent increase in the movement of known contaminants. ▪ Abandoned well plugging through the permitting program. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ FNAI has identified four imperiled communities associated with the Chipola River: Spring Run Streams; Alluvial Streams; Terrestrial Caves; and Aquatic Caves. A total of 13 listed plant species may also be found in the area. ▪ Upstream water demands on the Apalachicola-Chattahoochee-Flint (ACF) River System have the potential to affect the natural systems associated with the Apalachicola River and Bay system. Careful management of river flows, nonpoint source pollution, and effluent discharges are necessary to protect these resources. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Acquisition and management of lands along the Apalachicola and Chipola rivers for preservation and restoration. ▪ Projects directed toward preserving, restoring, and properly managing the Apalachicola and Chipola rivers. ▪ The Apalachicola River system has been the focus of a number of studies to identify an optimum flow regime. ▪ Regulate water withdrawals to protect natural systems from excessive withdrawal impacts. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. |

| Table 15. County Issues and District Activities | |
|---|---|
| KEY ISSUES | DISTRICT ACTIVITIES |
| ESCAMBIA COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ The 2003 Water Supply Assessment determined that current water supply sources in the county are adequate to meet projected needs while sustaining water resources and natural systems. ▪ The majority of surface water is withdrawn for power generation, commercial-industrial uses, and agricultural irrigation. ▪ Because the Floridan Aquifer is brackish and highly mineralized in Escambia County, the Sand-and-Gravel Aquifer is the sole source of potable groundwater. ▪ Due to the drain effect of the Perdido and Escambia rivers and industrial pumping around Cantonment, the county is divided into two groundwater flow systems. The southern system depends on local recharge. | <ul style="list-style-type: none"> ▪ Regulate water withdrawals to protect water supply sources from excessive withdrawal impacts. ▪ Provide consumptive use and groundwater level data to assist local government and utility water supply planning. ▪ Water well construction permitting program to ensure that wells are constructed in a manner that prevents groundwater contamination. ▪ The District has included Escambia County in both its Ambient Background network and its Very Intensive Study Area (VISA) groundwater monitoring network. ▪ Delineation of wellhead protection areas. |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ Escambia County has developed a stormwater master plan. ▪ There is a need to develop more accurate floodplain maps and associated data for the county. | <ul style="list-style-type: none"> ▪ FEMA Flood Hazard Map Modernization. ▪ Provide review and comment on permits and proposed comprehensive plan amendments that could affect floodplains in the county. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ District-owned floodplain lands along the Escambia River serve as nonstructural flood protection. ▪ Review of transportation projects via ETDM. |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ Riverine and bay waters in Escambia County have been adversely affected by point and nonpoint source pollution, including municipal and industrial wastewater, widespread use of septic systems, and widespread nonpoint source pollution. ▪ The bayous that drain Pensacola receive significant urban stormwater runoff. | <ul style="list-style-type: none"> ▪ Implementation of the Pensacola Bay System SWIM Plan. ▪ Completion of stormwater retrofit projects for Pensacola Bay System. ▪ Assistance to ECUA in the replacement and relocation of Main Street Wastewater Treatment Plant. ▪ Aquifer computer modeling and groundwater ambient monitoring; wells are monitored once every three years. ▪ Sampling from the District's VISA network of wells. ▪ In accordance with Chapter 62-524, F.A.C., special criteria are used when permitting new potable wells in areas of likely groundwater contamination. ▪ Assistance to the county in acquiring the Jones Swamp Preserve and associated greenway system. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |

Table 15. County Issues and District Activities

| KEY ISSUES | | DISTRICT ACTIVITIES | |
|---|---|---------------------|--|
| NATURAL SYSTEMS | | | |
| <ul style="list-style-type: none"> ▪ The scrub forests, slope forests, and seepage slopes in Escambia County have been designated imperiled habitat by the Florida Natural Areas Inventory (FNAI). FNAI has also identified seven exemplary communities in the county's coastal zone, four of which are on government property. ▪ Pensacola Bay System productive seagrass systems were substantially reduced following intensive development on adjacent lands. Commercial and recreational fisheries have also declined in recent years. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Implementation of the Pensacola Bay SWIM Plan, including major retrofit projects. ▪ Assistance to the county in acquiring the Jones Swamp Preserve. ▪ Acquisition and management of lands important to natural systems protection, such as the Northwest Florida Water Management area. ▪ Ground and surface water flow monitoring ▪ Regulate water withdrawals to protect natural systems from excessive withdrawal impacts. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. | | |
| FRANKLIN COUNTY | | | |
| WATER SUPPLY | | | |
| <ul style="list-style-type: none"> ▪ The county and its municipalities depend on the Floridan Aquifer for potable supplies, and the Surficial Aquifer is often used for domestic supply on the barrier islands. ▪ There has been no identified over consumption of water resources in Franklin County; however, water supplies from the Surficial Aquifer on St. George Island are somewhat limited. ▪ It may be necessary to evaluate the adequacy of existing water supplies in light of substantially increased population growth and associated development proposed by the county. ▪ The District's 2003 Water Supply Assessment update determined that current water supply sources are adequate to meet projected needs, while sustaining water resources and natural systems. ▪ In coastal portions of the county, the Floridan Aquifer is susceptible to saltwater intrusion. This is also the case in the interior of the county where upconing is possible. | <ul style="list-style-type: none"> ▪ Stringent consumptive use permit thresholds to protect existing water supplies on St. George Island. ▪ Less restrictive permitting thresholds apply to the majority of the remainder of the county. ▪ Regulate water withdrawals to protect water supply sources from excessive withdrawal impacts. ▪ Water well construction permitting program to ensure that wells are constructed in a manner that prevents groundwater contamination. ▪ Required plugging of abandoned wells. ▪ District's quarterly network of monitoring wells. ▪ Assisting Eastpoint Water and Sewer in test well development and data analysis. | | |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | | | |
| <ul style="list-style-type: none"> ▪ Franklin County contains major floodplains along the Apalachicola, Crooked, and New rivers. The USFWS estimated that wetlands (more than three-fourths forested) comprise 63 percent of the county, or about 218,000 acres. ▪ The county has established subdivision ordinances, land development regulations, and a flood hazard ordinance to ensure adequate drainage and that floodprone areas are retained in their natural state. | <ul style="list-style-type: none"> ▪ FEMA Flood Hazard Map Modernization Prog. ▪ Provide review and comment on permits and proposed comprehensive plan amendments that could affect floodplains in the county. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ Attempt to secure funding for stormwater planning and implementation for other areas of Franklin County. ▪ Review of transportation projects via ETDM process. | | |

| Table 15. County Issues and District Activities | |
|--|--|
| KEY ISSUES | DISTRICT ACTIVITIES |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ In general, the quality of surface waters in the county is high; however, localized areas of the waterbodies have been impacted by pollution, primarily from wastewater facility effluent and nonpoint source pollution. ▪ Much of the county's population uses septic tanks for wastewater treatment. According to the NRCS, 90 percent of the county's soils are severely limited for septic systems. Consequently, septic tanks represent a potential source of ground and surface water contamination. ▪ Wastewater facilities in the county have been under enforcement. ▪ Substantially increased development proximate to waterbodies provides a significant challenge to the continued protection of water quality and aquatic resources. | <ul style="list-style-type: none"> ▪ Implementation of the Apalachicola River and Bay System SWIM Plan. ▪ Regulation of agricultural and silvicultural surface water management through Chapter 40A-44, F.A.C., to assure that agricultural and silvicultural activities meet state water quality standards. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters. ▪ Restoration in Tates Hell Swamp. ▪ Groundwater quality monitoring through Ambient Background network of wells. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants; abandoned well plugging requirements. ▪ Implementation of stormwater retrofit and other SWIM projects. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM process. |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ Proposed increases in freshwater withdrawals from out-of-state tributaries of the Apalachicola River may degrade the productivity of the Apalachicola River and Bay natural systems. ▪ The county contains important natural systems, including palustrine wetlands, estuarine systems, and hardwood swamp; FNAI has identified sandhill and coastal scrub communities as imperiled. ▪ Substantially increased development proximate to waterbodies provides a significant challenge to the continued protection of water quality and aquatic resources. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Regulate water withdrawals to protect natural systems from excessive withdrawal impacts. ▪ Acquisition and restoration of Tates Hell Swamp, in cooperation with other agencies. ▪ ACF watershed Interstate Comprehensive Study to evaluate the optimum flow regime for ecological integrity of Apalachicola River/Bay. ▪ Monitor groundwater levels. ▪ Implement stormwater retrofit and other SWIM projects. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. |
| GADSDEN COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ In most of Gadsden County, the lower portion of the Floridan Aquifer is highly mineralized and its use for potable supply is limited; in the central portion of the county, water yield from the Floridan Aquifer is relatively low. ▪ High withdrawals for agricultural irrigation have stressed the Telogia Creek Basin. ▪ Quincy Creek has been affected by nonpoint source pollution. | <ul style="list-style-type: none"> ▪ Stringent consumptive use permit thresholds to protect existing water supplies. ▪ Designation of Telogia Creek Basin as a Water Resource Caution Area, with increased scrutiny of withdrawals. ▪ The water well construction-permitting program ensures that wells are constructed in a manner that prevents groundwater contamination. ▪ NFWFMD developed a stormwater management plan for the Quincy Creek watershed to improve runoff quality and thereby protect the city's primary water supply. The City of Quincy provided funding support for the project. |

Table 15. County Issues and District Activities

| KEY ISSUES | | DISTRICT ACTIVITIES | |
|--|--|---------------------|--|
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | | | |
| <ul style="list-style-type: none"> ▪ There are an estimated 26,878 acres of floodplains and floodprone areas in Gadsden County, much of which is along the Apalachicola and Ochlockonee rivers. ▪ The Gadsden County Comprehensive Plan indicates possible development pressures along the Ochlockonee River as a consequence of continued growth in the Tallahassee-Leon County metropolitan area. | <ul style="list-style-type: none"> ▪ FEMA Flood Hazard Map Modernization. ▪ Provide review and comment on permits and proposed comprehensive plan amendments that could affect floodplains in the county. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ Stormwater management plan for the Quincy Creek watershed addresses flooding issues. ▪ Target floodplain lands along the Apalachicola River for acquisition. ▪ Review of transportation projects via ETDM. | | |
| WATER QUALITY | | | |
| <ul style="list-style-type: none"> ▪ Surface waters are subject to direct discharge of treated wastewater, widespread use of septic systems, and nonpoint source pollution. ▪ According to the NRCS, 44 percent of the county's soils are considered severely limited for septic systems. ▪ The Floridan Aquifer has poor water quality at depth. In addition, industrial sites present some risk of contamination of the Surficial Aquifer. There are also four county landfills (two of which remain in operation) and seven "antiquated garbage pits." | <ul style="list-style-type: none"> ▪ Implementation of Apalachicola River and Bay System SWIM Plan. ▪ Monitoring of groundwater quality through Ambient Background network. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants; abandoned well plugging requirements. ▪ Potential assistance to local partners through the Florida Forever Capital Improvement Grants program. ▪ Review of transportation projects via ETDM process. | | |
| NATURAL SYSTEMS | | | |
| <ul style="list-style-type: none"> ▪ The slope forests of the Apalachicola, seepage slopes and steephead streams, and scattered stands of Longleaf Pine-Turkey Oak communities in have been designated critical habitat by FNAI. ▪ Agriculture and silviculture have reduced wetland acreage and function. ▪ The Upper Telogia Creek basin, used extensively for agricultural irrigation, has historically experienced low flows during periods of drought. ▪ Upstream water demands on the ACF River System may impact natural systems associated with the Apalachicola River and Bay system. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ The District has targeted lands for acquisition along the Apalachicola River. ▪ The Apalachicola Bay SWIM program and interstate water management efforts include projects directed toward preserving, restoring, and properly managing the Apalachicola River. ▪ Monitoring of flows in the Upper Telogia Creek drainage basin. Future consumptive use permit requests and renewals will be evaluated in light of the flow data collected, as well as the potential for water conservation and reuse. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. | | |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| GULF COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ The City of Port St. Joe is transitioning to surface water for water supply. ▪ Groundwater supplies about one-sixth of all freshwater used in the county, with most of that going to agricultural irrigation. Other uses include public supplies, commercial-industrial self-supply, and domestic self-supply. ▪ The District's 2003 Water Supply Assessment update determined that current water supply sources are adequate to meet projected needs, while sustaining water resources and natural systems. ▪ No major contaminant threats to water supply sources have been identified in Gulf County. | <ul style="list-style-type: none"> ▪ To protect the existing supply on the St. Joseph Peninsula, the District has applied its most stringent consumptive use permit thresholds. ▪ The District has applied less restrictive thresholds throughout the remainder of the county. ▪ Groundwater levels in Gulf County are monitored as part of the District's quarterly network. ▪ Water well construction permitting program to ensure that wells are constructed in a manner that prevents groundwater contamination. |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ About 80 percent of Gulf County's land area is comprised of floodplains and floodprone areas, mostly along the lower Apalachicola River and St. Joseph Bay. | <ul style="list-style-type: none"> ▪ FEMA Flood Hazard Map Modernization Program. ▪ Provide review and comment on permits and proposed comprehensive plan amendments that could affect floodplains in the county. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ Review of transportation projects via ETDM process. |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ Estimated 93 percent of the county's soils exhibit poor drainage; surface waters may be affected by septic tank effluent. ▪ The Apalachicola River has been harmed by the disposal of dredged material. ▪ Recharge potential of the Floridan Aquifer is limited; landfills and septic tanks represent significant sources of potential contamination. | <ul style="list-style-type: none"> ▪ Implementation of the Apalachicola River and Bay System and St. Andrew Bay Watershed (including St. Joseph Bay) SWIM plans. ▪ Regulation of agricultural and silvicultural surface water management through Chapter 40A-44, F.A.C., to assure that these activities meet state water quality standards. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters ▪ Maintain surface water quality through District regulatory activity under Chapter 40A-4, F.A.C., which regulates the management and storage of surface waters. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants; abandoned well plugging requirements. ▪ Monitoring of groundwater quality through Ambient Background network. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |

Table 15. County Issues and District Activities

| KEY ISSUES | | DISTRICT ACTIVITIES | |
|---|--|--|--|
| NATURAL SYSTEMS | | | |
| <ul style="list-style-type: none"> ▪ Gulf County features a number of regionally significant ecosystems, including major seagrass beds, wetland systems, and coastal scrub and forest communities. ▪ St. Joseph Bay is one of the most productive coastal ecosystems in the state; its seagrass beds have not suffered the same level of degradation as several other systems in the District. The bay and surrounding Gulf of Mexico waters support a highly productive marine fisheries industry. ▪ Maintaining optimum flows on the Apalachicola River is an issue for Apalachicola Bay and floodplain functions. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | | <ul style="list-style-type: none"> ▪ Groundwater withdrawals are regulated through consumptive use permitting program. ▪ The District also monitors groundwater levels on a regular basis, and surface water flows for selected streams are monitored by uses. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. | |
| HOLMES COUNTY | | | |
| WATER SUPPLY | | | |
| <ul style="list-style-type: none"> ▪ Surface water is used solely for agricultural irrigation; ground water all other uses. ▪ The Holmes County Comprehensive Plan indicates that the total design capacity of public water systems is sufficient to provide for future demand. ▪ NFWFMD 2003 Water Supply Assessment update found current water supply sources adequate to meet projected needs while sustaining water resources and natural systems. | | <ul style="list-style-type: none"> ▪ Less restrictive consumptive use permitting thresholds. ▪ Provide consumptive use and groundwater level data to assist county water supply planning. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants; abandoned well plugging requirements. ▪ Monitoring of groundwater quality through Ambient Background network. | |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | | | |
| <ul style="list-style-type: none"> ▪ An estimated 34 percent of the county (105,500 acres) is subject to flooding. [Thirty percent of the county is within the 100-year floodplain.] ▪ This area is dominated by the Choctawhatchee River floodplain. ▪ The cities of Bonifay, Esto, and Noma are relatively free of flooding, while Westville and Ponce de Leon are not. Westville lies almost entirely within the 100-year floodplain of the Choctawhatchee River. | | <ul style="list-style-type: none"> ▪ FEMA Flood Hazard Map Modernization Program. ▪ Provide review and comment on permits and proposed comprehensive plan amendments that could affect floodplains in the county. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ Floodplain acquisition as a means of nonstructural flood protection. The District has acquired a significant portion of the floodplain lands along the Choctawhatchee River. ▪ Review of transportation projects via ETDM. | |

| Table 15. County Issues and District Activities | |
|---|---|
| KEY ISSUES | DISTRICT ACTIVITIES |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ Overall water quality is good, although several tributaries of the Choctawhatchee River exhibit fair to good quality. ▪ Dominant point sources of pollution are wastewater treatment facilities and nonpoint source pollution. ▪ Tributaries of the Choctawhatchee River, such as Wrights and Tenmile creeks, are subject to impacts from nonpoint source pollution. ▪ There is also the risk of localized Surficial Aquifer well contamination from septic tanks. | <ul style="list-style-type: none"> ▪ Implementation of the Choctawhatchee River and Bay SWIM Plan. ▪ Regulation of agricultural and silvicultural surface water management through Chapter 40A-44, F.A.C., to assure these activities meet state water quality standards. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters. ▪ Maintain surface water quality through District regulatory activity under Chapter 40A-4, F.A.C., which regulates the management and storage of surface waters. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants; abandoned well plugging requirements. ▪ Monitoring of groundwater quality through Ambient Background network. ▪ Assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ Holmes County is dominated by three major ecological communities: Longleaf Pine-Turkey Oak, Mixed Hardwood-Pine, and Bottomland Hardwood. FNAI has designated Longleaf Pine-Turkey Oak communities as critical habitat. ▪ The Choctawhatchee River flows into Holmes County from Alabama. Water withdrawals from The Choctawhatchee River in Holmes County and Alabama could negatively impact the natural flow regime of the river and harm associated natural resources. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Implementation of the Choctawhatchee River and Bay SWIM Plan. ▪ Acquisition of land for the Choctawhatchee River Water Management Area in Holmes County. ▪ Groundwater withdrawals are regulated through the District's consumptive use permitting program. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. |

Table 15. County Issues and District Activities

| KEY ISSUES | | DISTRICT ACTIVITIES | |
|--|--|---------------------|--|
| JACKSON COUNTY | | | |
| WATER SUPPLY | | | |
| <ul style="list-style-type: none"> ▪ Surface water supplies 79 percent of water used in Jackson County, primarily for power plant cooling; most of the water is recycled. ▪ The county and its municipalities use the Surficial aquifer and upper and lower Floridan aquifers for other uses; each municipality, except for the City of Bascom, has its own potable water system, as do many businesses and institutions. ▪ The District's 2003 Water Supply Assessment found current water supply sources adequate to meet projected needs, while sustaining water resources and natural systems. ▪ In the northeastern portion of the county, the Floridan Aquifer is near land surface, is poorly confined, and is overlain by sandy soils. Intensive agricultural land use has resulted in groundwater contamination from agricultural chemicals. | <ul style="list-style-type: none"> ▪ Less restrictive consumptive use permitting thresholds. ▪ Provide consumptive use and groundwater level data to assist water supply planning by the county and its utilities. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants; abandoned well plugging requirements. ▪ Monitoring of groundwater quality through Ambient Background network. ▪ Region part of District's Very Intensive Study Area program. Groundwater levels elsewhere in the county are monitored as part of the District's water level monitoring network. ▪ District permitting program to ensure that users in contaminated areas treat their water to remove ethylene dibromide. | | |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | | | |
| <ul style="list-style-type: none"> ▪ The county contains five major drainage basins; wetlands comprise about 25 percent of the county. ▪ Based on soil descriptions, about 19 percent of the county has the potential to experience flooding problems. | <ul style="list-style-type: none"> ▪ FEMA Flood Hazard Map Modernization. ▪ Provide review and comment on permits and proposed comprehensive plan amendments that could affect floodplains in the county. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ Acquisition of floodplains along the Chipola River and Econfina Creek; targeted floodplain lands along the Apalachicola River. ▪ Review of transportation projects via ETDM. | | |
| WATER QUALITY | | | |
| <ul style="list-style-type: none"> ▪ In general, quality of surface waters is good; however, several waterbodies have been affected by point source discharges (e.g., battery plant and illegal sewage discharges), and nonpoint source discharges (e.g., agricultural runoff). ▪ The Marianna WWTF has encountered problems. ▪ Jackson County includes several areas of high recharge to the Floridan Aquifer. ▪ Based on the relatively high degree of recharge, there is a risk of groundwater contamination. Groundwater has been contaminated at the Sapp site as well as at the Marianna Airport (fuel spills). ▪ Agricultural use of pesticides and herbicides has been a cause of contamination, and EDB remains a potential problem. ▪ Septic tanks along floodplains and in other poorly drained areas are a localized risk. | <ul style="list-style-type: none"> ▪ Implementation of the Apalachicola River and Bay System SWIM Plan. ▪ Regulation of agricultural and silvicultural surface water management through Chapter 40A-44, F.A.C., to assure that agricultural and silvicultural activities meet state water quality standards. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters. ▪ Well construction and consumptive use permitting to prevent increased movement of known contaminants; abandoned well plugging requirements. ▪ Monitoring of groundwater quality through Ambient Background network. ▪ Assistance to local partners through the Florida Forever Capital Improvement Grants program. ▪ Review of transportation projects via ETDM. | | |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ Jackson County features a variety of important ecosystems, including steephead ravines, aquatic and terrestrial caves, and spring fed and alluvial streams. The county also has significant acreages of sandhill and clay hill uplands. ▪ Upstream water demands on the ACF River System may impact natural systems associated with the Apalachicola River and Bay system. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. ▪ The spread of contaminants within the aquifer poses a potential threat to cave organisms. | <ul style="list-style-type: none"> ▪ Acquisition and management of lands important to natural systems protection. ▪ Management of the Upper Chipola and Upper Econfina Water Management Areas. ▪ Evaluate the optimum flow regime required for the ecological integrity of the river system. ▪ The District's consumptive use permitting program regulates groundwater withdrawals. ▪ Potential assistance to local partners through the Florida Forever Capital Improvement Grants program. ▪ Review of transportation projects via ETDM process. ▪ Capital improvement projects through Florida Forever and special appropriation. |
| JEFFERSON COUNTY | |
| <p>Note: This section was prepared in cooperation with the Suwannee River Water Management District (SRWMD), which shares Jefferson County with the NFWFMD.</p> | |
| WATER SUPPLY | |
| <p>Water needs associated with the projected population increase are considered to be within the capacity of the Floridan Aquifer. However, there are general needs for:</p> <ul style="list-style-type: none"> ▪ Improved understanding of the availability of surface and groundwaters for consumptive use. ▪ Updating detailed information on how much water is being used. ▪ Identifying existing and potential water supply problem areas. ▪ Protecting water related natural systems such as wetlands and floodplains. <p>Source protection issues:</p> <ul style="list-style-type: none"> ▪ Protecting the quality of potable water supplies. ▪ Ensuring that the quantity and quality of water recharging the aquifer is not altered by land and water use activities. ▪ Widespread use of private wells throughout the county makes their protection somewhat difficult. | <ul style="list-style-type: none"> ▪ Water Use Permitting (Chapters 40A-2 (NFWFMD) and 40B-2 (SRWMD), Florida Administrative Code). ▪ Technical assistance in locating new water supply and providing source protection. ▪ SRWMD assistance with land acquisition associated with new water supply. ▪ Review and comment on local comprehensive plan amendments. ▪ Groundwater level monitoring at six sites by SRWMD, and two sites by NFWFMD. ▪ Implement Water Well Construction Standards (Chapters 40A-3 (NFWFMD) and 40B-3 (SRWMD), F.A.C.), which regulate well construction and license water well contractors to ensure proper well construction. ▪ Public education and Information on how to protect water supplies. |

Table 15. County Issues and District Activities

| Table 15. County Issues and District Activities | |
|---|---|
| KEY ISSUES | DISTRICT ACTIVITIES |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ A regulatory floodway of the Aucilla River (which provides a "natural" flood protection and flood-water conveyance facility), and individual surface water management facilities (retention ponds) were constructed in accordance with 40B-4, F.A.C., SRWMD's Surface Water Management Rule, and 62-25 and 40A-4, F.A.C., which apply in the NFWMD. The main issue with this regulatory floodway is maintaining the ability to move floodwaters to the Gulf without flooding additional lands. ▪ According to the county's comprehensive plan, about 39 percent of the county's land area is floodprone--most of this land is along the St. Marks, Wacissa, and Aucilla rivers, Lake Miccosukee, and the Gulf coast. ▪ Most of the 100-year floodplain of the Aucilla and its tributaries is relatively undeveloped, and large areas are in public ownership. ▪ Some areas of Jefferson County have slow surface drainage, many floodprone areas, and "wet weather" ponds. ▪ Localized flooding problems, such as roads that are inundated by heavy rainfall, occur in several areas. | <ul style="list-style-type: none"> ▪ SRWMD and NFWMD surface water management rules emphasize the detention or retention of stormwater onsite without increasing runoff rates or amounts. The SRWMD's rule protects the regulatory floodway of the Aucilla River by preventing the use of fill to elevate structures out of the floodplain. ▪ SRWMD's surface water management rules address development within the 100-year floodplain, and surface water management facilities serving individual sites. ▪ NFWMD has no Works of the District in Jefferson County; however, Chapter 40A-4 regulates certain impoundments and other water management activities. ▪ The SRWMD has acquired lands in the 100-year floodplain of the Aucilla River in Jefferson County. The NFWMD does not currently own any lands in Jefferson County, but land along the St. Marks River is targeted for priority acquisition. ▪ Technical Assistance - Flood elevation data and maps of floodplains and floodprone areas are available for local governments, other agencies, and interested parties upon request. ▪ The districts review and comment on local plans and plan amendments, as well as development and construction plans submitted to the districts by the county and city. ▪ SRWMD conducts hydrologic monitoring on rainfall and river stages, which is used by the National Weather Service to forecast flooding conditions. During flood events, the SRWMD maintains a 24-hour answering service advising callers of flood elevations and flood crest data for the major river systems. ▪ Review of transportation projects via ETDM. |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ The priority groundwater quality management concern in Jefferson County is protecting potable water supplies. ▪ Point sources of concern include the Monticello wastewater facility and four package treatment plants. ▪ While its overall water quality is good, Lake Miccosukee exhibits some degradation from nonpoint sources. ▪ An estimated 31,100 acres of croplands have significant erosion rates in the county. ▪ Some nuisance problems, such as sulfates and iron bacteria are experienced in the county, but do not pose a serious regional groundwater threat. ▪ There are inactive dumps in Monticello and Lloyd, which present some risk of aquifer contamination. ▪ Risks from septic tanks are moderate. ▪ Many households in the county rely on self-supply wells, which typically have minimal, if any, treatment prior to consumption. | <ul style="list-style-type: none"> ▪ Future revisions to the SRWMD Aucilla River SWIM plan will include the establishment of a monitoring network for the river system. ▪ Implementation of the St. Marks River-Apalachee Bay SWIM Plan. ▪ Enforcement of SRWMD's surface water quality rule ensures that regulated activities do not adversely impact water quality or quantity as a result of development. ▪ The NFWFMD regulates agricultural and silvicultural surface water management to assure that agricultural and silvicultural activities meet state water quality standards. DEP implements stormwater regulations throughout the NFWFMD through Chapter 62-25, F.A.C. ▪ Water well construction regulations provide standards that avoid interaquifer contamination. ▪ NFWFMD has implemented a program for plugging abandoned wells. ▪ Land Acquisition (see discussion under Flood Protection). ▪ Groundwater quality monitored at 13 locations by SRWMD and five sites by NFWFMD through Groundwater Quality Assurance programs. ▪ Maps and data collected through the Groundwater Quality Assurance program provided upon request to local and other agencies, the public, and private industry. They identify areas with vulnerable resources and contaminated areas. ▪ Intergovernmental coordination and public information. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |

Table 15. County Issues and District Activities

| KEY ISSUES | | DISTRICT ACTIVITIES | |
|--|---|---------------------|--|
| NATURAL SYSTEMS | | | |
| <ul style="list-style-type: none"> ▪ Endangered species have been observed in two of the county's seven ecological communities, the Longleaf Pine-Turkey Oak and North Florida Flatwoods systems. These two communities were identified as those most subject to development pressures. ▪ Many smaller areas provide important water resource functions and wildlife habitat. ▪ The wetlands, lakes, and ponds of Jefferson County also provide important habitat for many species of fish and wildlife and provide recreational opportunities for the county's residents and visitors. Numerous endangered, threatened, and rare species can be found in the county. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Surface water management regulations include provisions for protecting ecosystems and their functions, including fish and wildlife habitat values. ▪ The SRWMD's SWIM program for the Suwannee and Aucilla rivers includes a three-part monitoring program to help protect ecosystems in the county. ▪ Much of the land acquired by the SRWMD in Jefferson County is relatively intact floodplain forest. Parts of some tracts are planted pines that will be harvested, then reforested and revegetated with native species. ▪ Establishment of minimum flows and levels for surface and groundwaters, which will help ensure adequate water supply to sustain natural systems. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. | | |
| LEON COUNTY | | | |
| WATER SUPPLY | | | |
| <ul style="list-style-type: none"> ▪ The District's 2003 Water Supply Assessment update determined that current water supply sources could provide sufficient quantities of water to meet the projected needs, while sustaining the water resources and natural systems. ▪ Groundwater contamination has occurred in some public supply wells in urban areas of the county due to releases of dry cleaning solvent, perchloroethylene (PCE). | <ul style="list-style-type: none"> ▪ Consumptive use permitting to protect water supply sources from excessive withdrawals. ▪ Provide consumptive use and groundwater level data to assist water supply planning by the county and its utilities. ▪ Review local comprehensive plan amendments and large-scale development projects for water supply concerns. ▪ Water well construction permitting to prevent contamination of groundwater sources. | | |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | | | |
| <ul style="list-style-type: none"> ▪ Some development in the floodplains associated with the larger rivers and lakes in the county. ▪ Leon County experiences some flooding in developed areas due to urban stormwater runoff that periodically exceeds the capacity of the drainage network in localized areas. | <ul style="list-style-type: none"> ▪ Conducted an extensive study of flood conditions and stormwater behavior within the City of Tallahassee and a portion of Leon County, which recommended solutions for flooding problems within the study area. ▪ Review and comment on proposed developments and permit actions that could affect floodplains. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ Promote public acquisition of floodplains as a means of nonstructural flood protection. Local effort (Blueprint 2000) includes joint floodprone lands acquisition. ▪ Review of transportation projects via ETDM. | | |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ In general, the surface water quality in Leon County is good. However, some contamination of surface waters has resulted from urban stormwater runoff, particularly in Lakes Munson, Jackson, and Talquin. ▪ The Floridan Aquifer is of excellent quality and chlorination is the only treatment necessary for public water supply systems. Because of high water levels and karstic nature of the Woodville Karst and Munson Hills regions in the southern portion of the county, a greater potential exists for groundwater contamination. | <ul style="list-style-type: none"> ▪ SWIM plans for Lake Jackson, St. Marks River. ▪ Lakes Munson, Lafayette, Iamonia and Miccosukee, and the Ochlockonee River ranked on the SWIM priority list; Ochlockonee River SWIM plan to be developed in the next five years. ▪ Regulate agricultural and silvicultural surface water management through Chapter 40A-44, F.A.C. ▪ Groundwater quality monitoring through Ambient Background and VISA networks. ▪ Well construction and consumptive use permitting to prevent increased movement of known contaminants; abandoned well plugging program. ▪ Review of transportation projects via ETDM. ▪ Assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ Longleaf pine-wiregrass widespread in upland areas of the coastal plain prior to extensive development, cultivation, and fire suppression. ▪ In the southern portion of the county, silvicultural pine flatwoods developed on vast tracts of public and private lands have displaced considerable areas of natural systems. ▪ Currently no identified threats to surface and groundwater minimum flows and levels, and no District initiative to establish MFLs. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Cooperative land acquisition to reduce development in watersheds, protect sensitive features. ▪ Manage District-owned lands in a manner to protect and restore their ecological quality and integrity; make them available to the public for outdoor recreational activities consistent with their environmental sensitivity. ▪ Regulate water withdrawals and monitor water flows and levels. ▪ Participation with Leon County, DEP, and others in restoration and retrofit activities for Lake Jackson. ▪ Assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. |
| LIBERTY COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ Liberty County and the City of Bristol use the upper Floridan Aquifer for all consumptive uses; Domestic wells serve roughly 70 percent of Liberty County's population. The majority of these wells draw from the Floridan Aquifer. ▪ The NFWFMD 2003 Water Supply Assessment update determined that current water supply sources could provide sufficient quantities of water to meet projected needs while sustaining water resources and natural systems. | <ul style="list-style-type: none"> ▪ Apply requirements for District's Consumptive Use Permitting Area B, which has moderate consumptive use permitting thresholds. ▪ Provide consumptive use and groundwater level data to assist water supply planning by the county and its utilities. ▪ Consumptive use permitting to protect water supply sources from excessive withdrawals. ▪ Water well construction permitting to prevent contamination of groundwater sources. |

| Table 15. County Issues and District Activities | |
|---|---|
| KEY ISSUES | DISTRICT ACTIVITIES |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ The Comprehensive Plan identifies over 254,000 acres of wetlands, i.e., nearly 48 percent of the county's land area. Most of this acreage is along the Apalachicola and Ochlockonee rivers. ▪ The Telogia Creek floodplain is another major floodprone area. Stream floodplains have been estimated to be about 101,900 acres. ▪ Drainage has not been a significant problem except for an area east of Bristol in which residences were permitted in a floodprone area. | <ul style="list-style-type: none"> ▪ Promote floodplain acquisition as a means of nonstructural flood protection. The areas of the Apalachicola River floodplain owned by the District help to maintain the natural hydrology of the system, maintain wetlands which help to store and slow flood waters, and prevent intensive development in severely floodprone areas. ▪ Provide review and comment on proposed development, permit actions, and comprehensive plan amendments that could affect floodplains in the county. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ Review of transportation projects via ETDM. |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ In general, the quality of surface water is good in Liberty County. Nonpoint pollution has been described as minimal and seasonal. ▪ Potential nonpoint sources of pollution may include septic systems, construction site runoff, and highway drainage. ▪ The comprehensive plan reports five potential point sources of groundwater contamination: wood preservatives from a chemical plant, wastewater from a health care facility, and leachate from three landfills. | <ul style="list-style-type: none"> ▪ Implement Apalachicola River and Bay System SWIM Plan. ▪ SWIM Plan for the Ochlockonee River and Bay Watershed to be developed in next five years. ▪ Regulate agricultural and silvicultural surface water management to assure that they meet state water quality standards. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters. ▪ Well construction and consumptive use permitting to prevent increased movement of known contaminants; abandoned well plugging program. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ Roughly 65 percent of the county is undeveloped and consists of intact ecosystems; another 31 percent of the county is private forestland. Much of this land is managed for hunting. A key issue for much timberland property is management for the endangered red cockaded woodpecker. ▪ Generally, primary creek floodplains are high quality, mixed hardwood ecosystems, dominated by gum, bay, and oak. However, damming and dredging along the Apalachicola have affected the viability of that floodplain habitat. ▪ Upstream water demands on the Apalachicola-Chattahoochee-Flint (ACF) River System have the potential to impact the natural systems associated with the Apalachicola River and Bay system. The Upper Telogia Creek basin is used extensively for agricultural irrigation. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. ▪ Ravine communities along the Apalachicola River have been recognized as supporting regionally important rare and endemic flora and fauna. | <ul style="list-style-type: none"> ▪ Lands acquired in Liberty County for part of the Apalachicola River Water Management Area. ▪ Manage District-owned lands so as to protect and restore their ecological quality and integrity, and accommodate recreational activities consistent with the environmental sensitivity of the parcels. ▪ Dredge disposal site management and restoration to improve floodplain habitat and water quality. ▪ Implement Apalachicola River and Bay SWIM Plan and interstate water management efforts directed toward preserving and properly managing the Apalachicola River. ▪ Multi-agency comprehensive study of the ACF watershed, to evaluate optimum flow regime for ecological integrity of the Apalachicola River. ▪ Evaluate Upper Telogia Creek permits and renewals in light of impacts on flow. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. |
| OKALOOSA COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ Surface water is used very little; the upper Floridan Aquifer is the water supply source for the majority of the county. ▪ Growth in coastal areas has caused groundwater supply problems, such as a marked decline in the potentiometric surface of the Floridan Aquifer, particularly in the Fort Walton Beach, Niceville, and Destin areas. ▪ The Floridan Aquifer has a low susceptibility to groundwater contamination; however, abandoned wells can introduce saltwater into the aquifer. ▪ Demands on the Floridan Aquifer for water supply have resulted in a substantial depression in the potentiometric surface, resulting in water levels below sea level throughout much of coastal Santa Rosa, Okaloosa, and Walton counties. ▪ The NFWFMD 1998 Water Supply Assessment determined that “existing and reasonably anticipated sources of water and conservation efforts” are not adequate “to supply water for all existing legal uses and reasonably anticipated future needs, and to sustain the water resources and related natural systems” in Okaloosa, Santa Rosa, and Walton counties. | <ul style="list-style-type: none"> ▪ Implement Regional Water Supply Plan for Okaloosa, Santa Rosa, and Walton counties. This includes working with local partners to identify potential surface and other sources. ▪ Provide consumptive use and groundwater level data to assist water supply planning by the authority and other local suppliers. ▪ In the coastal regions of Okaloosa County, a Water Resource Caution Area, permittees are subject to stricter review and water conservation and reuse requirements (62-40.416(2), F.A.C.). ▪ Water resources planning and monitoring work in Okaloosa County to assist in the design of a proposed wellfield to ensure that withdrawals will not affect other users. ▪ Groundwater assessment, monitoring wells in Okaloosa County on a quarterly basis. ▪ Water well construction permitting program to ensure that wells are constructed in a manner that prevents contamination of groundwater sources; abandoned well plugging program. ▪ Assistance to local governments, as needed, in review of Water Facilities Work plans and related comprehensive plan elements. ▪ Potential assistance for water reuse and water resource development through the Florida Forever Capital Improvement Grants program. |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ A 1985 Federal Emergency Management Agency study indicated that storm surge flooding was limited to stream floodplains and that there has not been significant encroachment. Also, relatively high infiltration throughout the county has reduced the amount of runoff. | <ul style="list-style-type: none"> ▪ Review and comment on proposed developments and permit actions that could affect floodplains. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ District acquisition of floodplain lands as a means of nonstructural flood control, including a substantial portion of floodplain land along the Yellow River; additional acquisitions along the Yellow and Shoal rivers proposed. ▪ Review of transportation projects via ETDM process. |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ Point sources of pollution include a majority of the county's wastewater plants, which use spray irrigation for the disposal of effluent. ▪ Nonpoint sources include stormwater runoff and septic tanks. ▪ Recharge of the Floridan Aquifer in Okaloosa County is limited; therefore the risk to groundwater from the county's three landfills is minimal. ▪ Septic tanks pose a threat of localized contamination of the Sand-and-Gravel Aquifer, which is not a significant water supply source. | <ul style="list-style-type: none"> ▪ Implement SWIM plans for Pensacola Bay System, Choctawhatchee River and Bay System. ▪ Manage District lands along the Yellow River to provide water quality benefits. ▪ Restoration of Old Pass Lagoon (Destin Harbor). ▪ Regulate agricultural and silvicultural surface water activities through 40A-44, F.A.C. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters. ▪ Maintain surface water quality through District regulatory activity under Chapter 40A-4, F.A.C. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants. ▪ Abandoned well plugging program. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ Declines have been reported for seagrass coverage in Choctawhatchee Bay. ▪ Bayous in the urbanized, western portion in the bay are subject to sustained stormwater runoff impacts; serious degradation to water and sediment quality as well as habitat loss. ▪ No identified threats to surface water minimum flows and levels, though groundwater levels are a concern in the southern portion of the county. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Regulate withdrawals from ground and surface water sources through consumptive uses of water permitting program. ▪ Monitor groundwater levels on a regular basis, monitor surface water flows for selected streams. ▪ Acquisition and management of floodplain and associated buffer along the Yellow Rive and Choctawhatchee River. ▪ Restoration of Old Pass Lagoon. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriations. |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| SANTA ROSA COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ Groundwater is the primary water supply source for the county, typically from the Sand-and-Gravel Aquifer in the western, central, and coastal areas of the county and from the upper Floridan Aquifer in the north and east. ▪ An early USGS report indicated that the Sand-and-Gravel Aquifer is especially sensitive to drought and over-draft, creating a risk of saltwater intrusion in the southern part of the county. ▪ The Floridan Aquifer has a low susceptibility to groundwater contamination; however abandoned have the potential to result in aquifer contamination. ▪ Demands on the Floridan Aquifer for water supply have resulted in a substantial depression in the potentiometric surface, resulting in water levels below sea level throughout much of coastal Santa Rosa, Okaloosa, and Walton counties. ▪ The NFWFMD 1998 Water Supply Assessment determined that a water supply plan was needed for Okaloosa, Santa Rosa, and Walton counties. | <ul style="list-style-type: none"> ▪ Implement Regional Water Supply Plan for Okaloosa, Santa Rosa, and Walton counties. This includes working with local partners to identify potential surface and other sources. ▪ In southern Santa Rosa County, a Water Resource Caution Area, permittees are subject to stricter review and water conservation and reuse requirements (62-40.416(2), F.A.C.). ▪ Assistance to Fairpoint Regional Utility System in development of inland wellfield. ▪ Provide consumptive use and groundwater level data to assist water supply planning by the authority and other local suppliers. ▪ Groundwater assessment, monitoring wells on a quarterly basis. ▪ Water well construction permitting program to ensure that wells are constructed in a manner that prevents contamination of groundwater sources; includes abandoned well plugging requirements. ▪ Abandoned well plugging program. ▪ Assistance to local governments, as needed, in review of Water Facilities Work plans and related comprehensive plan elements. |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ The county has identified six major drainage problem areas as part of its Resource Management Plan study area. [Thirteen of the county's 40 "critical structures" have level of service 'D,' corresponding to a demand that is 50 percent or more above design capacity.] Four of these sites border US 98, one of which extends from the highway north to the East Bay River. Another major drainage problem area is north of Garcon Point along Escambia Bay. | <ul style="list-style-type: none"> ▪ Review and comment on proposed developments and permit actions that could affect floodplains. ▪ Address the use of impoundments and dam safety through Chapter 40A-4, F.A.C. ▪ District acquisition of floodplain lands as a means of nonstructural flood control, including acquisitions along the Escambia and Yellow rivers and the Garcon Point parcel, which borders East Bay; additional floodplain acquisition proposed. ▪ Review of transportation projects via ETDM. |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ Surface waters in Santa Rosa County are subject to direct discharge of wastewater, inadequate treatment via septic tanks, and nonpoint pollution. See the Escambia County Integrated Plan for more information on point and nonpoint sources affecting Escambia Bay and Pensacola Bay. ▪ Point source dischargers include the wastewater facilities of the communities of Jay, Milton, and Navarre Beach. ▪ The Sand-and-Gravel Aquifer is recharged throughout much of the county, with significant opportunities for groundwater pollution. | <ul style="list-style-type: none"> ▪ Implement Pensacola Bay System SWIM Plan. ▪ Regulate agricultural and silvicultural surface water management activities to assure they meet state water quality standards. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters. ▪ Monitor groundwater quality in southern Santa Rosa County as part of one of its VISAs. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants; requirements for abandoned well plugging. ▪ Abandoned well plugging program. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ Santa Rosa County coastal strands and floodplain marshes are threatened communities. ▪ The Yellow River Marsh is a state aquatic preserve. ▪ Declines in seagrass coverage have been reported in recent years. ▪ The District has designated coastal Santa Rosa County as a WRCA because of limited groundwater supplies in coastal portions of the county. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Acquisition of lands along the Escambia River, Yellow River, and portions of Garcon Point, with acquisitions targeted for: wetlands and upland buffer along Big Juniper Creek; parcel connecting Blackwater State Forest and the Yellow River; land comprising Escribano Point adjacent to Eglin AFB. ▪ Assisting Regional Utility Authority to identify potential alternative freshwater supplies. ▪ Regulate water withdrawals through consumptive use permitting program. ▪ Monitor groundwater levels on a regular basis; surface water flows for selected streams are monitored by uses. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. |
| WAKULLA COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ Wakulla County uses the upper Floridan Aquifer for all consumptive uses. ▪ The District determined that current water supply sources could provide sufficient quantities of water to meet the projected needs, while sustaining the water resources and natural systems. ▪ Private wells, which draw from the Floridan Aquifer, serve roughly half of Wakulla County's population. The aquifer's characteristics and the well-drained soils in most of the county create the risk of impact from septic systems. | <ul style="list-style-type: none"> ▪ Provide consumptive use and groundwater level data to assist local government and utility water supply planning. ▪ Apply least restrictive consumptive use thresholds throughout the northern half of the county (Area C) and moderate thresholds (Area B) in the southern portion of the county. ▪ Monitor groundwater levels as part of quarterly sampling network. |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ More than 50 percent of the county's land area is estimated to be wetlands. Much of this acreage is along the Ochlockonee, St. Marks, and Sopchoppy rivers and Lost and Buckhorn creeks. ▪ Other critical floodprone areas lie along the coast, although this area is relatively undeveloped outside of the communities of Panacea, Spring Creek, and Shell Point. ▪ Suburban and rural growth has resulted in some floodplain development within Wakulla County. ▪ The communities of Crawfordville and Panacea have experienced flooding associated with increased impervious surfaces. | <ul style="list-style-type: none"> ▪ Provide review and comment on proposed comprehensive plan amendments and permit actions that have the potential to affect floodplains in the county. ▪ Regulate certain impoundments and dams, as required by Chapter 40A-4, F.A.C. ▪ Acquisition of floodplain lands. ▪ Review of transportation projects via ETDM process. |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ Surface water quality throughout the county is considered good except for the lower reach of the St. Marks River, due to point source discharges. ▪ There have been numerous oil spills at terminals in the vicinity of the St. Marks community. ▪ Other nonpoint pollution of the river comes from riverfront development and stormwater runoff. ▪ Ochlockonee Bay has naturally low dissolved oxygen levels, exacerbated by nonpoint pollution from adjacent developed areas. ▪ Apalachee Bay has been affected by septic tank effluent from the Spring Creek area and by pollution from commercial marinas in Shell Point and Panacea. ▪ Use of septic tanks in the north central area of the county and portions of the coastal zone, coupled with the region's geology, creates potential for groundwater contamination. | <ul style="list-style-type: none"> ▪ Implement the St. Marks River-Apalachee Bay system SWIM Plan. ▪ SWIM plan for Ochlockonee River and Bay watershed to be developed in the next five years. ▪ Regulate agricultural and silvicultural surface water activities in accordance with 40A-44, F.A.C. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants; requirements for abandoned well plugging. ▪ Abandoned well plugging program. ▪ Groundwater quality monitoring through Ambient Background and VISA networks. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ Of the County's six ecological communities, only the Longleaf Pine-Turkey Oak communities have threatened status; these have the most development pressure within the county. ▪ There are currently no identified threats to surface and groundwater minimum flows and levels in Wakulla County. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Previous acquisition of land surrounding Wakulla Springs and the Wakulla River; acquisition of land along the St. Marks and Wakulla rivers proposed. ▪ Regulate water withdrawals from ground and surface water sources. ▪ Monitor groundwater level on a regular basis. ▪ Surface water flows for selected streams monitored by the District and other agencies. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriations. |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| WALTON COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ Surface water supplies are used solely for agricultural irrigation. The Surficial aquifer is used for domestic self-supply, while the upper Floridan Aquifer supports all other uses. ▪ Water supply in the coastal areas is the most prevalent needs and sources issue. The NFWFMD determined that a water supply plan was needed for Okaloosa, Santa Rosa, and Walton counties. ▪ Demands on the Floridan Aquifer for water supply have resulted in a substantial depression in the potentiometric surface, resulting in water levels below sea level throughout much of coastal Santa Rosa, Okaloosa, and Walton counties. ▪ No major contamination threats identified. Saltwater intrusion and declining potentiometric levels in southern Walton County identified (NFWFMD, 1998). | <ul style="list-style-type: none"> ▪ Implement Regional Water Supply Plan for Okaloosa, Santa Rosa, and Walton counties. ▪ Provide consumptive use and groundwater level data to assist water supply planning by the Regional Utility Authority and other utilities. ▪ Designated coastal regions as a WRCA, where consumptive use permittees are subject to stricter review and water conservation and reuse requirements (62-40.416(2), F.A.C.). ▪ Designated the region between Black Creek and Bruce Creek (southeastern Walton County) as a consumptive use permitting Area B, which entails moderate consumptive use permitting thresholds. ▪ Assistance to local governments, as needed, in review of Water Facilities Work plans and related comprehensive plan elements. |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ The floodplain of the Choctawhatchee River (along the Washington County line), the area between the Choctawhatchee Bay and the Bay County line, and the regions adjacent to the Choctawhatchee Bay are subject to inundation. ▪ Roughly one-fourth of the soils exhibit severe ratings for construction because of poor drainage; an estimated 19 percent of the county is wetland. | <ul style="list-style-type: none"> ▪ Review and comment on proposed comprehensive plan amendments and permit actions that could affect floodplains in the county. ▪ Regulate certain impoundments and dams, as required by Chapter 40A-4, F.A.C. ▪ Acquisition of floodplain lands along the Choctawhatchee River as a means of nonstructural flood protection. ▪ Review of transportation projects via ETDM. |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ Several tributaries in the Choctawhatchee River and basin varyingly are subject to both point and nonpoint source pollution. ▪ The county's comprehensive plan estimates that 26 percent of the county exhibits severe soil limitations for septic tank drainfields. ▪ Walton County has several solid waste facilities that may present some risk to groundwater quality, the majority of which are closed. ▪ In coastal areas, the Floridan Aquifer exceeds quality standards for chloride and TDS. This natural condition limits availability and threatens adjacent areas. | <ul style="list-style-type: none"> ▪ Regulate agricultural and silvicultural surface water activities in accordance with Chapter 40A-44, F.A.C. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters. ▪ Monitor surface water quality as part of quarterly network. ▪ Acquisition and management of floodplain lands along the Choctawhatchee River to maintain their natural hydrology and vegetation, which affords water quality benefits. ▪ Monitor groundwater quality. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants; requirements for abandoned well plugging. ▪ Abandoned well plugging program. ▪ Assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ The Florida Natural Areas Inventory (FNAI) has designated several ecological communities in Walton County as rare. ▪ The Choctawhatchee River flows into Walton County from Holmes County and the State of Alabama to the north. Water withdrawals from this system within Washington County, Holmes County, and Alabama could negatively impact the natural flow regime of the river. This, in turn, could impact all natural resources associated with the river and bay. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Regulate water withdrawals through consumptive uses of water permitting program. ▪ Monitor groundwater levels on a regular basis, monitor surface water flows for selected streams by uses. ▪ Designated southern Walton County as a WRCA; working with the RUA to identify potential alternative sources of freshwater supplies. ▪ Acquisition and management of lands along the Choctawhatchee River to protect and restore their ecological quality and integrity. ▪ Assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. |
| WASHINGTON COUNTY | |
| WATER SUPPLY | |
| <ul style="list-style-type: none"> ▪ Surface water supplies only three percent of all water used in Washington County, and it is used solely for irrigation; public water supplies, are pumped from the upper Floridan Aquifer; domestic self-supply is dependent upon the Surficial aquifer. ▪ No major threats of contamination to water supply sources have been identified. ▪ The District determined that current water supply sources could provide sufficient quantities of water to meet the projected needs, while sustaining the water resources and natural systems. ▪ Much of southern Washington County is the primary recharge area for springs that discharge into Econfina Creek and Deer Point Lake Reservoir. | <ul style="list-style-type: none"> ▪ Enforce Consumptive Use Permitting Area C requirements, which have the least restrictive permitting thresholds. ▪ Apply more restrictive thresholds in the southwestern corner of the county to protect existing supply. ▪ Provide consumptive use and groundwater level data to assist water supply planning by the county and its utilities. ▪ Quarterly groundwater monitoring. ▪ Water well construction permitting program to prevent contamination of groundwater sources; includes abandoned well plugging requirements. ▪ Abandoned well plugging program. ▪ Acquisition of the Econfina Recharge Area. |
| FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT | |
| <ul style="list-style-type: none"> ▪ Floodplains and floodprone areas are estimated to cover more than 22 percent of the county's land area, much of it along Holmes Creek and the Choctawhatchee River. ▪ The Washington County Comprehensive Plan indicates that, except for the City of Caryville, there has been little to no development pressure within the identified floodprone areas. | <ul style="list-style-type: none"> ▪ Acquisition of floodplain along the Choctawhatchee River and Econfina Creek, as a means of nonstructural flood protection. ▪ Review and comment on proposed developments, permit actions, and comprehensive plan amendments that could affect floodplains. ▪ Regulate certain impoundments and dams, as required by Chapter 40A-4, F.A.C. ▪ Review of transportation projects via ETDM. |

Table 15. County Issues and District Activities

| Table 15. County Issues and District Activities | |
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| KEY ISSUES | DISTRICT ACTIVITIES |
| WATER QUALITY | |
| <ul style="list-style-type: none"> ▪ There is evidence of mercury contamination in fish in the lower Choctawhatchee. ▪ Holmes Creek has been affected by upstream wastewater discharges, municipal effluent, and agricultural nonpoint pollution. Spring discharges near Vernon improve water quality. ▪ There have been no reported groundwater contamination, but there is a risk of localized impacts from septic tanks. | <ul style="list-style-type: none"> ▪ Implement Choctawhatchee River and Bay System and St. Andrew Bay SWIM plans. ▪ Acquisition and management of floodplain along the Choctawhatchee River and Econfina Creek will prevent point and nonpoint source contamination that could result from intensive adjacent development. ▪ Regulate agricultural and silvicultural surface water activities per Chapter 40A-44, F.A.C. ▪ Ambient monitoring program that includes sampling quarterly from selected surface waters. ▪ Monitor groundwater quality as part of Ambient Background monitoring network. ▪ Well construction and consumptive use permitting to prevent movement of known contaminants; requirements for abandoned well plugging. ▪ Abandoned well plugging program. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. |
| NATURAL SYSTEMS | |
| <ul style="list-style-type: none"> ▪ The county is dominated by three major ecosystems: Longleaf Pine-Turkey Oak, Mixed Hardwood and Pine, and Bottomland Hardwoods. ▪ The Choctawhatchee River flows into Washington County from Holmes County. Water withdrawals from this system within Washington County, Holmes County and the State of Alabama to the north, could negatively impact the natural flow regime of the river. This, in turn, could impact all natural resources associated with the river. ▪ Wetlands, water quality, sensitive habitats, groundwater, and public parks and conservation lands have the potential to be adversely affected by offsite activities. | <ul style="list-style-type: none"> ▪ Implement Choctawhatchee River and Bay System and St. Andrew Bay SWIM plans. ▪ Acquisition and management of lands along the Choctawhatchee River and Econfina Creek to protect and restore their ecological quality and integrity. ▪ Regulate water withdrawals through consumptive uses of water permitting program. ▪ Monitor groundwater levels on a regular basis, monitor surface water flows for selected streams by uses. ▪ Potential assistance to local partners through Florida Forever Capital Improvement Grants. ▪ Review of transportation projects via ETDM. ▪ Capital improvement projects through Florida Forever and special appropriation. |

VIII. Watershed Management

A. THE WATERSHED APPROACH

Watershed management is based on the principle that water resources are more effectively protected and managed based on hydrologic characteristics. Historically, political boundaries and priorities have dictated how our water resources are treated, often resulting in unintended negative impacts. For instance, if development takes place without regard to treatment or where the stormwater runoff will end up in a watershed, serious water quality problems and/or flooding may occur. The Northwest Florida Water Management District has always taken a watershed management approach. Since all the watersheds in northwest Florida (except St. Andrew Bay) are shared with Georgia or Alabama, this approach also involves extending the scope across political boundaries (Figure 9).

This chapter summarizes the District's efforts to manage water resources by integrating and enhancing the strategies identified in the chapters on water supply, water quality, flood protection and floodplain management, and natural systems. These efforts are accomplished through the District programs previously outlined. The defined watershed systems are described and depicted in Chapter 1, *District Overview*.

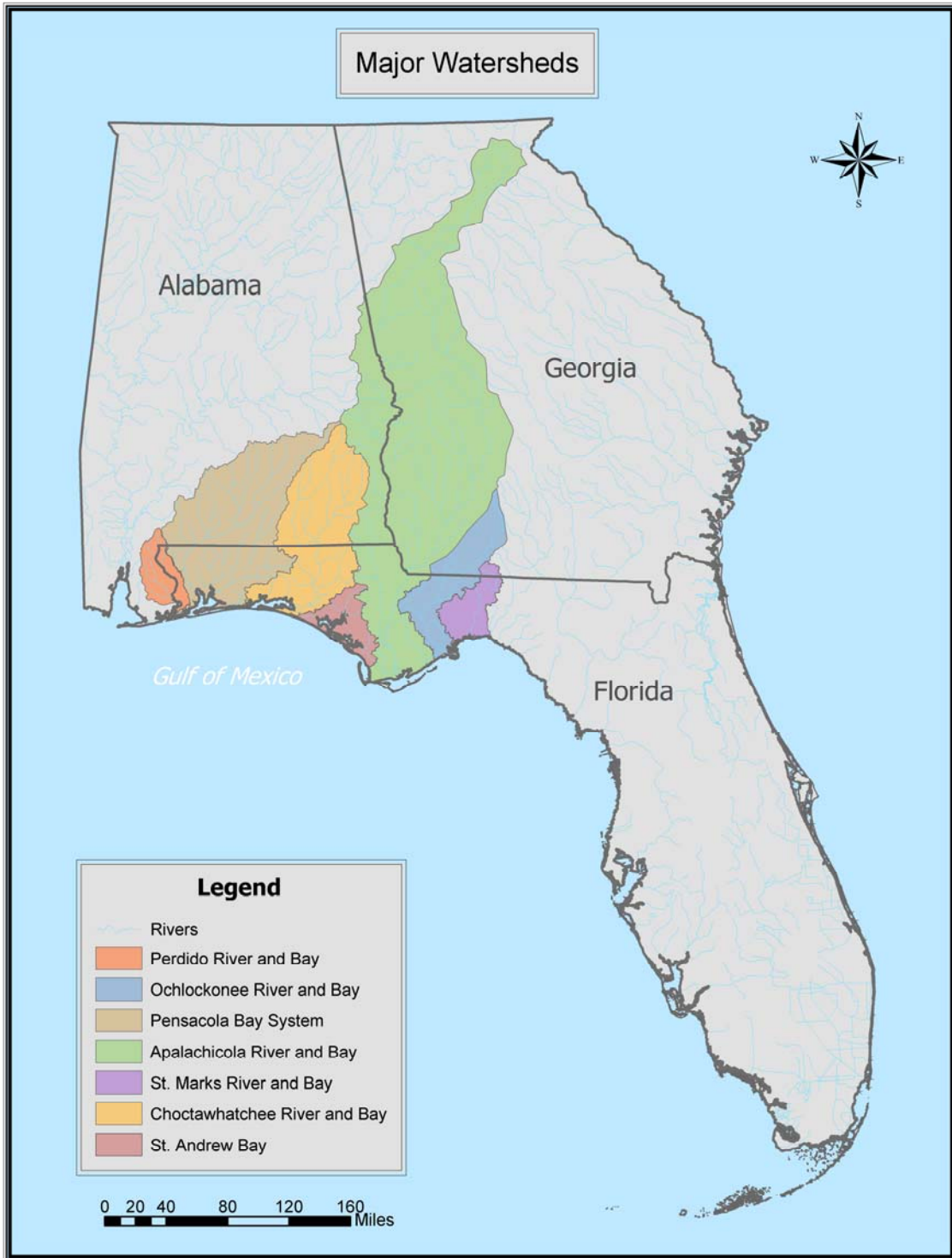
SURFACE WATER IMPROVEMENT AND MANAGEMENT PROGRAM

Recognizing that many surface waters in Florida were polluted or threatened by pollution, the 1987 Legislature passed the SWIM Act to address water quality issues, restore degraded lakes, rivers, streams, estuaries and bays, and preserve the quality of more pristine waterbodies. The SWIM Act directed the water management districts to prioritize and list the waterbodies within their jurisdiction that were of statewide or regional significance and most in need of preservation or restoration. The water management districts were also directed, in conjunction with local governments and other state agencies, to develop, design, and implement plans and programs for the improvement and management of these surface waters.

The SWIM program emphasizes a watershed approach and manages surface water as an integral component of natural systems. This perspective recognizes that individual parts of a system are interconnected and must be viewed as a whole to preserve the system. Each watershed is unique and has different management needs. SWIM plans include an assessment of the water systems' condition, identification of needed restoration or preservation activities, and strategies for prescribed courses of action.

The SWIM priority list identifies regionally significant surface water resources and ranks them according to a number of quantitative and qualitative factors. Figure 10 below shows the SWIM priority waterbodies. The District is preparing an update to the SWIM priority list. It is anticipated that this update will be based entirely on the major riverine-estuarine watersheds, which will incorporate the smaller waterbodies listed in Figure 10.

Figure 9. Major Watershed Boundaries



DEP WATERSHED MANAGEMENT APPROACH

The Florida Department of Environmental Protection is building on the groundwork laid by the water management districts in the SWIM Program, as it implements the federally mandated Total Maximum Daily Load (TMDL) program through a watershed management approach. The TMDL Program involves the assessment and verification of “impaired” waters (those not meeting state water quality standards), the establishment of pollutant loading targets for those waters, and the development of Basin Management Action Plans for affected basins. The DEP will work closely with the NFWFMD and local interested parties throughout the TMDL process to build upon existing data, plans, and water quality improvement efforts. See Chapter V, *Water Quality*, for additional information about the TMDL process in Northwest Florida.

IMPLEMENTING WATERSHED MANAGEMENT

The sections below summarize characteristics and goals, issues, objectives, and strategies for watersheds in which SWIM plans have been prepared or are being updated. The overall goal for watershed management is to provide comprehensive, coordinated management of watersheds in order to improve environmental quality, restore and sustain natural systems, and provide for human uses compatible with the preservation of those systems. This encompasses assessments to better understand existing conditions, ongoing water resources activities, identification of priorities, development and implementation of resource protection and restoration projects, and public outreach.

Successful watershed management requires cooperation and partnerships among organizations and individuals within a watershed. The District's local, state, regional, and federal partners are integral to carrying out watershed management through various regulatory, planning, protection, and restoration activities. These entities and their functions are described in Chapter VII, *Integrated Plan*.

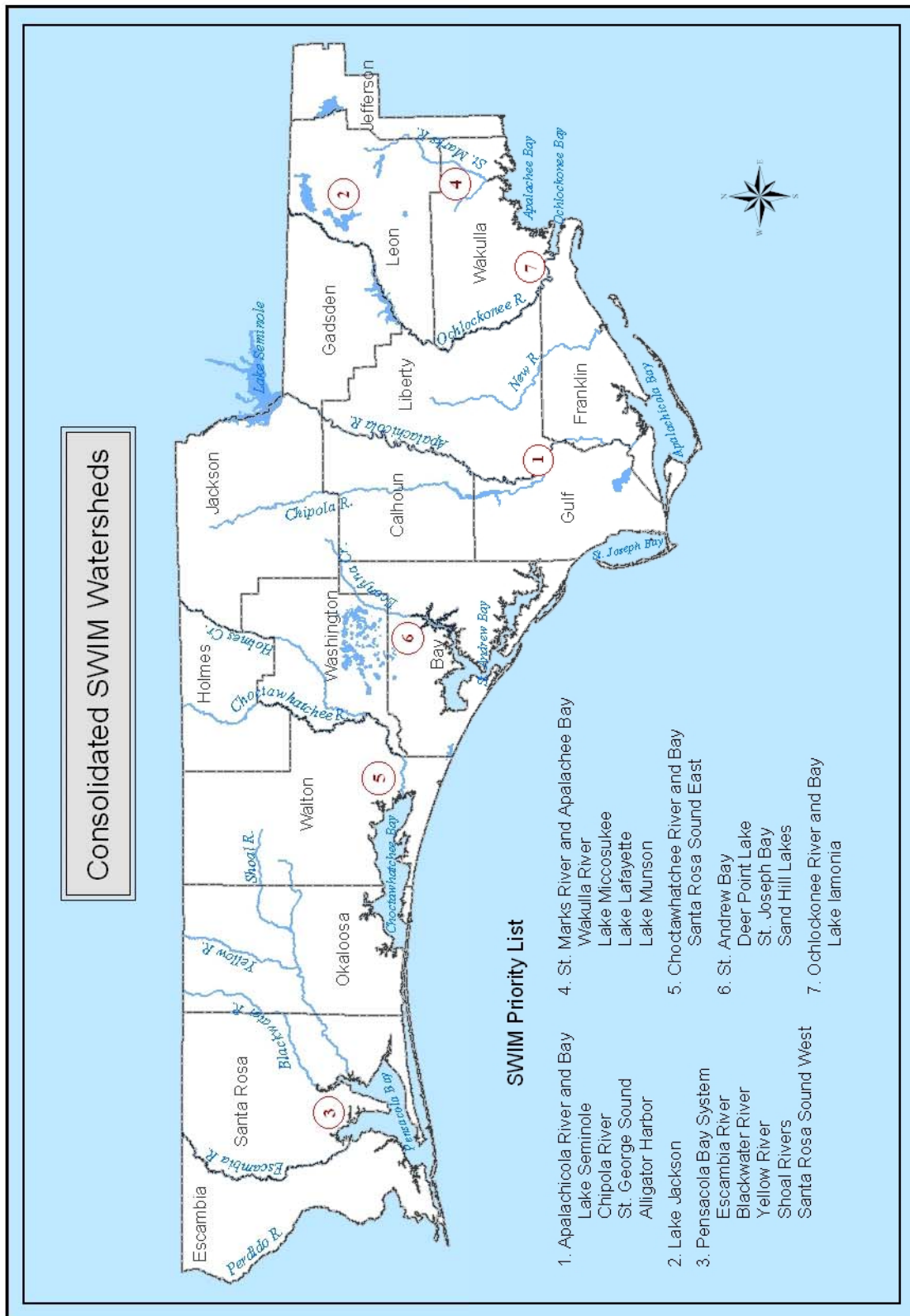
More information concerning conditions for the watersheds discussed below and other waterbodies in northwest Florida can be obtained from District SWIM plans and special reports and DEP's Integrated Water Quality Assessment for Florida: 2004 305(b) Report and 303(d) List Update. For more detailed information on the issues, objectives, activities, timeline, budget, and measures of success for the SWIM waterbodies refer to the applicable SWIM plans.

LIMITATIONS AND ASSUMPTIONS

Although SWIM funding has been inconsistent, the District has been able to apply the Water Management Lands Trust Fund (WMLTF) and legislative special appropriations to the implementation of SWIM projects. These state funds have been used to effectively leverage state and federal grant funding. Florida Forever capital improvement funding is also becoming an increasingly important source of funding for restoration and retrofit projects.

Existing legislative sources of funding are directed primarily toward implementation of construction projects. Funding to support assessments, planning, and administration needed to define problems and design restoration projects with measurable benefits comes primarily through the WMLTF. Staffing constraints also limit the District's ability to conduct interagency coordination and review the potential effects of proposed developments and comprehensive plan amendments.

Figure 10. SWIM Priority Watersheds



B. APALACHICOLA RIVER AND BAY SYSTEM

SYSTEM DESCRIPTION AND ASSESSMENT

The Apalachicola drainage basin consists of the Apalachicola, Chattahoochee, and Flint River basins (ACF), and the Apalachicola Bay watershed. The watershed stretches from the Blue Ridge Mountains in Georgia to the Apalachicola Bay and encompasses over 19,600 square miles. The ACF Basin is one of the most diverse, productive, and economically important natural systems in the southeastern United States. Approximately 85 percent of the basin is within Alabama and Georgia, including nearly all of the Chattahoochee and Flint river watersheds. As a result, the upstream hydrologic regime and water quality significantly defines the physical and biological characteristics of the Apalachicola River and Apalachicola Bay.

The Apalachicola River and Bay system, including its diverse and productive natural systems, is vital to the local economy and quality of life. The bay supports a very productive shrimp and oyster industry, and is commonly cited as providing 90 percent of the average state oyster harvest. As described in the current SWIM plan (NFWFMD 1996) and other sources, the basin also provides essential habitat a wide array of fish and wildlife species.

Table 16. Summary of Apalachicola River and Bay Watershed Characteristics

| | |
|----------------------------------|--|
| Watershed Area | Over 19,600 square miles (Florida, Georgia, and Alabama) |
| Major Land Uses | Forestry, agriculture, wetlands |
| Population Density | Low |
| Major cities and counties | Cities: Apalachicola, Carrabelle, Chattahoochee, Wewahitchka, Marianna, Bristol, Blountstown Counties: Calhoun, Franklin, Gadsden, Gulf, Jackson, Liberty |
| OFW waterbodies | Apalachicola River Apalachicola Bay Chipola River Apalachicola National Estuarine Research Reserve Apalachicola Bay State Aquatic Preserve St. Vincent National Wildlife Refuge Alligator Harbor Aquatic Preserve Dr. Julian G. Bruce St. George Island State Park Three Rivers State Park Torreya State Park Florida Caverns State Park |
| SWIM waterbodies | Apalachicola River and Bay (including Lake Seminole, Chipola River and St. George Sound) |

The Apalachicola River and Bay system encompasses diverse and productive ecosystems, including the state’s largest riverine and estuarine system. The economy of the area is substantially tied to environmental quality within the river basin and bay. Protecting the natural functions of these resources and the human benefits they provide is important to the region’s economy and overall quality of life. The river and bay have experienced relatively little pollution and development as compared with other ecological systems in the southeast. However, rapid development within and adjacent to waterbodies and sensitive habitats has the potential to harm the system and related human benefits.

Through the Apalachicola River and Bay SWIM plan (NFWFMD 1996), the District is working in partnership with the local community to help preserve and restore the system. Activities in the SWIM plan include restoration, education, applied research, and preservation.

The District conducted a two-year study, funded by the United States Environmental Protection Agency, administered through DEP, and concluded that the majority of streams that discharge to the river tend to have good water quality, with some localized problems from nonpoint sources. The District carried out similar research for the bay. An urban stormwater assessment for Franklin County found that certain streams discharging to the bay at times exceeded one or more state water quality parameters. Monitoring of bay sites indicated a problem with periodic bacterial contamination. A study of potential impacts to the bay from septic tanks on St. George Island was initiated through a cooperative effort between the former Health and Rehabilitative Services, Apalachicola National Estuarine Research Reserve, and NFWFMD. Further study is planned to determine the type and extent of runoff that may affect the quality of water in the river, bay and immediate tributaries.

ACF RIVER SYSTEM NEGOTIATIONS

The Apalachicola-Chattahoochee-Flint (ACF) Compact Agreement was dissolved August 31, 2003, when Florida, Alabama and Georgia ceased discussions related to the development of a water allocation formula for the ACF river system. The Compact Agreement was passed by the legislatures of the three states in 1997, ratified by the U.S. Congress, and signed into law by the President of the United States in November 1997. The negotiations were extended 17 times from 1997 through August 2003 in an attempt to reach consensus on the equitable apportionment of the waters of this river system. The three states have now turned to the court system to settle these water allocation issues. Several related lawsuits are pending: *State of Alabama v. U.S. Army Corps of Engineers*, U.S. District Court for the Northern District of Alabama, 1990 (original lawsuit); *Southeastern Federal Power Customers, Inc. v. Luis Caldera, et al.*, District of Columbia, 2000; and *State of Georgia v. United States Army Corps of Engineers*, U.S. District Court for the District of Georgia, 2001. In September 2003, the United States District Court, Northern District of Alabama, reached a decision related to the settlement agreement in the Southeastern Federal Power Customers District of Columbia case. The Court found that the agreement violated the 1990 stay order and enjoined Georgia and the Corps from filing or implementing any part of the settlement agreement as well as from entering into any other new storage or withdrawal contracts affecting the ACF river system without approval of the Court.

IMPLEMENTATION

Many of the Northwest Florida Water Management District watershed management activities for the Apalachicola River and Bay watershed are implemented through the Apalachicola River and Bay SWIM program. The program description, as well as a more detailed discussion of watershed resources and issues, is found in the Apalachicola River and Bay SWIM Plan (NFWFMD 1996). The strategies listed are implemented through a series of cooperative projects, also described in the SWIM plan. As the plan is updated, other activities and programs ongoing in the watershed may also be incorporated within the plan.

OTHER LOCAL, REGIONAL, AND STATE EFFORTS

Total Maximum Daily Loads (TMDLs)

The Apalachicola-Chipola Basin Status Report (FDEP 2002) describes impairments for a number of sub-basins within the watershed, primarily due to bacteria. Under the DEP TMDL program basin rotation schedule, the Apalachicola-Chipola Basin is scheduled for the development of some TMDLs by September 2005 for DEP-verified impaired waters. DEP has already developed a fecal coliform bacteria TMDL for Huckleberry Creek (FDEP 2004). Additional TMDLs will be established by September 2009. The DEP will use qualified data in establishing these water quality targets, including that provided by the NFWFMD and other sources outside DEP. The NFWFMD's Apalachicola River and Bay System SWIM Plan and its other efforts in this region will play a large part in the development of one or more Basin Management Action Plans (BMAPs) to achieve DEP-adopted TMDLs. The DEP is in the process of working with local stakeholders to collect data for establishing TMDLs, and to form a basin working group, which ultimately will develop the BMAP for the first set of TMDLs. The NFWFMD is an important partner in TMDL efforts.

C. ST. ANDREW BAY WATERSHED

WATERSHED DESCRIPTION AND ASSESSMENT

The St. Andrew Bay watershed is the only major watershed located entirely within the Florida Panhandle. For management purposes, it is defined as incorporating the interconnected St. Andrew, West, East, and North bays; St. Joseph Bay; Deer Point Lake; and the Sand Hill Lakes, as well as the respective surface water basins of each of these waterbodies. This watershed includes portions of Bay, Washington, Gulf, Calhoun, Walton, and Jackson counties. St. Andrew, North, West, and East bays have a combined surface area of approximately 59,568 acres. Econfina Creek, through Deer Point Lake, provides the major freshwater inflow into the estuary, along with a number of smaller creeks. East Pass and West Pass have provided surface water connections with the Gulf of Mexico. West Pass was artificially cut in 1934 as the primary navigation channel to the Gulf, while most exchange between the estuary and the Gulf had historically occurred through East Pass.

The Deer Point Lake reservoir has a surface area of approximately 4,572 acres and a watershed covering approximately 282,880 acres. The lake is located about eight miles north of Panama City, and was created through construction of a dam across the northern portion of North Bay in 1961. The reservoir impounds flow from Econfina, Bear and Cedar creeks and Bayou George and discharges into North Bay. Econfina Creek is the primary tributary to Deer Point Lake, contributing between 57 and 79 percent of the water entering the lake. The reservoir now serves as the primary source of drinking water for most of the municipalities in Bay County. The reservoir watershed provides a valuable habitat for fish, plants and wildlife, and is important for osprey nesting.

St. Joseph Bay is also within the SWIM planning area. The bay has a surface area of approximately 42,826 acres and is located on the southwest coast of Gulf County, bounded by Cape San Blas and St. Joseph Peninsula. This bay is the only embayment in the eastern Gulf of Mexico lacking a major source of surface fresh water inflow. It is connected to the Intracoastal Waterway, however, by Gulf County Canal. In recognition of its outstanding resource value, most of St. Joseph Bay was designated an Aquatic Preserve in 1969 for the purpose of preserving the biological resources in the bay and maintaining them in an essentially natural condition. Other notable waterbodies within the St. Andrew Bay watershed SWIM planning area include the Sand Hill Lakes of Bay and Washington counties and Lake Powell, in southwest Bay and Walton counties.

Land use within the watershed has primarily been silviculture, with urban and recreational development focused in the Panama City area. Recently, however, the watershed has become characterized by suburban development, particularly near waterbodies. Major concerns include the nonpoint source pollution associated with these land uses, as well as habitat loss and fragmentation. Sources of nonpoint source pollution include urban stormwater runoff; land-clearing fertilizers, pesticides, and insecticides associated with golf courses and urban development; and widespread use of septic tanks. Such impacts have been severe in localized areas and are becoming increasingly significant watershed-wide and on a cumulative basis.

Table 17. Summary of St. Andrew Bay Watershed Characteristics

| | |
|----------------------------------|---|
| Watershed Area | 1,171 square miles |
| Major Land Uses | Silviculture, urban, preservation |
| Population Density | Low in much of the watershed but medium-to-high in Panama City area |
| Major cities and counties | Major Cities: Panama City, Panama City Beach, Lynn Haven, Port St. Joe Counties: Bay, Calhoun, Jackson, Washington, Gulf, Walton |
| OFW waterbodies | Lake Powell, Phillips Inlet and tributaries St. Joseph Bay Aquatic Preserve St. Andrews Aquatic Preserve Grayton Beach State Park Western Lake Upper Eastern Lake Upper Camp Creek St. Andrews State Park St. Joseph Peninsula State Park |
| SWIM waterbodies | St. Andrew Bay Watershed, including Deer Point Lake Reservoir, Sand Hill Lakes, and St. Joseph Bay |

Through the SWIM program, the District completed an assessment of the watershed, including water quality, land use, vegetation, sensitive areas and agricultural and silvicultural practices. The summary report identified many preventive measures to ensure the ecological integrity of this water resource. The District implemented key recommendations by acquiring environmentally sensitive land. Acreage along Econfina and Sand Hill Lakes will continue to be managed by the District in cooperation with the FWCC and Washington County. Further activities for Deer Point Lake will be accomplished as part of the St. Andrew Bay watershed SWIM program.

The St. Andrew Bay watershed has experienced many of the impacts that are common to Florida water bodies. These include urban stormwater runoff and other nonpoint sources of pollution, domestic and industrial point source pollution, and habitat loss and degradation. Some portions of the watershed have thus far been spared the level of resource degradation that tends to come with intensive development. Effective watershed management and planning at this stage can help preserve the natural resources within the watershed, coordinate existing restoration needs, and prevent the need for expensive and difficult solutions in the future.

IMPLEMENTATION

Northwest Florida Water Management District watershed management activities for the St. Andrew Bay watershed are implemented through the St. Andrew Bay Watershed SWIM program. The program description, as well as a more detailed discussion of watershed resources and issues, is found in the St. Andrew Bay SWIM Plan (NFWFMD 2000). The plan’s goals, issues, objectives, and strategies are summarized below. The strategies listed are implemented through a series of cooperative projects, described in the SWIM plan.

OTHER LOCAL, REGIONAL, AND STATE EFFORTS

A number of federal, state, and local agencies, as well as private landowners, share management of the St. Andrew Bay watershed. State, federal, and local environmental and regulations are in place, and a number of agencies address human activities with the potential to impact the watershed. In some instances, these agencies have overlapping responsibilities, but they work from differing definitions, laws, regulations, and policies. State and federal agencies with resource management responsibilities include DEP, DCA, FWCC, DACS, USFWS, the U.S. Army Corps of Engineers, and others.

Total Maximum Daily Loads (TMDLs)

Under the DEP TMDL program basin rotation schedule, the Choctawhatchee-St. Andrew Bay Basin is scheduled for the development of TMDLs by September 2006 for DEP-verified impaired waters.

DEP will use qualified data the NFWFMD can provide in establishing these water quality targets, as well as data from other sources outside DEP, and will involve the NFWFMD in the development of a Basin Management Action Plan (BMAP) to implement DEP-adopted TMDLs. The NFWFMD's St. Andrew Bay Watershed SWIM Plan and its other efforts in this region will be integrated into the development of a TMDL BMAP.

Local Initiatives

A major private initiative active within the St. Andrew Bay watershed is the St. Andrew Bay Environmental Study Team (BEST). The St. Andrew BEST has for many years worked in partnership with local governments, the private sector, and state and federal agencies to protect and restore the St. Andrew Bay watershed. Other local initiatives active within the watershed include the St. Andrew Bay Resource Management Association (RMA) and Bay County Audubon Society.

D. PENSACOLA BAY SYSTEM

SYSTEM DESCRIPTION AND ASSESSMENT

The Pensacola Bay system includes five interconnected estuaries: Escambia Bay, Pensacola Bay, Blackwater Bay, East Bay, and Santa Rosa Sound, and three major river systems: the Escambia, Blackwater, and Yellow rivers. The system also includes numerous tributaries of these estuaries and rivers and the overall watershed. The watershed covers nearly 7,000 square miles, about one-third of which is in Florida. It includes the majority of Escambia, Santa Rosa and Okaloosa counties, northwestern Walton County, and a substantial area of southern Alabama. The entire system discharges into the Gulf of Mexico, primarily through a narrow pass at the mouth of Pensacola Bay.

The Escambia River is a major alluvial river that extends 240 miles northward from Escambia Bay to Bullock County, Alabama, as the Conecuh River. Its drainage area covers over 4,200 square miles, about 90 percent of which is within Alabama. The Yellow River extends 110 miles from the eastern shore of Blackwater Bay to a point northeast of Andalusia, Alabama. Its drainage basin covers 1,365 square miles, with 64 percent within northwest Florida. The Blackwater River drains approximately 860 square miles, of which 81 percent is in Florida's Santa Rosa and Okaloosa counties. The river originates north of Bradley, Alabama, flows about 60 miles, and discharges into Blackwater Bay. The estuarine component of the system covers approximately 144 square miles and extends approximately 20 miles inland from the Gulf of Mexico.

Table 18. Summary of Pensacola Bay System Characteristics

| | |
|----------------------------------|--|
| Watershed Area | 6,842 square miles (about 34 percent in Florida) |
| Major Land Uses | Forest, urban, agriculture |
| Population Density | Mostly low; moderate-to-high in the Pensacola, Milton, Crestview, Mary Esther, and Gulf Breeze areas |
| Major cities and counties | Cities: Pensacola, Century, Gulf Breeze, Jay, Milton, Mary Esther, Laurel Hill, Crestview, Paxton Counties: Escambia, Santa Rosa, Okaloosa, Walton |
| OFW waterbodies | Yellow River Marsh Aquatic Preserve Blackwater River Shoal River Blackwater River State Park Escambia Bay Bluffs Gulf Islands National Seashore Fort Pickens State Park Aquatic Preserve Big Lagoon State Park Milton to Whiting Field CARL area |
| SWIM waterbodies | Pensacola Bay System (including Escambia, Blackwater, Yellow and Shoal rivers and western Santa Rosa Sound) |

The Pensacola Bay system supports many biological communities and species characteristic of a Gulf Coastal Plain riverine and estuarine system. Estuarine habitats include benthic microalgae communities, seagrass beds, oyster beds, salt marshes, planktonic and pelagic communities, and unvegetated soft bottoms. Freshwater habitats include alluvial and blackwater rivers, bottomland hardwood forests, tupelo-cypress swamps, seepage swamps, and tidal fresh marshes. Major land uses include forestry, agriculture, military, public conservation and recreation, and urban development. Prominent activities on the rivers and estuaries include recreational and commercial fisheries, boating, commercial shipping, military training, wildlife observation, and other recreational and commercial activities.

For many years, the Pensacola Bay system showed few visible signs of being affected by these activities. However, in the 1960s and '70s, massive, repeated fish kills occurred in Escambia and Pensacola bays and their bayous. During this period, there were dramatic decreases in seafood harvests, and most seagrass beds disappeared. Through regulatory activities and studies initiated by the EPA during the 1970s, water quality in this area did improve. However, many problems persist and are especially evident in urban bayous such as Bayou Chico and Bayou Texar. Point source pollution, stemming from direct discharges into the bay, and nonpoint source pollution, resulting from stormwater runoff, continue to be major problems in the urban bayous. Plans to manage stormwater are being implemented to prevent further pollution. Intensive urban development has contributed to the increased stormwater runoff into Pensacola Bay. Contaminants also enter the bay area from upstream along the Escambia, Conecuh, Yellow, Shoal and Blackwater rivers in Florida and Alabama.

IMPLEMENTATION

Northwest Florida Water Management District watershed management activities for the Pensacola Bay system are implemented through the Pensacola Bay SWIM program. The program description, as well as a more detailed discussion of watershed resources, issues, objectives, and strategies, is found in the Pensacola Bay SWIM Plan. The strategies are implemented through a series of cooperative projects, described in the SWIM plan.

OTHER LOCAL, REGIONAL, AND STATE EFFORTS

Total Maximum Daily Loads (TMDLs)

Under the DEP TMDL program basin rotation schedule, the Pensacola Bay Basin is scheduled for the development of TMDLs for DEP-verified impaired waters by September 2007. DEP will use qualified data the NFWFMD can provide in establishing these water quality targets, as well as data from other sources outside DEP, and will involve the NFWFMD in the development of a Basin Management Action Plan (BMAP) to implement DEP-adopted TMDLs. The NFWFMD's Pensacola Bay System SWIM Plan and its other efforts in this region will be integrated into the development of a BMAP.

Bay Area Resource Council

The Bay Area Resource Council (BARC) provides a local institutional framework to develop and implement management strategies for the system. The BARC is staffed by the West Florida Regional Planning Council and has representation from Santa Rosa and Escambia counties and the cities of Pensacola, Gulf Breeze, and Milton. A technical advisory committee, made up of representatives of state, regional, and local governments, and universities assists the council in decision-making. In addition, BARC has a Citizens Education and Advisory Committee consisting of members from the general public and civic groups and advisory members from government agencies.

E. ST. MARKS RIVER-APALACHEE BAY WATERSHED

WATERSHED DESCRIPTION AND ASSESSMENT

The overall St. Marks River watershed, covering approximately 1,170 square miles (747,116 acres), extends from Thomas County in the red clay hills region of southern Georgia to the Gulf of Mexico. Approximately 91 percent of the watershed (1,060 square miles or 677,182 acres) lies within Jefferson, Leon, and Wakulla counties.

Table 19. Summary of St. Marks River-Apalachee Bay Watershed Characteristics

| | |
|----------------------------------|--|
| Watershed Area | 1,170 square miles (about 91 percent of which is in Florida) |
| Major Land Uses | forest, urban development |
| Population Density | mostly low; moderate in the Tallahassee area |
| Major cities and counties | Cities: Tallahassee, St. Marks, Sopchoppy Counties: Jefferson, Leon, Wakulla |
| OFW waterbodies | St. Marks National Wildlife Refuge St. Marks River Wakulla River Wakulla Springs State Park Big Bend Seagrasses State Aquatic Preserve |
| SWIM waterbodies | St. Marks River Watershed, including the Wakulla River and Apalachee Bay |

The St. Marks River watershed includes The watershed includes the St. Marks River, its major tributary the Wakulla River, Apalachee Bay, lakes Miccosukee, Lafayette, and Munson, and numerous sinkholes and underground springs. The best water quality in the St. Marks watershed is typically in the upper Wakulla and St. Marks rivers. The St. Marks National Wildlife Refuge helps to protect Apalachee Bay by providing a vast upland and wetland buffer. It was established in 1931 to provide wintering grounds for migratory birds and habitat for waterfowl. It covers more than 107,000 acres of land and bay, stretching from the Aucilla River watershed in the east to Sopchoppy River watershed in the west.

The St. Marks River watershed is known for the unique geological features and distinctive landforms that make up the Woodville Karst Plain. Due to the presence of limestone at or near the land surface, rainfall readily moves into and recharges the Floridan Aquifer, the region’s underground drinking water supply. Over time, this water has dissolved the carbonates of the aquifer and has resulted in many karst landforms. The karst plain is characterized by an abundance of springs, sinks, sinking streams, and swallets, which swallow streams. The St. Marks River flows underground a short distance and re-emerges, forming a natural bridge. Wakulla Springs is the jewel of the Woodville Karst Plain and a national natural landmark, expelling an average 2,900 gallons of fresh water every second from a vent 140 feet deep.

The strong link between groundwater and surface water in the basin contributes to the environmental sensitivity of the area. Because the limestone lies at or near the surface, surface water moves quickly into the aquifer. In many cases, this results in less filtration, absorption and biological removal of contaminants in the water. Other potential adverse impacts stem from stormwater runoff from nearby urban areas, loss of habitats from shoreline development, and effluent from improperly maintained septic tanks.

IMPLEMENTATION

Northwest Florida Water Management District watershed management activities for the St. Marks River-Apalachee Bay watershed are implemented through the St. Marks SWIM program. The program description, as well as a more detailed discussion of watershed resources, issues,

objectives, and strategies, is found in the St. Marks SWIM Plan. The strategies are implemented through a series of cooperative projects, described in the SWIM plan.

OTHER LOCAL, REGIONAL, AND STATE EFFORTS

Total Maximum Daily Loads (TMDLs)

The DEP Verified List of Impaired Waters for the Ochlockonee-St. Marks Basin (October 1, 2002) contains 22 waterbody segments within the St. Marks River watershed. Parameters of concern include nutrients, bacteria, dissolved oxygen, and mercury in fish.

Under the DEP TMDL program basin rotation schedule, the Ochlockonee-St. Marks River Basin was scheduled for the development of TMDLs for DEP-verified impaired waters by September of 2004. The TMDLs that DEP proposed (for Lake Lafayette) are currently under challenge, and have not been adopted. Additional TMDLs are scheduled for development in this basin in 2007-08. DEP will use qualified data the NFWFMD can provide in establishing these water quality targets, as well as data from other sources. As the NFWFMD implements and revises its St. Marks Watershed SWIM Plan, it will have the opportunity to influence the TMDL development and BMAP process, and to integrate into its plan information, objectives, and strategies from the TMDL program.

F. CHOCTAWHATCHEE RIVER AND BAY SYSTEM

SYSTEM DESCRIPTION AND ASSESSMENT

The Choctawhatchee River and Bay watershed covers approximately 5,349 square miles, of which about 41 percent is within Florida. The river is generally characterized as alluvial, and it tends to carry a heavy sediment load. Principal tributaries include the Pea River in Alabama and Holmes, Wrights, Sandy, Pine Log, Seven Run, and Bruce creeks in Florida. The river system also receives a substantial contribution from springs of the Floridan Aquifer. Choctawhatchee Bay has a surface area of approximately 129 square miles. The greatest source of fresh water into the bay by far is the Choctawhatchee River. Other tributaries of the bay include Turkey Creek, Rocky Creek, Swift Creek, and Alaqua Creek. East Pass, located immediately west of Destin, provides the only direct opening to the Gulf of Mexico. The bay also opens to Santa Rosa Sound in the west and the Intracoastal Waterway in the east.

Table 20. Summary of Choctawhatchee River and Bay Watershed Characteristics

| | |
|----------------------------------|---|
| Watershed Area | 5,349 square miles (about 41 percent of which is in Florida) |
| Major Land Uses | Forest, urban, agriculture |
| Population Density | Mostly low; moderate-to-high in and around Choctawhatchee Bay area municipalities |
| Major cities and counties | Cities: Bonifay, Esto, Noma, Ponce de Leon, Westville, Chipley, Caryville, Vernon, Ebro, Wausau, Freeport, DeFuniak Springs, Cinco Bayou, Destin, Fort Walton Beach, Niceville, Shalimar, Valparaiso, Graceville. Counties: Bay, Holmes, Jackson, Okaloosa, Walton, Washington |
| OFW waterbodies | Choctawhatchee River State Parks: Falling Waters State Park, Ponce de Leon Springs State Park, Eden Gardens State Park, Topsail Hill State Park, Rocky Bayou State Park, Henderson Beach State Park Point Washington CARL program area Rocky Bayou Aquatic Preserve |
| SWIM waterbodies | Choctawhatchee River and Bay System |

The Choctawhatchee River and Bay System has long been known for its rich, diverse ecology, economic benefits and numerous recreational opportunities. Over recent decades, however, many of

the area's water resources have been compromised by population growth, development, and wastewater disposal. Increased coastal development has contributed to displaced habitats, loss of wetlands and greater amounts of stormwater runoff entering the river, bay and their tributaries. Stormwater carries contaminants such as dirt, heavy metals, bacteria, nutrients from fertilizer and other sources, and various chemicals. Point sources of pollution in the river and bay basin are also of concern, especially wastewater treatment plants along Holmes Creek.

Water quality degradation and other adverse effects have been observed in areas such as Cinco, Garnier, Joes and Boggy bayous and Old Pass Lagoon. Development near the shoreline also threatens more pristine bayous such as Indian, Jones and Hogtown. Particularly vulnerable are fish and wildlife, seagrass beds, coastal dune lakes and tidal marshes.

Throughout much of the watershed, the primary land cover is forest, and much of this is in silvicultural production. Agriculture is also an important land use, particularly in the northern portions of the watershed. Significant and growing urban land uses are concentrated primarily around Choctawhatchee Bay. Substantial military and public conservation and recreation lands are also in the watershed. Prominent activities in the river and bay include recreational and commercial fisheries, commercial barge transportation, boating, military training and testing, wildlife observation, and other water and natural resource-related activities.

Much of the Choctawhatchee River floodplain is protected as public land. More than 51,000 acres of environmentally sensitive land along the river and Holmes Creek have been acquired by the District to preserve the basin and its ecosystems. Substantial conservation lands have also been acquired by the state in Walton, Bay, Okaloosa, and Washington counties.

IMPLEMENTATION

Northwest Florida Water Management District watershed management activities for the Choctawhatchee River and Bay system are implemented through the Choctawhatchee SWIM program. The program description, as well as a more detailed discussion of watershed resources, issues, objectives, and strategies, is found in the Choctawhatchee River and Bay System SWIM Plan. The strategies are implemented through a series of cooperative projects, described in the SWIM plan.

OTHER LOCAL, REGIONAL, AND STATE EFFORTS

Total Maximum Daily Loads (TMDLs)

Under the DEP TMDL program basin rotation schedule, the Choctawhatchee-St. Andrew Bay Basin is scheduled for the initiation of TMDLs in 2005 for DEP-verified impaired waters. DEP will use qualified data the NFWFMD can provide in establishing these water quality targets, as well as data from other sources, and will involve the NFWFMD in the development of a Basin Management Action Plan (BMAP) to implement DEP-adopted TMDLs. The NFWFMD's Choctawhatchee River and Bay System SWIM Plan and its other efforts in this region will be integrated into the development of a TMDL BMAP.

Choctawhatchee Basin Alliance

Since 1996, the Choctawhatchee Basin Alliance (CBA) has been active in ecosystem management, public awareness, promotion of improved stormwater management, the interagency regional mitigation plan review process, and habitat restoration. The CBA has hosted "Bay Day" community festivals, as well as technical symposia and a variety of educational workshops. The CBA also organized stormwater management workshops for local government officials and the public. The CBA has also initiated a water quality monitoring program for Choctawhatchee Bay, tributaries, and coastal dune lakes.

G. OCHLOCKONEE RIVER AND BAY WATERSHED

SYSTEM DESCRIPTION AND ASSESSMENT

The Ochlockonee Basin drains 2,416 square miles and extends through 11 Florida and Georgia counties. The total basin area is the seventh largest for Florida rivers (Fernald and Purdum, 1998). Approximately 1,080 square miles of this area is in Florida. The U.S. Geological Survey has divided the basin into two units, the Upper Ochlockonee Basin (in Georgia) and the Lower Ochlockonee Basin (extending from south Georgia into Florida). Rivers and streams of the Lower Ochlockonee Basin (approximately 1,500 square miles in area) include the Ochlockonee River and hundreds of tributaries that feed it as it flows through Florida to Apalachee Bay. The main tributaries of the Ochlockonee River in Florida are Telogia Creek, Little River, and the Sopchoppy River. (Florida Department of Environmental Protection, 2001)

A SWIM plan for the Ochlockonee River and Bay watershed has not yet been developed. A plan has been developed for the Lake Jackson basin within the watershed. The lake is the number two ranked waterbody on the current SWIM priority list. It is anticipated that a SWIM plan for the Ochlockonee River and Bay watershed will incorporate Lake Jackson when it is developed.

Table 21. Summary of Ochlockonee River and Bay Watershed Characteristics

| | |
|----------------------------------|--|
| Watershed Area | 2416 square miles |
| Major Land Uses | Forestry, agriculture, urban, suburban |
| Population Density | Low |
| Major cities and counties | Cities: Tallahassee, Havana, Sopchoppy Counties: Leon, Gadsden, Liberty, Wakulla, Franklin |
| OFW waterbodies | Ochlockonee River Lake Jackson Aquatic Preserve Lake Talquin State Park Ochlockonee River State Park Bald Point State Park Lake Jackson Mounds State Park Maclay Gardens State Park Mashes Sands Sopchoppy River |
| SWIM waterbodies | Lake Jackson |

LAKE JACKSON BASIN DESCRIPTION AND ASSESSMENT

Lake Jackson is located immediately north of the City of Tallahassee in Leon County, Florida. The lake lies within the Ochlockonee River basin, and has a drainage area of approximately 43 square miles and a surface area of 4,000 acres. The lake is long and irregular in width, ranging from one-half to two miles, and has two extensions in the southern part of the lake, Megginis and Fords arms. Lake level varies from 76 to 96 feet National Geodetic Vertical Datum (NGVD), with an average depth of 12 feet in the northern half and eight feet in the southern half.

Table 22. Summary of Lake Jackson Basin Characteristics

| | |
|----------------------------------|---------------------------------------|
| Watershed Area | 43 square miles |
| Major Land Uses | Urban, suburban, forestry/agriculture |
| Population Density | High |
| Major cities and counties | City: Tallahassee County: Leon |
| OFW waterbodies | Lake Jackson Aquatic Preserve |
| SWIM waterbodies | Lake Jackson |

Lake Jackson is nationally famous for its trophy-size largemouth bass and is a popular recreational site for Leon County residents. However, increasing urban and suburban development has threatened the lake's natural environment with severe degradation. There are three main categories of land use in the Lake Jackson watershed: urban, suburban, and forestry/agriculture. The majority of urban and suburban areas are in the southern portion of the basin and drain into the lake through Megginis and Fords creeks. Interstate 10 transverses these two sub-basins and, until the construction of the stormwater treatment facility in 1992, contributed substantial amounts of untreated stormwater runoff to the lake.

Lake Jackson is a closed basin: it has no water loss through surface water runoff. This makes the lake particularly vulnerable to stormwater runoff. The lake receives inflow from three main tributaries, Megginis and Fords creeks, draining the southern portion of the basin, and Ox Bottom Creek, which drains the northeastern portion. Observed negative effects from stormwater runoff include poor water quality, increased sedimentation, contamination of bottom sediments by heavy metals and other pollutants, and increased nitrification of the lake.

Lake Jackson has two major depressions, Lime Sink and Porter Hole Sink, which are remnant features of the karstic processes that formed Lake Jackson. It is through these sinkholes that the lake periodically drains and the lake bottom is exposed. These drawdowns have occurred in 1907, 1957, 1982, and in 1999/2000. The minimum elevation that has been recorded for the lake was 75.68 feet NGVD, which occurred January 4, 1957. The average lake level over the period of record is 85.54 feet.

IMPLEMENTATION

Northwest Florida Water Management District watershed management activities for Lake Jackson are implemented through the Lake Jackson SWIM program. The program description, as well as a more detailed discussion of watershed resources, issues, objectives, and strategies, is found in the Lake Jackson Management Plan (NFWFMD 1994; 1992). The strategies are implemented through a series of cooperative projects, described in the SWIM plan.

OTHER LOCAL, REGIONAL, AND STATE EFFORTS

Total Maximum Daily Loads (TMDLs)

Seven segments in the Ochlockonee River watershed are listed by DEP as impaired. Parameters of concern include nutrients, bacteria, and dissolved oxygen. Some waters are also listed due to fish consumption advisories based on mercury levels. TMDLs are scheduled for development in this basin in 2007-08. DEP will use qualified data the NFWFMD can provide in establishing these water quality targets, as well as data from other sources. As the NFWFMD develops a comprehensive Ochlockonee River and Bay Watershed SWIM Plan, it will have the opportunity to influence the TMDL development and BMAP process, and to integrate into its plan information, objectives, and strategies from the TMDL program.

H. PERDIDO RIVER AND BAY WATERSHED

SYSTEM DESCRIPTION AND ASSESSMENT

The Perdido River and Bay watershed covers approximately 1,250 square miles in Florida and Alabama. The watershed is not currently part of the SWIM program.

Table 23. Summary of Perdido River and Bay Watershed Characteristics

| | |
|----------------------------------|---|
| Watershed Area | 1,250 square miles |
| Major Land Uses | Silviculture, rural, suburban/urban |
| Population Density | Low |
| Major cities and counties | City: Pensacola County: Escambia |
| OFW waterbodies | Perdido River Perdido Key State Park Gulf Islands National Seashore |
| SWIM waterbodies | None |

IMPLEMENTATION

While the Perdido River and Bay watershed is not a designated SWIM waterbody, the District is active in regionally-significant water resource protection and restoration efforts. These include land acquisition and management in accordance with the Five Year Work Plan. Additionally, the District plans and implements regional mitigation activities in accordance with the DOT Regional Mitigation Plan and the In-Lieu Fee Mitigation Plan.

LOCAL, REGIONAL, AND STATE EFFORTS

Total Maximum Daily Loads (TMDLs)

Under the DEP TMDL program basin rotation schedule, the Perdido Bay Basin is scheduled for the initiation of TMDLs in 2007 for DEP-verified impaired waters. DEP will use qualified data the NFWFMD can provide in establishing these water quality targets, as well as data from other sources. The District will have the opportunity to be involved in the development of a Basin Management Action Plan (BMAP) to implement DEP-adopted TMDLs.

Promoting Community Watershed Planning

In cooperation with the local community, DEP developed an Ecosystem Management plan for the Perdido Bay watershed in 1998. Additionally, Escambia County has developed and is implementing a county-wide stormwater master plan that prioritizes sub-basins within the Perdido Bay watershed.

IX. Procedures For Plan Development

The District Water Management Plan (DWMP) was developed and revised in cooperation with other agencies, regional water supply authorities, units of government, and interested parties. The plan is updated at least once every five years. Section 373.036(2)(a), F.S., requires the governing board to hold a public hearing at least 30 days before completing the development or revision of the District Water Management Plan. Pursuant to the Water Resource Implementation Rule (Section 62-40.520, F.A.C.), the District must provide adequate opportunity for participation by the public and government agencies, which includes holding a public workshop in advance of DWMP acceptance or revision.

The Northwest Florida Water Management District DWMP incorporates all District programs, such as regional water supply planning, resource regulation, the SWIM program, land acquisition and management, and others. More detailed District publications and documents guide these programs, identify the specific issues and challenges facing the District, and provide detailed plans, objectives, strategies, and schedules. The DWMP is written as an overview of key water management issues in Northwest Florida and of the District's high-level objectives and strategies, with reference to more detailed plans and studies.

A. PUBLIC PARTICIPATION

Participation by the public, local governments, and other government agencies is an essential element of the planning process for the DWMP and other District programs and plans. Consequently, development of the DWMP included a process for participation by citizens and government agencies with jurisdiction within the Northwest Florida Water Management District. Public workshops were held in December 2004 and March 2005, publicized through advertisement in regional newspapers, direct communication with interested parties, and advertisement in the Florida Administrative weekly. The workshop included a description of the District's planning process, programs and activities, and DWMP content. Comments, recommendations, and questions were solicited. Additionally, the Draft DWMP was made available to interested parties through the District's website, and the draft DWMP was provided for review and comment to local organizations. These organizations included the St. Andrew Bay Environmental Study Team, Choctawhatchee Basin Alliance, and the Bay Area Resource Council.

B. PARTICIPATION BY GOVERNMENTAL ORGANIZATIONS

In preparing the 2005 DWMP, the District also sought the input of local and regional governments and state agencies. District staff provided the draft DWMP to local governments and state and federal agencies, and requested comments and recommendations. The draft plan was made available for download from the District's internet website, and local and regional governments received notice of the public workshops. Comments received from government agencies and other interested parties were reviewed and incorporated, as appropriate, into the DWMP.

In addition to all local governments within the District, the following government agencies and public interest organizations were encouraged to participate in the revision of the DWMP.

Regional Agencies:

Apalachee Regional Planning Council
West Florida Regional Planning Council

State Agencies:

Florida Department of Agriculture and Consumer Services
Florida Department of Community Affairs
Florida Department of Environmental Protection
Florida Department of Health
Florida Fish and Wildlife Conservation Commission

Florida Department of Transportation
Executive Office of the Governor

Federal Agencies:

United States Department of the Interior, Fish and Wildlife Service
United States Army Corps of Engineers
United States Department of Agriculture, Natural Resource Conservation Service
United States Environmental Protection Agency

Regional Utility Authorities:

Emerald Coast Utility Authority
Walton/Okaloosa/Santa Rosa Regional Utility Authority

Locally Based Initiatives:

Bay Area Resource Council
Choctawhatchee Basin Alliance
St. Andrew Bay Environmental Study Team

C. ANNUAL PROGRESS REPORT

The District produces an annual report that tracks the implementation of DWMP program activities and evaluates their outcome. To facilitate evaluation of water management efforts on a statewide basis, a set of core objectives and performance measures were developed by the staffs of the Executive Office of the Governor, DEP, and the five water management districts. The core objectives and performance measures are organized around the four primary areas of responsibility as described previously. These measures are intended as a means of evaluating District programs on an annual basis. While individual districts are free to develop additional measures specific to their individual needs, the core measures are intended to reflect statewide priorities. On a statewide basis, they provide an indication of overall progress in meeting water management goals, although they are not necessarily based on a direct cause and effect relationship between implementation of the DWMPs and the outcomes they measure.

Measures Common to all AORs

- CM(a)** Acres of land acquired through fee simple and less than fee simple, respectively, on an annual and cumulative basis
- CM(b)** Number and percent of land management plan activities being implemented according to plan schedules

Water Supply Measures

Objective 1: Increase available water supplies and maximize overall water use efficiency to meet identified existing and future needs

- WS1(a)** Percentage of domestic wastewater use
- WS1(b)** Gross per capita water use (public supply) by district and water supply planning region
- WS1(c)** Within each water supply planning region:
 - (1) The estimated amount of water supply to be made available through the water resource development component of the regional water supply plan
 - (2) Percent of estimated amount under development
 - (3) Percent of estimated amount of water actually made available

Objective 2: Prevent contamination of water supplies

WS2(a) Percentage of surface water supply sources for which water quality fully attains its designated use

Flood Protection Measures

Objective 1: Minimize damage from flooding

FP1(a) Percentage of District works maintained on schedule

Objective 2: Promote non-structural approaches to achieve flood protection and to protect and restore the natural features and functions of the 100-year floodplain

WP2(a) Number of acres identified for acquisition to minimize damage from flooding, and the percentage of those acres acquired

Water Quality Measures

Objective 1: Protect and improve surface water quality

WQ1(a) Percentage of water bodies that attain or potentially do not attain their designated uses under the TMDL Program

Objective 2: Protect and improve groundwater quality

WQ2(a) Improving, degrading, and stable trends in groundwater quality

WQ2(b) Improving, degrading, and stable trends in nitrate concentrations in springs

Natural Systems Measures

Objective 1: Maintain the integrity and functions of water resources and related natural systems

NS1(a) Number of MFLs, by water body type, established annually and cumulatively

NS1(b) Percentage of MFLs established in accordance with previous year's schedule

NS1(c) For the previous fiscal year, the total acres of wetlands or other surface waters authorized by environmental resource permit to be created, enhanced, restored, or preserved

***Note:** To date no MFLs have been established in the NFWWMD. The NFWWMD's priority list for the development of minimum flows and levels currently consists of the Apalachicola River - with an anticipated completion date dependent upon the interstate negotiations of a water allocation formula under the Apalachicola-Chattahoochee-Flint (ACF) Basin Compact, and the Floridan Aquifer in coastal Okaloosa, Santa Rosa, and Walton counties - with an estimated completion date of January 2005.*

Objective 2: Restore degraded water resources and related natural systems to a naturally functioning condition

NS2(a) Acres of invasive nonnative aquatic plants in inventoried public waters

NS2(b) Acres of district-managed lands infested with invasive nonnative upland plants

NS2(c) Acres of district-owned land identified in land management plans as needing restoration; acres undergoing restoration; and acres with restoration activities completed

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APPENDIX A.

DEFINITIONS

| | |
|---------------------------------|--|
| ACRE-FOOT | The volume of water required to cover one acre of land (43,560 square feet) to a depth of one foot; equivalent to 325,851 gallons. |
| AQUIFER | A geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs. |
| BASE FLOW | Sustained or fair-weather flow of a stream. In most places, base flow is derived from ground water in-flow to the stream channel. |
| BENTHIC ORGANISM | A form of aquatic life that lives on the bottom or near bottom of streams, lakes or the oceans. |
| BRACKISH | Water that generally contains 1,000-10,000 milligrams per liter of dissolved solids. |
| CARBONATE | A salt or ester of carbonic acid; a compound containing radical CO ₃ . |
| CONDUIT | A passage, generally small, that is filled with water under hydrostatic head. |
| CONE OF INFLUENCE | A depression in the potentiometric surface around a well from which water is being withdrawn. |
| CONFINED AQUIFER | An aquifer in which ground water is confined under pressure which is significantly greater than atmospheric pressure. |
| CONFINING BED | A body of relatively impermeable materials stratigraphically adjacent to one or more aquifers. |
| CONSUMPTIVE USE | Any use of water which reduces the supply from which it is withdrawn or diverted. |
| DISCHARGE AREA | Area in which subsurface water, including both ground water and vadose water, is discharged to the land surface, to bodies of surface water, or to the atmosphere. |
| DISSOLUTION | The process of dissolving. |
| DISSOLVED ORGANIC MATTER | Dissolved molecules derived from degradation of dead organisms or excretion of molecules synthesized by organisms. |
| DISSOLVED OXYGEN | Oxygen dissolved in water and available for use by aquatic life. |
| DIVERSITY | A parameter describing, in combination, the species richness and evenness of a collection of species. Diversity is often used as a synonym for species richness. |
| DRAINAGE BASIN | A subdivision of a watershed. |
| | The difference between the water level in a well before pumping and the |

| | |
|----------------------------------|---|
| DRAWDOWN | water level in the well during pumping. Also, for flowing wells, the reduction of the pressure head as a result of the withdrawal or discharge of water. |
| ESCARPMENT (SCARP) | A steep slope of some extent along the margin of an elevated area. |
| ESTUARY | A semi-enclosed body of water that has a free connection with the open sea and within which seawater is diluted measurably with freshwater that is derived from land drainage. |
| EUTROPHIC | Waterbodies or habitats with high concentrations of nutrients. |
| EUTROPHIC LAKE | A standing body of water containing an excessive concentration of plant nutrients, especially phosphorus and nitrogen, which result in an excessive algal production, especially blue-green algae. |
| EUTROPHICATION | The process by which waters become enriched with plant nutrients, especially phosphorus and nitrogen. |
| EVAPOTRANSPIRATION | A collective term that includes water lost through evaporation from the soil and surface waterbodies and by plant transpiration. |
| FLOODPLAIN | The land area subject to inundation by flood waters from a river, watercourse, lake, or coastal waters. Floodplains are delineated according to their estimated frequency of flooding. A 100-year floodplain is the area with a one percent risk of inundation in any given year. |
| FLOODPRONE AREA | Interior areas subject to inundation from storm events due to closed drainage, low permeability soils, high water table, or a combination of factors. |
| FRESHWATER | Water that generally contains 1-1,000 milligrams per liter of dissolved solids. |
| GROUND WATER | In the broadest sense, all subsurface water, as distinct from surface water; more commonly, that part of the subsurface water in the saturated zone. |
| GROUND WATER AVAILABILITY | The potential quantity of water which can be withdrawn without resulting in significant harm to the water resources or associated natural systems. |
| HYDRAULIC GRADIENT | Pressure gradient. As applied to an aquifer, it is the rate of change of pressure head per unit of distance flow at a given point and in a given direction. |
| HYDROLOGIC CYCLE | The natural cycling of water below, on, and above the land surface. Simply expressed, it is the cycling of water from evaporation and transpiration to precipitation to surface runoff and ground water recharge to discharge to the oceans, where water is again evaporated into the atmosphere. |
| HYDROGEOLOGY | The science that deals with subsurface waters and related geologic aspects of surface waters. |
| HYDROGRAPH | A graph showing stage, flow, velocity, or other property of water with respect to time. |

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| INSTREAM USE | Water use taking place within the stream channel. Examples are hydroelectric power generation, navigation, water-quality improvement, fish propagation, recreation, and other uses. Also called non-withdrawal use or in-channel use. |
| KARST | A type of topography that results from dissolution and collapse of limestone, dolomite, or gypsum beds, and characterized by closed depressions or sinkholes, caves, and underground drainage. |
| LAND DEVELOPMENT REGULATIONS | Ordinances and regulations adopted by local governments pursuant to Chapter 163, Part II, F.S., to implement Local Comprehensive Plans. The regulations typically include stormwater management, floodplain management, zoning, subdivision, and the protection of environmentally sensitive areas. |
| LOCAL COMPREHENSIVE PLAN | A county or city comprehensive plan prepared and adopted according to Chapter 163, Part II, F.S. The plan includes the adopted goals, objectives, policies of the local government and supporting data and analyses. |
| MACROPHYTE | An individual alga large enough to be seen easily with the unaided eye. |
| MESOTROPHIC LAKE | A lake that contains a moderate supply of plant nutrient matter, especially phosphorus and to a lesser extent, nitrogen. A mesotrophic lake is intermediate between a eutrophic and an oligotrophic lake. |
| METAMORPHIC | Any rock derived from preexisting rocks in response to marked changes in temperature, pressure, shearing stress, and chemical environment at depth in the Earth's crust (below the zones of weathering and cementation). |
| MICROBIAL | Relating to microscopic life forms. |
| MSL/NGVD | Elevation or altitude in feet above or below mean sea level (MSL), or in feet above or below National Geodetic Vertical Datum (NGVD). |
| NONPOINT SOURCE OF POLLUTION | Pollution from sources that cannot be defined as originating from discrete points. Examples include areas of fertilizer and pesticide application and leaking sewer systems. |
| NUTRIENT CYCLING | The pattern of transfer of nutrients between the components of a food web. |
| NUTRIENTS | Those constituents required by plants. |
| OLIGOTROPHIC LAKE | A lake that is characterized by a low concentration of plant nutrients, especially phosphorus and nitrogen. |
| ORGANIC | Deriving from living organisms. |
| ORGANIC DETRITUS | Particulate material derived from once-living organisms. |
| OSMOSIS | The movement of pure water across a membrane from a compartment with relatively low dissolved ions to a compartment with higher concentrations of dissolved ions. |
| OXIDATION | Process of combining with oxygen; e.g., the oxidation of Zn gives ZnO. |

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| PARTICULATE ORGANIC MATTER | Particulate material in the sea derived from the decomposition of nonmineral constituents of living organisms. |
| PERCHED GROUND WATER | Unconfined ground water separated from an underlying main body of ground water by an unsaturated zone. |
| PERMEABILITY | The capacity of a porous rock, sediment, or soil for transmitting a fluid without altering its physical structure; a measure of the relative ease of fluid flow under pressure. |
| PH | The acidity of water (-log ₁₀ of the activity of hydrogen ions in water). |
| PHYSIOGRAPHY | The study of the genesis and evaluation of land forms. |
| PHYTOPLANKTON | Organisms living suspended in the water column and incapable of moving against water currents. |
| POINT SOURCE POLLUTION | Pollution from any confined or discrete source, such as the outflow from a pipe, ditch, tunnel, well container, concentrated animal-feeding operation, or floating craft. |
| POPULATION DENSITY | Number of individuals per unit area. |
| POROSITY | The ratio of the aggregate volume of interstices in a rock or soil to its total volume. It is usually stated as a percentage. |
| POTABLE WATER | Water that is safe for human consumption. |
| POTENTIOMETRIC SURFACE | An imaginary surface representing the static head of ground water in tightly cased wells that tap a particular water bearing rock unit (aquifer), or, in the case of unconfined aquifers, the water table. |
| REASONABLE BENEFICIAL USE | The use of water in such a quantity as is necessary for economic and efficient utilization for a purpose and in a manner which is both reasonable and consistent with the public interest. |
| RECHARGE | The process of addition of water to the zone of saturation. |
| RELIEF | Difference between high and low points of a land surface. |
| RETURN FLOW | Irrigation water that is not consumed by evapotranspiration and that returns to its source or another body of water. The term is also applied to water that is discharged from industrial plants. |
| RUNOFF | Precipitation or snow melt that appears in streams or surface waters. |
| SALINE WATER | Water that generally contains 10,000-100,000 milligrams per liter of dissolved solids. |
| SALT MARSH | A coastal habitat consisting of salt-resistant plants residing in an organic-rich sediment accreting toward sea level. |
| SALT WATER/ FRESH WATER INTERFACE | Lateral or vertical contact surface where potable water in a coastal aquifer meets sea water (either present or ancient) in the aquifer. |

| | |
|---------------------------------|---|
| SEDIMENTARY ROCK | A rock resulting from the consolidation of loose sediment that has accumulated in layers either mechanically, by precipitation from solution, or from the remains or secretions of plants and animals. Also applied to process leading to, or resulting from, the formation of such rocks. |
| SEMICONFINED AQUIFER | An aquifer that is partially confined by a layer (or layers) of low permeability through which recharge and discharge occur. |
| SILVICULTURE | A branch of forestry dealing with the development and care of forests. |
| SINKHOLE | A general term for a closed depression in an area of karst topography that is formed either by solution of the surficial limestone or by collapse of underlying caves. Its form is generally basinlike or funnel-shaped. |
| SINKING STREAM | (stream-to-sink watersheds) - A surface stream that disappears into an underground channel (e.g., a stream in a karst region that disappears into a sinkhole and follows a definite channel through limestone caves). |
| TOPOGRAPHIC MAP | A map of a sufficiently large scale showing, in detail, selected man-made and natural features of a part of a land surface, including its relief (generally by means of contour lines) and certain physical and cultural features (vegetation, roads, drainage, etc.). |
| TOXIC | Of, relating to, or caused by a poison or toxin. |
| TRANSPIRATION | The process by which water in living organisms, primarily plants, passes into the atmosphere. |
| TURBIDITY | The state, condition, or quality of opaqueness or reduced clarity of fluid due to the presence of suspended matter. |
| UNCONFINED AQUIFER | An aquifer whose upper surface is a water table free to fluctuate up or down under atmospheric pressure. |
| UPCONING | The process by which saline water underlying freshwater in an aquifer rises upward into the freshwater zone as a result of pumping water from the freshwater zone. |
| WATERSHED | The land area which contributes to the flow of water into a receiving body of water. |
| WATER TABLE | The water surface in an unconfined aquifer at atmospheric pressure. It is the water level in wells that penetrate the uppermost part of an unconfined aquifer. |
| WELLHEAD PROTECTION AREA | An area designed by a local government to protect the ground water source for a well intended for human consumption for a community water system and includes the surface and subsurface area surrounding a potable water wellfield. The wellfield protection area may include all or part of the zone of contribution. |

APPENDIX B.

WATER RESOURCE POLICY FRAMEWORK

| | | WS* | FP* | WQ* | NS* |
|--|--|-----|-----|-----|-----|
| WATER RESOURCES ACT, CHAPTER 373, F.S. | | | | | |
| LEGISLATIVE POLICIES | | | | | |
| 373.016(2) | [T]ake into account cumulative impacts on water resources and manage those resources in a manner to ensure their sustainability. | • | • | • | • |
| 373.016(3)(a) | To provide for the management of water and related land resources. | • | • | • | • |
| 373.016(3)(b) | To promote the conservation, development, and proper utilization of surface and ground water. | • | | | |
| 373.016(3)(c) | To develop and regulate dams, impoundments, reservoirs, and other works and to provide water storage for beneficial purposes. | • | • | | • |
| 373.016(3)(d) | To promote the availability of sufficient water for all existing and future reasonable-beneficial uses and natural systems. | • | | • | • |
| 373.016(3)(e) | To prevent damage from floods, soil erosion, and excessive drainage. | | • | • | • |
| 373.016(3)(f) | To minimize degradation of water resources caused by the discharge of stormwater. | | | • | • |
| 373.016(3)(g) | To preserve natural resources, fish, and wildlife. | | | | • |
| 373.016(3)(i) | To promote recreational development, protect public lands, and assist in maintaining the navigability of rivers and harbors. | | • | | • |
| 373.016(3)(j) | Otherwise to promote the health, safety, and general welfare of the people of the state. | • | • | • | • |
| WATER RESOURCE IMPLEMENTATION RULE, CHAPTER 62-40, F.A.C. | | | | | |
| GENERAL POLICIES | | | | | |
| 62.40.310(1)(a) | Promote the availability sufficient water for natural systems, and sufficient and affordable water for all existing and future reasonable-beneficial uses. Uses of water authorized by a permit shall be limited to reasonable-beneficial uses. | • | | | |
| 62.40.310(1)(c) | Reserve, by rule, water from use by permit applicants, in such locations and quantities, and for such seasons of the year, as in the judgment of the District of Department, may be required for the protection of fish and wildlife, or the public health and safety... | • | | • | • |
| 62.40.310(1)(d) | Champion and develop sound water conservation practices and public information programs. | • | | | |
| 62.40.310(1)(e) | Advocate and direct the reuse of reclaimed water as an integral part of water and wastewater management programs, rules, and plans consistent with protection of the public health and surface and ground water quality. | • | | • | |

WATER RESOURCE POLICY FRAMEWORK

| | | WS* | FP* | WQ* | NS* |
|-----------------|--|-----|-----|-----|-----|
| 62.40.310(1)(f) | Improve the efficiency and effectiveness of reuse of reclaimed water by encouraging those uses that increase potable quality water offsets or recharge fractions, where consistent with water quality protection. | • | | • | |
| 62.40.310(1)(g) | Encourage the use of water of the lowest acceptable quality for the purpose intended. | • | | • | • |
| 62.40.310(1)(h) | Encourage the development of local and regional surface and ground water supplies within districts rather than transfer water across District boundaries. | • | | | |
| 62.40.310(1)(i) | Encourage the use of water from sources nearest the area of use or application whenever practical, in accordance with and subject to the limitations of Sections 373.016(4)(a) and (b), 373.1962(9), 373.1963, 373.223(3) and 373.229(3), F.S. | • | | | |
| 62.40.310(1)(j) | Encourage demand management and the development of alternative water supplies, including water conservation, reuse of reclaimed water, desalination, stormwater and industrial wastewater recycling, recharge, and aquifer storage and recovery. | • | | | • |
| 62.40.310(1)(k) | Protect aquifers and surface waters from depletion through water conservation, use of alternative water supplies, implementation of water shortage plans, and preservation of the functions of high recharge areas. | • | | | • |
| 62.40.310(2)(a) | Restore and protect the quality of ground and surface water by solving current problems and ensuring high quality treatment for stormwater and wastewater. | | | • | |
| 62.40.310(2)(b) | Identify existing and future public water supply areas and protect them from contamination. | | | • | |
| 62.40.310(3)(a) | Encourage nonstructural solutions to water resource problems and consider nonstructural alternatives whenever structural works are proposed. | | • | | |
| 62.40.310(3)(b) | Manage the construction and operation of facilities that dam, divert, or otherwise alter the flow of surface waters to minimize damage from flooding, soil erosion or excessive drainage. | | • | | |
| 62.40.310(3)(c) | Encourage the management of floodplains and other flood hazard areas to prevent or reduce flood damage, consistent with establishment and maintenance of desirable hydrologic characteristics and associated natural systems. | | • | | • |
| 62.40.310(3)(d) | Encourage the development and implementation of a strict floodplain management program by state, regional, and local governments designed to preserve floodplain functions and associated natural systems. | | • | | • |

WATER RESOURCE POLICY FRAMEWORK

| | | WS* | FP* | WQ* | NS* |
|--|--|-----|-----|-----|-----|
| 62.40.310(3)(e) | Avoid the expenditure of public funds that encourage or subsidize incompatible new development or significant expansion of existing development in high-hazard flood areas. | | • | | |
| 62.40.310(3)(f) | Minimize flood-related emergencies, human disasters, loss of property, and other associated impacts. | | • | | |
| 62.40.310(4)(a) | Establish minimum flows and levels to protect water resources and the environmental values associated with marine, estuarine, freshwater, and wetlands ecology. | • | | • | • |
| 62.40.310(4)(b) | Mitigate adverse impacts resulting from prior alteration of natural hydrologic patterns and fluctuations in surface and ground water levels. | • | • | | • |
| 62.40.310(4)(c) | Utilize, preserve, restore, and enhance natural water management systems and discourage the channelization or other alteration of natural rivers, streams and lakes. | | • | | • |
| 62.40.310(5)(a) | Protect the water storage and water quality enhancement functions of wetlands, floodplains, and aquifer recharge areas through acquisition, enforcement of laws, and the application of land and water management practices that provide for compatible uses. | • | • | • | • |
| 62.40.310(5)(b) | Emphasize the prevention of pollution and other water resource problems. | • | | • | • |
| 62.40.310(5)(c) | Develop interstate agreements and undertake cooperative programs with Alabama and Georgia to provide for coordinated management of surface and ground waters. | • | • | • | • |
| STATE COMPREHENSIVE PLAN, CHAPTER 187, F.S. | | | | | |
| GOAL | | | | | |
| 187.201(7)(a) | Florida shall assure the availability of an adequate supply of water for all competing uses deemed reasonable and beneficial and shall maintain the functions of natural systems and the overall present level of surface and ground water quality. Florida shall improve and restore the quality of waters not presently meeting water quality standards. | • | • | • | • |
| POLICIES | | | | | |
| 187.201(7)(b)1 | Ensure the safety and quality of drinking water supplies and promote the development of reverse osmosis and desalinization technologies for developing water supplies. | • | | | |
| 187.201(7)(b)2 | Identify and protect the functions of water recharge areas and provide incentives for conservation. | • | | | • |
| 187.201(7)(b)3 | Encourage the development of local and regional water supplies within water management districts instead of transporting surface water across district boundaries. | • | | | |

WATER RESOURCE POLICY FRAMEWORK

| | | WS* | FP* | WQ* | NS* |
|-----------------|---|-----|-----|-----|-----|
| 187.201(7)(b)4 | Protect and use natural water systems in lieu of structural alternatives and restore modified systems. | | • | | • |
| 187.201(7)(b)5 | Ensure that new development is compatible with existing local and regional water supplies. | • | | | |
| 187.201(7)(b)6 | Establish minimum seasonal flows and levels for surface watercourses with primary consideration given to the protection of natural resources, especially marine, estuarine, and aquatic ecosystems. | | | | • |
| 187.201(7)(b)7 | Discourage the channelization, diversion, and damming of natural riverine systems. | | • | | • |
| 187.201(7)(b)8 | Encourage the development of a strict floodplain management program by state and local governments designed to preserve hydrologically significant wetlands and other natural floodplain features. | | • | | • |
| 187.201(7)(b)9 | Protect aquifers from depletion and contamination through appropriate regulatory programs and through incentives. | • | | | • |
| 187.201(7)(b)10 | Protect surface and ground water quality and quantity in the state. | • | | • | • |
| 187.201(7)(b)11 | Promote water conservation as an integral part of water management programs as well as the use and reuse of water of the lowest acceptable quality for the purposes intended. | • | | • | • |
| 187.201(7)(b)12 | Eliminate the discharge of inadequately treated wastewater and stormwater runoff into the waters of the state. | | | • | • |
| 187.201(7)(b)13 | Identify and develop alternative methods of wastewater treatment, disposal, and reuse of wastewater to reduce degradation of water resources. | • | | • | • |
| 187.201(7)(b)14 | Reserve from use that water necessary to support essential nonwithdrawal demands, including navigation, recreation, and the protection of fish and wildlife. | • | | | • |
| 187.201(8)(b)1 | Accelerate public acquisition of coastal and beachfront land where necessary to protect coastal and marine resources or to meet projected public demand. | | • | | • |
| 187.201(8)(b)4 | Protect coastal resources, marine resources, and dune systems from the adverse effects of development. | | • | | • |
| 187.201(8)(b)5 | Develop and implement a comprehensive system of coordinated planning, management, and land acquisition to ensure the integrity and continued attractive image of coastal areas. | | • | • | • |
| 187.201(9)(b)1 | Conserve forests, wetlands, fish, marine life, and wildlife to maintain their environmental, economic, aesthetic and recreational values. | | | | • |

WATER RESOURCE POLICY FRAMEWORK

| | | WS* | FP* | WQ* | NS* |
|------------------|--|-----|-----|-----|-----|
| 187.201(9)(b)5 | Promote the use of agricultural practices which are compatible with the protection of wildlife and natural systems. | | | • | • |
| 187.201(9)(b)6 | Encourage multiple use of forest resources, where appropriate to provide for timber production, recreation, wildlife habitat, watershed protection, erosion control, and maintenance of water quality. | | | • | • |
| 187.201(9)(b)7 | Protect and restore the ecological functions of wetlands systems to ensure their long-term environmental, economic, and recreational value. | | | | • |
| 187.201(9)(b)8 | Promote restoration of ... the hydrological and ecological functions of degraded or substantially disrupted surface waters. | | | • | • |
| 187.201(9)(b)9 | Develop and implement a comprehensive planning, management, and acquisition program to ensure the integrity of Florida's river systems. | | • | • | • |
| 187.201(9)(b)10 | Emphasize the acquisition and maintenance of ecologically intact systems in all land and water planning, management, and regulation. | | | | • |
| 187.201(12)(b)11 | Identify, develop, and encourage environmentally sound wastewater treatment and disposal methods. | | | • | |
| 187.201(13)(b)6 | Minimize the effects of resource extraction upon ground and surface waters. | • | | • | • |
| 187.201(15)(b)2 | Develop a system of incentives and disincentives which encourages a separation of urban and rural land uses while protecting water supplies, resource development, and fish and wildlife habitats. | • | | • | • |
| 187.201(15)(b)6 | Consider, in land use planning and regulation, the impact of land use on water quality and quantity; the availability of land, water, and other natural resources to meet demands; and the potential for flooding. | • | • | • | • |
| 187.201(17)(b)4 | Create a partnership among state governments, local governments, and the private sector which would identify and build needed public facilities and allocate the costs of such facilities among the partners in proportion to the benefits accruing to each of them. | • | | • | |
| 187.201(19)(b)12 | Avoid transportation improvements which encourage or subsidize increased development in coastal high-hazard areas or in identified environmentally sensitive areas such as wetlands, floodways, or productive marine areas. | | • | • | • |
| 187.201(21)(b)3 | Maintain, as one of the state's primary economic assets, the environment, including clean air and water, beaches, forests, historic landmarks, and agricultural and natural resources. | | | • | • |
| 187.201(22)(b)5 | Encourage conservation, wastewater recycling, and other appropriate measures to assure adequate water resources to meet agricultural and other beneficial needs. | • | | | |

WATER RESOURCE POLICY FRAMEWORK

| | | WS* | FP* | WQ* | NS* |
|-----------------|--|------------|------------|------------|------------|
| 187.201(22)(b)9 | Conserve soil resources to maintain the economic value of land for agricultural pursuits and to prevent sedimentation in state waters. | | | • | |
| 187.201(25)(b)3 | Establish effective monitoring, incentive, and enforcement capabilities to see that requirements established by regulatory programs are met. | • | • | • | |
| 187.201(25)(b)4 | Simplify, streamline, and make more predictable the existing permitting procedures. | • | • | • | |

* **WS** - WATER SUPPLY
WQ - WATER QUALITY

FP - FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT
NS - NATURAL SYSTEMS

APPENDIX C.

SELECTED SECTIONS OF CHAPTER 373, FLORIDA STATUTES

373.036 FLORIDA WATER PLAN; DISTRICT WATER MANAGEMENT PLANS.--

(1) FLORIDA WATER PLAN.--In cooperation with the water management districts, regional water supply authorities, and others, the department shall develop the Florida water plan. The Florida water plan shall include, but not be limited to:

(a) The programs and activities of the department related to water supply, water quality, flood protection and floodplain management, and natural systems.

(b) The water quality standards of the department.

(c) The district water management plans.

(d) Goals, objectives, and guidance for the development and review of programs, rules, and plans relating to water resources, based on statutory policies and directives. The state water policy rule, renamed the water resource implementation rule pursuant to s. 373.019(20), shall serve as this part of the plan. Amendments or additions to this part of the Florida water plan shall be adopted by the department as part of the water resource implementation rule. In accordance with s. 373.114, the department shall review rules of the water management districts for consistency with this rule.

Amendments to the water resource implementation rule must be adopted by the secretary of the department and be submitted to the President of the Senate and the Speaker of the House of Representatives within 7 days after publication in the Florida Administrative Weekly. Amendments shall not become effective until the conclusion of the next regular session of the Legislature following their adoption.

(2) DISTRICT WATER MANAGEMENT PLANS.--

(a) Each governing board shall develop a district water management plan for water resources within its region, which plan addresses water supply, water quality, flood protection and floodplain management, and natural systems. The district water management plan shall be based on at least a 20-year planning period, shall be developed and revised in cooperation with other agencies, regional water supply authorities, units of government, and interested parties, and shall be updated at least once every 5 years. The governing board shall hold a public hearing at least 30 days in advance of completing the development or revision of the district water management plan.

(b) The district water management plan shall include, but not be limited to:

1. The scientific methodologies for establishing minimum flows and levels under s. 373.042, and all established minimum flows and levels.

2. Identification of one or more water supply planning regions that singly or together encompass the entire district.

3. Technical data and information prepared under s. 373.0391.

4. A districtwide water supply assessment, to be completed no later than July 1, 1998, which determines for each water supply planning region:

Appendix C

a. Existing legal uses, reasonably anticipated future needs, and existing and reasonably anticipated sources of water and conservation efforts; and

b. Whether existing and reasonably anticipated sources of water and conservation efforts are adequate to supply water for all existing legal uses and reasonably anticipated future needs and to sustain the water resources and related natural systems.

5. Any completed regional water supply plans.

(c) If necessary for implementation, the governing board shall adopt by rule or order relevant portions of the district water management plan, to the extent of its statutory authority.

(d) In the formulation of the district water management plan, the governing board shall give due consideration to:

1. The attainment of maximum reasonable-beneficial use of water resources.

2. The maximum economic development of the water resources consistent with other uses.

3. The management of water resources for such purposes as environmental protection, drainage, flood control, and water storage.

4. The quantity of water available for application to a reasonable-beneficial use.

5. The prevention of wasteful, uneconomical, impractical, or unreasonable uses of water resources.

6. Presently exercised domestic use and permit rights.

7. The preservation and enhancement of the water quality of the state.

8. The state water resources policy as expressed by this chapter.

(e) At its option, a governing board may substitute an annual strategic plan for the requirement to develop a district water management plan and the district water management plan annual report required by subparagraph (7)(b)1., provided that nothing herein affects any other provision or requirement of law concerning the completion of the regional water supply plan and the strategic plan meets the following minimum requirements:

1. The strategic plan establishes the water management district's strategic priorities for at least a future 5-year period.

2. The strategic plan identifies the goals, strategies, success indicators, funding sources, deliverables, and milestones to accomplish the strategic priorities.

3. The strategic plan development process includes at least one publicly noticed meeting to allow public participation in its development.

4. The strategic plan includes separately, as an addendum, an annual work plan report on the implementation of the strategic plan for the previous fiscal year, addressing success indicators, deliverables, and milestones.

(3) The department and governing board shall give careful consideration to the requirements of public recreation and to the protection and procreation of fish and wildlife. The department or governing board may prohibit or restrict other future uses on certain designated bodies of water which may be inconsistent with these objectives.

(4) The governing board may designate certain uses in connection with a particular source of supply which, because of the nature of the activity or the amount of water required, would constitute an undesirable use for which the governing board may deny a permit.

(5) The governing board may designate certain uses in connection with a particular source of supply which, because of the nature of the activity or the amount of water required, would result in an enhancement or improvement of the water resources of the area. Such uses shall be preferred over other uses in the event of competing applications under the permitting systems authorized by this chapter.

(6) The department, in cooperation with the Executive Office of the Governor, or its successor agency, may add to the Florida water plan any other information, directions, or objectives it deems necessary or desirable for the guidance of the governing boards or other agencies in the administration and enforcement of this chapter.

(7) CONSOLIDATED WATER MANAGEMENT DISTRICT ANNUAL REPORT.--

(a) By March 1, 2006, and annually thereafter, each water management district shall prepare and submit to the department, the Governor, the President of the Senate, and the Speaker of the House of Representatives a consolidated water management district annual report on the management of water resources. In addition, copies must be provided by the water management districts to the chairs of all legislative committees having substantive or fiscal jurisdiction over the districts and the governing board of each county in the district having jurisdiction or deriving any funds for operations of the district. Copies of the consolidated annual report must be made available to the public, either in printed or electronic format.

(b) The consolidated annual report shall contain the following elements, as appropriate to that water management district:

1. A district water management plan annual report or the annual work plan report allowed in subparagraph (2)(e)4.

2. The department-approved minimum flows and levels annual priority list and schedule required by s. 373.042(2).

3. The annual 5-year capital improvements plan required by s. 373.536(6)(a)3.

4. The alternative water supplies annual report required by s. 373.1961(2)(k).

5. The final annual 5-year water resource development work program required by s. 373.536(6)(a)4.

6. The Florida Forever Water Management District Work Plan annual report required by s. 373.199(7).

7. The mitigation donation annual report required by s. 373.414(1)(b)2.

(c) Each of the elements listed in paragraph (b) is to be addressed in a separate chapter or section within the consolidated annual report, although information common to more than one of these elements may be consolidated as deemed appropriate by the individual water management district.

Appendix C

(d) Each water management district may include in the consolidated annual report such additional information on the status or management of water resources within the district as it deems appropriate.

(e) In addition to the elements specified in paragraph (b), the South Florida Water Management District shall include in the consolidated annual report the following elements:

1. The Lake Okeechobee Protection Program annual progress report required by s. 373.4595(3)(g).
2. The Everglades annual progress reports specified in s. 373.4592(4)(d)5., (13), and (14).
3. The Everglades restoration annual report required by s. 373.470(7).
4. The Everglades Forever Act annual implementation report required by s. 11.80(4).
5. The Everglades Trust Fund annual expenditure report required by s. 373.45926(3).

History.--s. 6, part I, ch. 72-299; ss. 2, 3, ch. 73-190; s. 122, ch. 79-190; s. 3, ch. 97-160; s. 7, ch. 98-88; s. 164, ch. 99-13; s. 4, ch. 2005-36.

373.0361 REGIONAL WATER SUPPLY PLANNING.--

(1) The governing board of each water management district shall conduct water supply planning for any water supply planning region within the district identified in the appropriate district water supply plan under s. 373.036, where it determines that existing sources of water are not adequate to supply water for all existing and future reasonable-beneficial uses and to sustain the water resources and related natural systems for the planning period. The planning must be conducted in an open public process, in coordination and cooperation with local governments, regional water supply authorities, government-owned and privately owned water utilities, multijurisdictional water supply entities, self-suppliers, and other affected and interested parties. The districts shall actively engage in public education and outreach to all affected local entities and their officials, as well as members of the public, in the planning process and in seeking input. During preparation, but prior to completion of the regional water supply plan, the district must conduct at least one public workshop to discuss the technical data and modeling tools anticipated to be used to support the regional water supply plan. The district shall also hold several public meetings to communicate the status, overall conceptual intent, and impacts of the plan on existing and future reasonable-beneficial uses and related natural systems. During the planning process, a local government may choose to prepare its own water supply assessment to determine if existing water sources are adequate to meet existing and projected reasonable-beneficial needs of the local government while sustaining water resources and related natural systems. The local government shall submit such assessment, including the data and methodology used, to the district. The district shall consider the local government's assessment during the formation of the plan. A determination by the governing board that initiation of a regional water supply plan for a specific planning region is not needed pursuant to this section shall be subject to s. 120.569. The governing board shall reevaluate such a determination at least once every 5 years and shall initiate a regional water supply plan, if needed, pursuant to this subsection.

(2) Each regional water supply plan shall be based on at least a 20-year planning period and shall include, but need not be limited to:

(a) A water supply development component for each water supply planning region identified by the district which includes:

1. A quantification of the water supply needs for all existing and future reasonable-beneficial uses within the planning horizon. The level-of-certainty planning goal associated with identifying the water supply needs of existing and future reasonable-beneficial uses shall be based upon meeting those needs for a 1-in-10-year drought event. Population projections used for determining public water supply needs must be based upon the best available data. In determining the best available data, the district shall consider the University of Florida's Bureau of Economic and Business Research (BEBR) medium population projections and any population projection data and analysis submitted by a local government pursuant to the public workshop described in subsection (1) if the data and analysis support the local government's comprehensive plan. Any adjustment of or deviation from the BEBR projections must be fully described, and the original BEBR data must be presented along with the adjusted data.

2. A list of water supply development project options, including traditional and alternative water supply project options, from which local government, government-owned and privately owned utilities, regional water supply authorities, multijurisdictional water supply entities, self-suppliers, and others may choose for water supply development. In addition to projects listed by the district, such users may propose specific projects for inclusion in the list of alternative water supply projects. If such users propose a project to be listed as an alternative water supply project, the district shall determine whether it meets the goals of the plan, and, if so, it shall be included in the list. The total capacity of the projects included in the plan shall exceed the needs identified in subparagraph 1. and shall take into account water conservation and other demand management measures, as well as water resources constraints, including adopted minimum flows and levels and water reservations. Where the district determines it is appropriate, the plan should specifically identify the need for multijurisdictional approaches to project options that, based on planning level analysis, are appropriate to supply the intended uses and that, based on such analysis, appear to be permissible and financially and technically feasible.

3. For each project option identified in subparagraph 2., the following shall be provided:

- a. An estimate of the amount of water to become available through the project.
- b. The timeframe in which the project option should be implemented and the estimated planning-level costs for capital investment and operating and maintaining the project.
- c. An analysis of funding needs and sources of possible funding options. For alternative water supply projects the water management districts shall provide funding assistance in accordance with s. 373.1961(3).
- d. Identification of the entity that should implement each project option and the current status of project implementation.

- (b) A water resource development component that includes:
 - 1. A listing of those water resource development projects that support water supply development.
 - 2. For each water resource development project listed:
 - a. An estimate of the amount of water to become available through the project.
 - b. The timeframe in which the project option should be implemented and the estimated planning-level costs for capital investment and for operating and maintaining the project.
 - c. An analysis of funding needs and sources of possible funding options.
 - d. Identification of the entity that should implement each project option and the current status of project implementation.
 - (c) The recovery and prevention strategy described in s. 373.0421(2).
 - (d) A funding strategy for water resource development projects, which shall be reasonable and sufficient to pay the cost of constructing or implementing all of the listed projects.
 - (e) Consideration of how the project options addressed in paragraph (a) serve the public interest or save costs overall by preventing the loss of natural resources or avoiding greater future expenditures for water resource development or water supply development. However, unless adopted by rule, these considerations do not constitute final agency action.
 - (f) The technical data and information applicable to each planning region which are necessary to support the regional water supply plan.
 - (g) The minimum flows and levels established for water resources within each planning region.
 - (h) Reservations of water adopted by rule pursuant to s. 373.223(4) within each planning region.
 - (i) Identification of surface waters or aquifers for which minimum flows and levels are scheduled to be adopted.
 - (j) An analysis, developed in cooperation with the department, of areas or instances in which the variance provisions of s. 378.212(1)(g) or s. 378.404(9) may be used to create water supply development or water resource development projects.
- (3) The water supply development component of a regional water supply plan which deals with or affects public utilities and public water supply for those areas served by a regional water supply authority and its member governments within the boundary of the Southwest Florida Water Management District shall be developed jointly by the authority and the district. In areas not served by regional water supply authorities, or other multijurisdictional water supply entities, and where opportunities exist to meet water supply needs more efficiently through multijurisdictional projects identified pursuant to ¹paragraph (2)(a), water management districts are directed to assist in developing multijurisdictional approaches to water supply project development jointly with affected water utilities, special districts, and local governments.
- (4) Governing board approval of a regional water supply plan shall not be subject to the rulemaking requirements of chapter 120. However, any portion of an approved regional water supply

plan which affects the substantial interests of a party shall be subject to s. 120.569.

(5) Annually and in conjunction with the reporting requirements of s. 373.536(6)(a)4., the department shall submit to the Governor and the Legislature a report on the status of regional water supply planning in each district. The report shall include:

(a) A compilation of the estimated costs of and potential sources of funding for water resource development and water supply development projects as identified in the water management district regional water supply plans.

(b) The percentage and amount, by district, of district ad valorem tax revenues or other district funds made available to develop alternative water supplies.

(c) A description of each district's progress toward achieving its water resource development objectives, including the district's implementation of its 5-year water resource development work program.

(d) An assessment of the specific progress being made to implement each alternative water supply project option chosen by the entities and identified for implementation in the plan.

(e) An overall assessment of the progress being made to develop water supply in each district, including, but not limited to, an explanation of how each project, either alternative or traditional, will produce, contribute to, or account for additional water being made available for consumptive uses, an estimate of the quantity of water to be produced by each project, and an assessment of the contribution of the district's regional water supply plan in providing sufficient water to meet the needs of existing and future reasonable-beneficial uses for a 1-in-10 year drought event, as well as the needs of the natural systems.

(6) Nothing contained in the water supply development component of a regional water supply plan shall be construed to require local governments, government-owned or privately owned water utilities, special districts, self-suppliers, regional water supply authorities, multijurisdictional water supply entities, or other water suppliers to select a water supply development project identified in the component merely because it is identified in the plan. Except as provided in s. 373.223(3) and (5), the plan may not be used in the review of permits under part II unless the plan or an applicable portion thereof has been adopted by rule. However, this subsection does not prohibit a water management district from employing the data or other information used to establish the plan in reviewing permits under part II, nor does it limit the authority of the department or governing board under part II.

(7) Where the water supply component of a water supply planning region shows the need for one or more alternative water supply projects, the district shall notify the affected local governments and make every reasonable effort to educate and involve local public officials in working toward solutions in conjunction with the districts and, where appropriate, other local and regional water supply entities.

(a) Within 6 months following approval or amendment of its regional water supply plan, each water management district shall notify by certified mail each entity identified in sub-subparagraph (2)(a)3.d. of that portion of the plan relevant to the entity. Upon request of such an entity, the water management district shall appear before and present its findings and recommendations to the entity.

(b) Within 1 year after the notification by a water management district pursuant to paragraph (a), each entity identified in sub-subparagraph (2)(a)3.d. shall provide to the water management district written notification of the following: the alternative water supply projects or options identified in paragraph (2)(a) which it has developed or intends to develop, if any; an estimate of the quantity of water to be produced by each project; and the status of project implementation, including development of the financial plan, facilities master planning, permitting, and efforts in coordinating multijurisdictional projects, if applicable. The information provided in the notification shall be updated annually, and a progress report shall be provided by November 15 of each year to the water management district. If an entity does not intend to develop one or more of the alternative water supply project options identified in the regional water supply plan, the entity shall propose, within 1 year after notification by a water management district pursuant to paragraph (a), another alternative water supply project option sufficient to address the needs identified in paragraph (2)(a) within the entity's jurisdiction and shall provide an estimate of the quantity of water to be produced by the project and the status of project implementation as described in this paragraph. The entity may request that the water management district consider the other project for inclusion in the regional water supply plan.

(8) For any regional water supply plan that is scheduled to be updated before December 31, 2005, the deadline for such update shall be extended by 1 year.

History.--s. 4, ch. 97-160; s. 9, ch. 2004-381; s. 4, ch. 2005-215; s. 9, ch. 2005-291.

¹**Note.**--Substituted by the editors for a reference to s. 372.0361(2)(a), which does not exist; s. 373.0361(2)(a) references multijurisdictional projects.

APPENDIX D.

DESCRIPTION OF EXECUTIVE OFFICE OF THE GOVERNOR BUDGET REPORTING CATEGORIES FOR WATER MANAGEMENT DISTRICTS

EOG BUDGET CATEGORIES

| | |
|--------------|--|
| 1.0 | WATER RESOURCES PLANNING & MONITORING |
| 1.1 | District Water Management Planning |
| 1.1.1 | <ul style="list-style-type: none"> ○ Water Supply Planning--Long-term planning to assess and quantify existing and reasonably anticipated water supply needs and sources, and to maximize the beneficial use of those sources, for humans and natural systems. This includes water supply assessments developed pursuant to section 373.036, Florida Statutes, and regional water supply plans developed pursuant to section 373.0361, Florida Statutes. |
| 1.1.2 | <ul style="list-style-type: none"> ○ Minimum Flows and Levels-- Section 373.042, F.S., requires that the water management districts or DEP establish and administer minimum flows and levels for all surface watercourses, and minimum levels for ground water resources within the District, to protect them from significant harm. |
| 1.1.3 | <ul style="list-style-type: none"> ○ Other Water Resources Planning--District Water Management Plan updates, annual progress reports, and related statewide coordination with other WMDs, DEP and EOG; planning efforts associated with the development of the District's SWIM priority list and plans for Apalachicola River and Bay, Lake Jackson, Pensacola Bay System, Choctawhatchee River and Bay, the St. Marks River Basin, and the St. Andrew Bay watershed; development and annual updates of the Florida Forever Work Plan and the annual development of FDOT regional wetland mitigation plans. |
| 1.2 | Research, Data Collection, Analysis, and Monitoring --Ground and surface water monitoring networks, hydrologic data collection for water resources development, special projects performed in cooperation with state and federal agencies, local governments and utilities, and data collection, analysis and monitoring associated with the Surface Water Improvement and Management Program. |
| 1.3 | Technical Assistance --Local, state, tribal, and federal planning support, including local government comprehensive plan reviews, DRI siting, Coastal Zone Management efforts, and floodplain mapping; technical assistance to government agencies and utilities on water supply planning, water quality, natural system protection, and flood protection. |
| 1.4 | Other --Water resources planning and monitoring activities not otherwise categorized above. No projects are currently planned under this activity. |
| 2.0 | ACQUISITION, RESTORATION AND PUBLIC WORKS |
| 2.1 | Land Acquisition -- Land acquisition programs implemented through Save Our Rivers, Florida Forever and DOT Mitigation for the permanent protection and preservation of the water resources of Northwest Florida; acquisition of the floodplain of the major rivers in northwest Florida, as well as, the acquisition of aquifer recharge areas that protect potable water supplies; acquisition of the fee or other "less-than-fee" interests in lands needed for water management, water supply, or the conservation or protection of water resources; does not include land acquisition components of "water resource development projects," "surface water projects," or "other cooperative projects." |
| 2.2 | Water Source Development --Water resource development projects and regional or local water supply development assistance projects designed to increase the availability of water supplies for consumptive use; also other water resource development activities not necessarily contained in regional water supply plans but which provide water supply benefits. |

EOG BUDGET CATEGORIES

| | |
|-------|--|
| 2.2.1 | <ul style="list-style-type: none"> ○ Water Resource Development Projects--Regional projects designed to create, from traditional or alternative sources, an identifiable, quantifiable supply of water for existing and/or future reasonable-beneficial uses. These projects do not include the construction of facilities for water supply development, as defined in section 373.019(21), Florida Statutes. Such projects may include the construction, operation, and maintenance of major public works facilities that provide for the augmentation of available surface and ground water supply or that create alternative sources of supply. Water resource development projects are to be identified in water management district regional water supply plans or district water management plans, as applicable, and the water resource development work program. |
| 2.2.2 | <ul style="list-style-type: none"> ○ Water Supply Development Assistance--Financial assistance for regional or local water supply development projects, including the construction of facilities included in the term “water supply development” as defined in section 373.019(21), Florida Statutes; focuses on assistance to local governments and water utilities in their efforts to develop alternative water supply sources to address or prevent problems with traditional sources, e.g., assistance with reuse projects, inland wellfields, alternative surface water sources and other activities that increase the long-term reliability of supply sources. |
| 2.2.3 | <ul style="list-style-type: none"> ○ Other Water Source Development Activities--Water resource development activities and water supply development activities not otherwise categorized above. No projects are planned under this activity. |
| 2.3 | <p>Surface Water Projects--Includes District surface water restoration construction projects, acquisition of lands for construction of stormwater treatment facilities, engineering design of surface water restoration projects, and design and construction of mitigation projects for transportation (Department of Transportation) related wetland impacts.</p> |
| 2.4 | <p>Other Cooperative Projects--Any non-water source development cooperative effort under this program area between a water management district and another organization. This does not include a project resulting in a capital facility that is owned or operated by the water management district.</p> |
| 2.5 | <p>Facilities Construction and Major Renovations--Design, construction, and significant renovation of all district support and administrative facilities. No projects are planned under this activity.</p> |
| 2.6 | <p>Other--Acquisition and restoration activities not otherwise categorized above. No projects are planned under this activity</p> |
| 3.0 | <p>OPERATION AND MAINTENANCE OF LANDS AND WORKS</p> |
| 3.1 | <p>Land Management --Principal activities are management of District lands acquired under the Save Our Rivers, Preservation 2000, Florida Forever land acquisition programs and DOT Mitigation, including maintenance and management, reforestation and habitat restoration, hydrologic restoration, prescribed burning, public access development and development and/or improvement of public recreation sites.</p> |
| 3.2 | <p>Works--Operation and maintenance of the Lake Jackson Regional Stormwater Treatment Facility, the only works owned by the District.</p> |
| 3.3 | <p>Facilities--Routine operation and maintenance of administrative buildings and grounds.</p> |
| 3.4 | <p>Invasive Plant Control--Upland and aquatic invasive plants are not a significant problem on District lands at this time. During normal land management activities, including site inspections, staff does spot applications, using appropriate herbicides, as they come upon upland invasive plants.</p> |
| 3.5 | <p>Other--Operations and maintenance activities not categorized above, such as emergency management, right-of-way management, and other general maintenance activities. No projects are planned under this activity.</p> |

EOG BUDGET CATEGORIES

| | |
|------------|---|
| 4.0 | 4.0 REGULATION |
| 4.1 | Consumptive Use Permitting --Conserves and protects natural resources and assures an adequate supply of water for the public by requiring a permit for the withdrawal of specific quantities of water or for a specific use, based on resource availability and demand. All water use permit requests are evaluated to determine whether the applicant has demonstrated that the intended use is a reasonable-beneficial use, is consistent with the public interest, and will not interfere with any existing legal use. |
| 4.2 | Water Well Construction Permitting and Contractor Licensing --Promotes a safe, reliable drinking water supply for the public through the proper construction, repair, and abandonment of wells; provides for the licensing of water well contractors; provides for enhanced protection of the public and the resource in areas of delineated ground water contamination in Jackson, Leon, Santa Rosa and Escambia counties. |
| 4.3 | Environmental Resource and Surface Water Permitting --The District implements the permitting, compliance monitoring, and enforcement activities of three surface water permitting programs: <ul style="list-style-type: none"> o <u>Chapter 40A-4, F.A.C., Management and Storage of Surface Waters</u> - Permits are required to construct, alter or abandon certain non-agricultural dams, impoundments, reservoirs, appurtenant works or works. The permitting program evaluates the structural and hydrologic aspects of these projects to insure they do not create hazardous conditions that might threaten lives or property. o <u>Chapter 40A-44, F.A.C., Regulation of Agricultural and Forestry Surface Water Management Projects</u> - Permits are required to construct, alter, operate, maintain, or abandon any dam, impoundment, reservoir, appurtenant work or works associated with agricultural or forestry projects. The program evaluates the structural, hydrologic and environmental aspects of these projects. o <u>Chapter 40A-6, F.A.C., Works of the District</u> – Establishes permitting procedures to be followed for those who find it necessary to connect to, withdraw water from, discharge water into, place construction within or across, or otherwise make use of Works of the District. |
| 4.4 | Other --Regulatory and enforcement activities not otherwise categorized above. No District projects or programs in this activity. |
| 5.0 | OUTREACH |
| 5.1 | Water Resource Education -- water resources education activities directed at both student and adult populations and designed to educate these groups about regional water issues. Water resources education activities include the <i>WaterWays: Exploring the Northwest Florida's Florida Water Resources</i> public middle school educational program and educational activities (as well as general public awareness) related to the Surface Water Improvement and Management (SWIM) program. |
| 5.2 | Public Information --Designed to assist and inform local governments, other agencies and the general public about regional water issues to enhance public awareness, understanding and participation in comprehensive water resource management; includes a general public awareness program for the Surface Water Improvement and Management (SWIM) program; brochures, booklets and materials on the District's water conservation and protection programs; an annual report each year detailing the District's activities; and public noticing of water management district decision-making, governing board meetings, and budgetary information. |
| 5.3 | Public Relations --The District does not have a public relations program. |
| 5.4 | Lobbying / Legislative Affairs / Cabinet Affairs --Respond to requests for information from state legislators and legislative/committee staff, attend committee meetings and, as requested, provide information to members of the Congressional delegation. |
| 5.5 | Outreach activities not otherwise categorized above (None). |

EOG BUDGET CATEGORIES

| | |
|------------|---|
| 6.0 | DISTRICT MANAGEMENT AND ADMINISTRATION |
| 6.1 | Administrative and Operations Support --Internal support that allows the District to perform its statutorily mandated and authorized functions to accomplish the District's mission. |
| 6.2 | Computers/Computer Support --Administrative and programmatic computer systems and support staff, hardware and software (including the District's Geographic Information Systems (GIS) and a sinking fund to maintain reasonably current computer technology on a three-year upgrade cycle program. |
| 6.3 | Reserves --District's Budget Stabilization Reserve, reserve for compensated absences (accrued compensated leave liability), reserve for employee pay adjustments and other undesignated contingency reserves. |
| 6.4 | Other --Fees charged by the tax collectors and property appraisers of the sixteen counties within the District's jurisdiction. These fees are to compensate the counties for their costs associated with the noticing and collection and remittance of ad valorem tax revenues on the behalf of and to the District. |

APPENDIX E.

NORTHWEST FLORIDA WATER RESOURCES

MAJOR RIVERS AND STREAMS

| RIVERS | AVERAGE DISCHARGE (CFS)** | STREAMS | AVERAGE DISCHARGE (CFS)** |
|--|---------------------------|----------------------|---------------------------|
| Apalachicola River* | 26,380 | Alaqua Creek | 218 |
| Blackwater River* | 352 | Big Coldwater Creek* | 555 |
| Brothers River | - | Econfina Creek | 542 |
| Chipola River* | 1,505 | Eleven Mile Creek | 98 |
| Choctawhatchee River* | 7,131 | Fourmile Creek | - |
| Crooked River | - | Holmes Creek* | 677 |
| Escambia River | 6,245 | Juniper Creek | 93 |
| Little River | 467 | Pine Barren Creek* | 160 |
| New River | 161 | Pond Creek | 80 |
| Ochlockonee River* | 1,722 | Quincy Creek | 28 |
| Perdido River* | 773 | Sandy Creek | - |
| St. Marks River* | 718 | Telogia Creek | 225 |
| Shoal River* | 1,118 | Turkey Creek | - |
| Sopchoppy River | 197 | Wrights Creek* | - |
| Wakulla River | - | | |
| Yellow River* | 1,165 | | |
| Note: Average annual discharges (river flows) were obtained from USGS period of record. | | | |
| * River or stream is interstate in that one or more of its tributaries has its origin in the states of Alabama or Georgia. | | | |
| ** CFS = cubic feet per second. 1 CFS is equal to .646 million gallons per day. For example, 26,380 CFS = 17,041.48 million gallons per day. | | | |

MAJOR BAYS AND ESTUARIES

| |
|--------------------|
| Apalachee Bay |
| Apalachicola Bay |
| Choctawhatchee Bay |
| Escambia Bay |
| Ochlockonee Bay |
| Pensacola Bay |
| Perdido Bay |
| Santa Rosa Sound |
| St. Andrew Bay |
| St. George Sound |
| St. Joseph Bay |

FIRST MAGNITUDE SPRINGS
(100 cubic feet per second (CFS) and above)

| SPRING | COUNTY | AVG. CFS |
|-----------------------|---------------|-----------------|
| Blue Spring | Jackson | 190 |
| Gainer Springs | Bay | 159 |
| Kini Springs | Wakulla | 176 |
| Natural Bridge Spring | Leon | 106 |
| River Sink Spring | Wakulla | 164 |
| Spring Creek | Wakulla | 2,003 |
| St. Marks Springs | Leon | 519 |
| Wakulla Springs | Wakulla | 390 |

SECOND MAGNITUDE SPRINGS
(10 to 100 CFS)

| SPRING | COUNTY | AVERAGE CFS |
|------------------------|---------------|--------------------|
| Beckton Springs | Washington | 41.3 |
| Black Spring | Jackson | 73.2 |
| Blue Hole Spring | Jackson | 56.8 |
| Blue Spring | Washington | 12.5 |
| Blue Springs | Washington | 41.5 |
| Bosel Spring | Jackson | 72.8 |
| Crays Rise (submerged) | Wakulla | 82.1 |
| Cypress Spring | Washington | 83.5 |
| Double Spring | Jackson | 37.5 |
| Gadsden Spring | Jackson | 18.0 |
| Hays Spring | Jackson | 18.4 |
| Horn Spring | Leon | 28.8 |
| Mill Pond Spring | Jackson | 33.2 |
| Morrison Spring | Walton | 87.5 |
| Ponce de Leon Spring | Holmes | 19.35 |
| Rhodes Springs | Leon | 18.0 |
| Springboard Spring | Jackson | 17.4 |
| Williford Spring | Washington | 29.4 |

SELECTED LAKES

| LAKE | COUNTY |
|--------------------|--------------------|
| Compass Lake | Jackson |
| Dead Lakes | Calhoun and Gulf |
| Deer Point Lake | Bay |
| Gap Lake | Washington |
| Hurricane Lake | Okaloosa |
| Juniper Bay | Walton |
| Kings Lake | Walton |
| Lake Cassidy | Holmes |
| Lake Iamonia | Leon |
| Lake Jackson | Leon |
| Lake Lafayette | Leon |
| Lake Miccosukee | Jefferson and Leon |
| Lake Munson | Leon |
| Lake Powell | Bay |
| Lake Seminole | Jackson |
| Lake Talquin | Gadsden and Leon |
| Lake Wimico | Gulf |
| Merritts Mill Pond | Jackson |
| Porter Lake | Washington |
| Ocheesee Pond | Jackson |
| Sand Hill Lakes | Washington and Bay |
| Western Lake | Walton |

APPENDIX F.**LIST OF ACRONYMS**

| | |
|---------------|--|
| BEBR | BUREAU OF ECONOMIC AND BUSINESS RESEARCH |
| COOP | CONTINUITY OF OPERATIONS PLAN |
| DEP | (FLORIDA) DEPARTMENT OF ENVIRONMENTAL PROTECTION |
| DOT | (FLORIDA) DEPARTMENT OF TRANSPORTATION |
| DWMP | DISTRICT WATER MANAGEMENT PLAN |
| EOG | EXECUTIVE OFFICE OF THE GOVERNOR |
| EPA | (U.S.) ENVIRONMENTAL PROTECTION AGENCY |
| ETDM | EFFICIENT TRANSPORTATION DECISION MAKING |
| F.A.C. | FLORIDA ADMINISTRATIVE CODE |
| FEMA | (U.S.) FEDERAL EMERGENCY MANAGEMENT AGENCY |
| FNAI | FLORIDA NATURAL AREAS INVENTORY |
| F. S. | FLORIDA STATUTES |
| MFLs | MINIMUM FLOWS AND LEVELS |
| MMMS | MAP MODERNIZATION MANAGEMENT SUPPORT |
| MSSW | MANAGEMENT AND STORAGE OF SURFACE WATERS |
| NAPP | NATIONAL AERIAL PHOTOGRAPHY PROGRAM |
| NGVD | NATIONAL GEODETIC VERTICAL DATUM |
| NFWWMD | NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT |
| NWI | NATIONAL WETLANDS INVENTORY |
| RWSP | REGIONAL WATER SUPPLY PLAN |
| SWIM | SURFACE WATER IMPROVEMENT AND MANAGEMENT |
| USGS | UNITED STATES GEOLOGICAL SURVEY |
| WMD | WATER MANAGEMENT DISTRICT |
| WRCA | WATER RESOURCE CAUTION AREA |
| WRDWP | WATER RESOURCE DEVELOPMENT WORK PROGRAM |

APPENDIX G.**NFWWMD COMPONENT PLANS**

| PLAN | DESCRIPTION | PLAN HORIZON | LINK |
|--|--|---------------------|---|
| DISTRICT WATER MANAGEMENT PLAN | District-wide plan to address and integrate water supply, flood protection, water quality, and natural systems. | 20 years | http://www.nfwfmd.state.fl.us/pubs/dwmp2005/dwmp05.htm |
| REGION II REGIONAL WATER SUPPLY PLAN | Identify water sources, demands, and alternative water supply sources for Santa Rosa, Okaloosa, and Walton counties. | 20 years | http://www.nfwfmd.state.fl.us/pubs/r2wsp/rwsp.htm |
| WATER RESOURCE DEVELOPMENT WORK PROGRAM | Plan for development of alternative sources within RWSP area. | 5 years | http://www.nfwfmd.state.fl.us/rmd/acfcomp/wrddwp.pdf |
| FLORIDA FOREVER LAND ACQUISITION WORK PLAN | NFWWMD District-wide land acquisition plan. | 5 years | http://www.nfwfmd.state.fl.us/pubs/lands/workplan.pdf |
| FLORIDA FOREVER CAPITAL IMPROVEMENTS PLAN | Short-range plan for implementation of approved capital improvement projects. | 2 years | http://www.nfwfmd.state.fl.us/pubs/florida_forever/florida_forever.htm |
| FEMA FLOOD MAP MODERNIZATION BUSINESS PLAN | Flood map modernization plan for the Northwest Florida Water Management District. | 5 years | |
| DOT REGIONAL MITIGATION PLAN | District-wide mitigation plan per S. 373.4137, F.S. | 3 years | |
| IN-LIEU FEE MITIGATION PLAN | District-wide mitigation plan to address federal CWA S. 404 requirements. | 3 years | Plan under development |
| SAND HILL LAKES MITIGATION BANKING INSTRUMENT | Instrument establishing the authority, use, operation, and maintenance of the Sand Hill Lakes Mitigation Bank. | Perpetual | |

| PLAN | DESCRIPTION | PLAN HORIZON | LINK |
|---|--|------------------|---|
| SWIM PRIORITY LIST | Priority list for development of SWIM plans per S. 373.453, F.S. | 5 years | |
| SWIM PLANS | Watershed protection, management, and restoration plans. | As needed | |
| <ul style="list-style-type: none"> ▪ Apalachicola River and Bay | | | http://www.nwfwmd.state.fl.us/pubs/sabswim/sabswim.htm |
| <ul style="list-style-type: none"> ▪ St. Andrew Bay Watershed | | | |
| <ul style="list-style-type: none"> ▪ St. Marks River Watershed | | | http://www.nwfwmd.state.fl.us/pubs/chocswim/choc_swim_update.htm |
| <ul style="list-style-type: none"> ▪ Choctawhatchee River and Bay System | | | |
| <ul style="list-style-type: none"> ▪ Lake Jackson | | | http://www.nwfwmd.state.fl.us/pubs/swimpens/pbsswim.htm |
| <ul style="list-style-type: none"> ▪ Pensacola Bay System | | | |
| Minimum Flows and Levels Priority List | Priority list for development of MFLs per S. 373.042, F.S. | Updated annually | http://www.nwfwmd.state.fl.us/rmd/mfl/mfl.htm |
| WaterWays Program Publications | Documents for middle school water resource education program. | As needed | |