



**St. Johns River**  
Water Management District

# DISTRICT WATER MANAGEMENT PLAN



September 2005

# Governing Board

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## ACRONYMS AND ABBREVIATIONS

AOR – area of responsibility  
CRS – community rating system  
DACS – [Department of Agriculture and Consumer Services](#)  
DCA – [Department of Community Affairs](#)  
DWMP – District Water Management Plan  
DWSP – District Water Supply Plan  
EPA – [U.S. Environmental Protection Agency](#)  
F.A.C. – [Florida Administrative Code](#)  
FDEP – [Florida Department of Environmental Protection](#)  
FDOT – [Florida Department of Transportation](#)  
FEMA – [Federal Emergency Management Agency](#)  
FGS – [Florida Geological Survey](#)  
FS – [Florida Statutes](#)  
FWC – [Florida Fish and Wildlife Conservation Commission](#)  
FY – fiscal year  
GIS – [geographic information system](#)  
IRL – Indian River Lagoon  
LSJRB – Lower St. Johns River Basin  
MFLs – minimum flows and levels  
MSJRB – Middle St. Johns River Basin  
NFIP – [National Flood Insurance Program](#)  
NFWFMD – [Northwest Florida Water Management District](#)  
PLRG – pollutant load reduction goal  
SFWMD – [South Florida Water Management District](#)  
SJRWMD – [St. Johns River Water Management District](#)  
SR – state road  
SRWMD – [Suwannee River Water Management District](#)  
SWFWMD – [Southwest Florida Water Management District](#)  
SWIM – [Surface Water Improvement and Management](#)  
TMDL – total maximum daily load  
UORB – Upper Ocklawaha River Basin  
USJRB – Upper St. Johns River Basin  
WCD – water control district  
WMD – water management district



# I. DISTRICT OVERVIEW

## INTRODUCTION

All [five water management districts](#) (WMDs) are required to prepare district water management plans (DWMPs) and update them every 5 years. This document is the second update of the [St. Johns River Water Management District](#) (SJRWMD) DWMP. DWMPs provide long-range guidance for WMD activities and present a compilation of water resource information that forms the basis for water management. The DWMP sets direction for SJRWMD's strategic plans, [fiscal plans](#), and other planning efforts. The overall goal for the DWMPs and the activities of all the WMDs is stated in the Water Resources element of the [State Comprehensive Plan](#) (Chapter 187, *Florida Statutes [FS]*), as follows:

*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.*

The format of the DWMPs was developed through the cooperative efforts of the five WMDs and the [Florida Department of Environmental Protection](#) (FDEP). Each plan is to provide goals, issues, objectives, and strategies for each of the four WMD areas of responsibility (AORs):

- Water supply
- Flood protection and floodplain management
- Water quality
- Natural systems

The state's goal for water resources is realized through the individual district goals for each AOR. Issues will be addressed through implementation of DWMP strategies over the next 5 years, and SJRWMD is the entity that is expected to implement them.

Progress will be tracked using measures specific to each district's particular programs in addition to a set of state performance measures developed by the WMDs, FDEP, and the Governor's Office. A cross reference of state budget areas to SJRWMD programs is provided in [Appendix A](#).

This document presents the goal, resource assessments, issues, objectives, strategies, and performance measures for each AOR. For purposes of this document, the planning unit for each AOR resource assessment is the entire area within SJRWMD jurisdiction. A separate overview of each of the [10 major watersheds](#) within SJRWMD is also

included. It is the intent of SJRWMD that useful, current information be readily available to counties and local governments via electronic information transfer rather than through a static DWMP. Accordingly, this DWMP describes the information that is available, the media through which it is available, and the means by which that information will be distributed or made available to local governments.



Figure I-1. The St. Johns River Water Management District

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## HISTORY

With the passage of the Florida Water Resources Act of 1972, [Chapter 373, FS](#), the Legislature established five WMDs and provided them with specific authorities and responsibilities to manage the water resources of the state.

SJRWMD includes all or parts of 18 counties in northeast and central Florida, covering about 12,400 square miles (Figure I-1). SJRWMD's [headquarters](#) is located west of Palatka on State Road (SR) 100, and service centers are located in [Jacksonville](#), [Altamonte Springs](#), and [Palm Bay](#), with field offices in Apopka and Umatilla.

A nine-member [Governing Board](#) is appointed by the Governor and confirmed by the Florida Senate. The Governing Board establishes policy, hires the [executive director](#), executes regulatory responsibilities, approves contracts, and has constitutional authority to levy ad valorem taxes for water management purposes. SJRWMD's Governing Board met for the first time in November 1973 and generally meets monthly.

## LEGAL FRAMEWORK

Chapter 373, *FS*, contains the statutes under which the WMDs operate. This chapter directly mandates the WMDs to perform some functions, authorizes the WMDs to perform others, provides authority for FDEP to delegate functions to the WMDs, and gives FDEP general supervisory authority over the WMDs. The requirement for the DWMPs, with 5-year updates, was originally only in the Water Resources Implementation Rule (formerly called Water Policy), [Section 62-40.520, Florida Administrative Code \(F.A.C.\)](#), but was included in Section 373.036, *FS*, by the 1997 Legislature. The plans are to include an evaluation of water needs and sources for a 20-year planning horizon and completed water supply plans for areas projected to have inadequate water supply sources within the planning horizon. Additional guidance is provided to the WMDs in Chapter 62-40, *F.A.C.*, concerning the content and format of the DWMPs and a requirement for an annual evaluation.

### Florida Water Plan

The [Florida Water Plan](#) is FDEP's principal planning tool for long-term protection of Florida's water resources. It is developed pursuant to Section 373.036, *FS*, which requires that the DWMPs (including regional water supply plans) of the five WMDs be included.

## MAJOR CHANGES SINCE LAST PLAN REVISION

### 1999

The Florida Forever Act (Chapter 99-247, *Laws of Florida*) requires development of a [Florida Forever](#) work plan including integration of other plans (e.g., Surface Water Improvement and Management [[SWIM](#)] plans), additional information such as performance measures, and ranking of projects over 5 years, with an annual update by January 1 of each year. It also requires expenditure of least 50% of each WMD's total funds received under the Act for land acquisition.

### 2002

The Legislature expands local government comprehensive plan requirements to strengthen coordination of water supply planning and local land use planning. One of the most significant new requirements is a 10-year [Water Supply Facilities Work Plan](#). The work plan must project the local government's needs for at least a 10-year period, identify and prioritize the water supply facilities and source(s) of water that will be needed to meet those needs, and include in the local government's Five-Year Schedule of Capital Improvements the capital improvements identified as needed for the first 5 years.

### 2004

In July 2003, Gov. Bush created the [Wekiva River Basin Coordinating Committee](#) by Executive Order 2003-112. The committee was created as a forum to identify land use planning strategies and development standards that are consistent with protected property rights and that improve and assure protection of surface water and groundwater resources, including the recharge potential of the [Wekiva Study Area](#). The committee's recommendations were enacted by the 2004 Florida Legislature in Senate Bill 1214 (SB 1214) effective July 1, 2004. SB 1214 includes specific provisions related to acquiring land, revising environmental resource permit and consumptive use permit rules, updating minimum flows and levels (MFLs), establishing pollutant load reduction goals (PLRGs), revising local government comprehensive plans and land development regulations, creating a [Wekiva River Basin Commission](#), and developing alternative water supply sources. SJRWMD staff are very involved with the implementation of SB 1214.

For an overview of SJRWMD's major accomplishments since the May 2000 DWMP was completed, see Appendix B. While the focus of the discussion is on accomplishments related to projects and efforts that were completed in FY 2004-2005, many of the items were ongoing since the May 2000 DWMP was completed, or were begun even prior to that time frame.

## NATURAL RESOURCES

### Surface Water Resources

SJRWMD is composed of [10 major surface water basins](#) based on drainage. The St. Johns River, at 310 miles, is the longest river located entirely in Florida. The slow-moving, north-flowing river drops less than 2 inches per mile in gradient from its headwaters at the south end of SJRWMD to its mouth at Mayport, east of Jacksonville. Tidal effects normally extend as far as Lake George, a distance of about 106 miles, but may extend as far south as Lake Monroe, 161 miles upstream.

The 10 major surface water basins are

- [Upper St. Johns River Basin](#)
- [Middle St. Johns River Basin](#)
- Lake George Basin
- [Ocklawaha River Basin](#)
- Florida Ridge Basin
- [Lower St. Johns River Basin](#)
- Nassau River Basin
- [St. Marys River Basin](#)
- [Northern Coastal Basin](#)
- [Indian River Lagoon Basin](#)

Further reference to the 10 basins and programs within them can be found in Chapter VII, Watersheds.

### Groundwater Resources

#### General Hydrogeology

Within SJRWMD, potable groundwater is withdrawn from the [Floridan aquifer](#), the intermediate aquifer, and the surficial aquifer, with quality varying according to location and depth. Deeper levels of the Floridan aquifer system and shallower levels of all aquifers along the coast tend to have high chloride concentrations. Saltwater intrusion resulting from groundwater withdrawal is a potential problem in many parts of SJRWMD.

The Floridan aquifer system includes rock formations of Paleocene to early Miocene ages. These rock formations are known in ascending order as the Cedar Key, Oldsmar, and Avon Park formations and the Ocala and Suwannee limestones. These formations generally are highly porous and permeable, and often have solution channels and caverns that increase their porosity.

Intermediate aquifers consist of parts of the Hawthorn Group, a set of Miocene-Pliocene strata that overlie the Floridan aquifer. Some parts of the Hawthorn Group are clayey layers, which form confining units. The water-producing zones, however, tend to be sandy phosphatic limestone beds.

The surficial aquifer system is composed of a variety of late Miocene, Pleistocene, and recent strata. These are frequently porous, sandy limestones, with some dolomites in the northern part of SJRWMD. Further south and along the coast, shallow aquifers tend to consist of sand and coquina. More lithified limestones with large shell fragments prevail in the southern part of SJRWMD.

### **Major Groundwater Basins**

SJRWMD contains all or part of [five major groundwater basins](#). Delineation of these basins is based on recharge areas, potentiometric head, flow direction, and discharge areas. Water quality and availability vary within each basin because of geologic differences, human impacts, and proximity to saline water bodies.

Following are the five major groundwater basins.

#### **St. Marys Groundwater Basin**

The St. Marys Groundwater Basin covers Baker and Nassau counties and adjoining parts of the state of Georgia. Groundwater in the basin generally moves from areas of high potentiometric elevations in the western part of the basin, most notably from the Keystone Heights and Valdosta (Georgia) “potentiometric highs,” eastward to the primary discharge area at Fernandina Beach. The divide between the St. Marys and the Lower St. Johns groundwater basins is the result of two significant pumping centers, one at Fernandina Beach and the other at Jacksonville.

#### **Lower St. Johns Groundwater Basin**

The Lower St. Johns Groundwater Basin includes all or most of Clay, Duval, Putnam, and St. Johns counties and portions of Alachua, Flagler, and Marion counties. Groundwater in the basin generally moves from areas of high potentiometric elevations in the western part of the basin, most notably from the Keystone Heights “potentiometric high,” eastward to the primary discharge areas at springs along the St. Johns River, at centers of pumping such as at Jacksonville, and in the Atlantic Ocean. In addition, groundwater moves from the Keystone Heights area westward into areas beyond the basin boundary.

### **Volusia Groundwater Basin**

The Volusia Groundwater Basin underlies southern Flagler County and most of Volusia County. Recharge occurs over a broad area running north-northwest to south-southeast through the center of the basin. The potentiometric high for this region is in its center. The potentiometric gradient generally declines toward the St. Johns River and the Atlantic Ocean. Discharge is concentrated along the St. Johns River and the coast.

### **Middle St. Johns Groundwater Basin**

The Middle St. Johns Groundwater Basin underlies southern Marion County, most of Lake and Seminole counties, and the northern half of Orange County. The northwestern and northeastern boundaries of this basin correspond approximately to the Ocklawaha and St. Johns rivers. The western edge of the basin extends into the Southwest Florida Water Management District, and the southern edge passes through Orlando. Most of the basin experiences moderate to high recharge. Discharge areas are located within the St. Johns and Ocklawaha river systems. The potentiometric high is in the Green Swamp.

### **Upper St. Johns Groundwater Basin**

The Upper St. Johns Groundwater Basin underlies southern Brevard County and Indian River County, the southern half of Orange County, those parts of Okeechobee and Osceola counties that lie within SJRWMD, and adjoining areas of the South Florida Water Management District. Recharge occurs primarily in the western part of the basin, including parts of Orange, Osceola, and Okeechobee counties. Discharge tends to occur primarily in coastal parts and in the Kissimmee River Basin.

## **SJRWMD and Other Public Lands**

As of September 2004, SJRWMD owned outright or had some ownership interest in about 608,429 acres of land. Of the total acres owned, less-than-fee ownership accounted for more than 74,000 acres. A large proportion of SJRWMD's land is located in the [Upper St. Johns River Basin](#), where much of it was transferred to SJRWMD from the former Central and Southern Florida Flood Control District in 1977. About 29,000 actively considered acres of additional lands distributed throughout SJRWMD – or about 234,000 acres identified as potential acquisition on SJRWMD's 2005 acquisition map – are currently under consideration for purchase. A complete listing of SJRWMD-owned lands can be found in SJRWMD's [Florida Forever work plan](#).

Approximately 92% of SJRWMD's lands are open to the public, with the remaining 8% temporarily closed because of construction or restoration projects, or being within an area where water control structures exist. The [Recreation Guide to District Lands](#) was first published in 1995 and revised in 1997, 2000, and 2003, and has become one of SJRWMD's most requested publications.

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SJRWMD actively manages more than 150,000 acres of its timberland for restoration and sustainable harvest, with the revenues used for land management. More than 25% of SJRWMD's lands are managed with partners such as the [Florida Division of Forestry](#), the [Florida Fish and Wildlife Conservation Commission](#), FDEP, and local governments.

Other federal, state, and local agencies own well over a million acres of land in SJRWMD. Most of this land is owned and managed by federal agencies. The largest federally owned areas are the [Ocala](#) and [Osceola](#) national forests and the [Merritt Island National Wildlife Refuge](#). Camp Blanding Military Reservation is the largest single parcel of state-owned land in SJRWMD. There are also numerous state parks, preserves, forests, and related holdings throughout SJRWMD.

### **Water Use**

Water use is accounted for in the District Water Supply Plan (DWSP) and water supply assessments, discussed in [Chapter III](#) of this document. SJRWMD also compiles annual water use surveys. Details concerning water use in SJRWMD since 1978 can be found in those publications.

## **POPULATION AND LAND USE**

SJRWMD contains 118 local governments, covering all or part of 18 counties (see [Figure I-1](#)). Several major urban centers as well as large tracts of rural land in agriculture and forestry are found within SJRWMD.

### **Population**

In 1995, SJRWMD's population was estimated at approximately 3.5 million. At the time of the 2000 census, SJRWMD had a population of approximately 3.9 million, an increase of about 11%. The counties of Brevard, Duval, Orange, Seminole, and Volusia accounted for nearly two-thirds of that growth.

Some other counties with smaller initial populations have experienced very high percentages of increase resulting from rapidly expanding land development. Population estimates for 2025 show Flagler, Lake, Osceola, and St. Johns counties as having the highest projected percentage increase in growth rates.

### **General Land Use/Land Cover**

Upland and wetland forests cover approximately 40% of SJRWMD and are the predominant land cover type in the northern portion. Many of the upland forest areas

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are pine plantations. Forested wetlands, where cypress and hardwoods are found, are common along rivers, along many lakes, and in poorly drained, closed depressions throughout SJRWMD. The [Ocala National Forest](#) and part of the [Osceola National Forest](#) are located in SJRWMD. Although forests continue to be the most common land cover of the region, the amount of forest is declining as urban and suburban areas expand.

Agriculture and rangelands cover almost 20% of SJRWMD's area, including substantial portions of central Marion County and much of Lake, Orange, Seminole, Brevard, and Indian River counties. A large proportion of the agricultural land is used for field crops and pasture. Urban, suburban, and associated transportation, communication, and utilities' lands cover almost 16% of SJRWMD.

## II. WATER MANAGEMENT GOALS AND POLICIES

SJRWMD has adopted an overall mission statement, as shown below. It can be further summarized as water resource stewardship – managing water resources to ensure their continued availability while maximizing both environmental and economic benefits.

### MISSION STATEMENT

*We will ensure the sustainable use and protection of water resources for the benefit of the people of the District and the state of Florida.*

Goals are provided for each of the four AORs addressed in this plan. The goals are based on the goals and policies in the [State Comprehensive Plan](#) (Chapter 187, FS) and on the responsibilities and authority given to the WMDs by the [Water Resources Act of 1972](#), codified as Chapter 373, FS, and by the state's [Water Resources Implementation Rule](#) (Chapter 62-40, F.A.C.), formerly known as Water Policy.

This broad mission statement is made more specific by the separate goals provided for each of the four AORs. In turn, these goals will be achieved through strategies guided by policies prepared for each AOR. The strategies listed in the AOR chapters are intended to be implemented over the next 5 years when the DWMP will again be revised, as required by statute.

In addition to the goals for each of the AORs, during a February 2002 planning workshop, the Governing Board created a summary document that establishes [core missions, near-term focuses, and 1-3-year priorities](#). It is intended to serve as a concise document that communicates the focus of SJRWMD in long- and short-term planning time frames, and includes an additional SJRWMD goal related to organizational effectiveness. The core missions are considered long term (i.e., 10 or more years), the near-term focuses are considered medium term (i.e., 5-10 years), and the 1-3-year priorities are considered immediate term (i.e., 1-3 years).

As part of its annual work plan and budget development process, the Governing Board annually reviews and updates its 1-3-year priorities. The evaluation and update process serves as the foundation for development of the annual work plan and budget.

## GOALS

### Water Supply

To ensure the availability of an adequate and affordable supply of water for all reasonable-beneficial uses while protecting the water and related natural resources of SJRWMD

### Flood Protection and Floodplain Management

To minimize flood damage and to maintain natural floodplain features and functions, giving preference to use of non-structural surface water management approaches

### Water Quality

To protect existing surface water and groundwater quality from degradation and to improve and restore water quality where degraded

### Natural Systems

To maintain native biological diversity and productivity by protecting ecosystems and restoring altered systems to a naturally functioning condition

## POLICIES

### Water Supply

#### Water Supply Planning

- Seek to avoid competition for water supplies through regional planning and decision-making processes.
- Through the water supply planning process, identify sustainable water supply sources and projects that, if implemented, would contribute to avoiding damage to water resources from future water withdrawals.
- Evaluate and consider water conservation measures as a way to meet water supply needs.
- Include as a priority in the SJRWMD [Land Acquisition Program](#) the acquisition of areas needed for implementation of water resource development projects identified in the DWSP.
- Assist with cost-share funding as an incentive for timely implementation of strategic alternative water supply projects identified in the DWSP.
- Provide technical assistance and facilitate interagency coordination to eliminate institutional and regulatory barriers to the use of aquifer storage and recovery and

to the use of brackish and saline water sources that will not cause significant harm to water resources.

### **Source Protection**

Use acquisition, regulation, and assistance to local governments to protect the quality of water supply sources.

### **Flood Protection and Floodplain Management**

- Focus flood protection efforts on regional flood issues and on regulatory compliance for systems permitted under Part IV of Chapter 373, *FS*.
- Through technical assistance and planning reviews, encourage land uses in the 100-year floodplain that are compatible with maintenance of natural floodplain functions, including water storage and conveyance, erosion control, surface water and groundwater quality protection, groundwater recharge, and habitat for aquatic and wetland-dependent species.
- Support a watershed approach to stormwater management in urban areas where retrofitting is needed.
- Promote long-term solutions to regional flood problems that will avoid recurring flood losses and will improve water resource quality.

### **Water Quality**

For water quality restoration projects undertaken or funded by SJRWMD, give priority consideration to water bodies on the state's "verified" and subsequently adopted 303(d) list of impaired waters.

### **Natural Systems**

#### **Ecosystem Protection**

- Maintain or improve wetland habitat values and related land resources through a combination of regulation, land acquisition and management, restoration, local government planning assistance, and public education.
- Ensure that revenue-generating activities on SJRWMD lands meet the needs of the natural communities and the purposes for which the land was acquired.
- Implement the Florida Forever Act through an interdepartmental approach that establishes overall SJRWMD priorities and ensures progress toward WMD goals and objectives.

### **Minimum Flows and Levels**

- On the [SJRWMD MFLs priority list](#), include water bodies for which the implementation of projects proposed in SJRWMD's regional water supply plan have the potential for causing adverse impacts.
- Restore water bodies that are below their MFL, with an objective for all water bodies to, at a minimum, achieve their MFL.

### **Watersheds**

- Improve integration of SJRWMD programs and activities within watersheds.

### **General**

- Integrate water supply, flood protection and floodplain management, water quality, and natural systems planning and implementation districtwide.
- When building new SJRWMD facilities, demonstrate sound, cost-effective water management practices for stormwater management, water conservation, storm-resistant construction, and other water resource-related activities.

### **III. WATER SUPPLY**

#### **WATER SUPPLY MANAGEMENT**

##### **Water Supply Goal**

*To ensure the availability of an adequate and affordable supply of water for all reasonable-beneficial uses while protecting the water and related natural resources of SJRWMD*

##### **Core Mission**

*To implement a regional strategy to provide sufficient water for users and the environment*

##### **Near-Term Focus**

*Continue SJRWMD water supply planning, water resource development projects, and consumptive use permitting initiatives needed to assist water supply utilities in developing alternative water supplies needed to meet the projected water demands within the priority water resource caution areas in east-central Florida and northeast Florida.*

##### **Districtwide Water Supply Assessment**

SJRWMD prepares water supply assessments to meet the requirements of Subparagraph 373.036(2)(b)4, FS, as follows:

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

- 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 water resources and related natural systems.*

The SJRWMD approach to addressing these requirements consists of the following:

- Defining the limits of water resource impacts beyond which an unacceptable water resource-related condition could occur (water resource constraints)
- Projecting the water resource impacts that could occur in the planning horizon as a result of projected changes in water use
- Identifying priority water resource caution areas

SJRWMD prepared its first districtwide water supply assessment in 1998 (Vergara 1998). The [District Water Supply Assessment 2003](#) (Wilder 2003), the first 5-year update,

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is currently in draft form. Priority water resource caution areas identified in the draft Water Supply Assessment 2003 cover about 40% of SJRWMD's jurisdictional area. These priority water resource caution areas will be the focus of SJRWMD's 2005 [water supply planning process](#).

### **Regional Water Supply Plans**

SJRWMD prepares regional water supply plans designed to meet the requirements of the water supply planning provisions of [Section 373.0361, FS](#). These plans are based on 20-year planning horizons and include the following components:

- A water supply development component
- A water resource development component
- A minimum flows and levels component

SJRWMD's first regional water supply plan (Vergara 2000) was prepared to address all of SJRWMD's jurisdictional area as one planning region. This plan was updated in 2004 with approval by the SJRWMD Governing Board of the document titled [2004 Interim Update to Special Publication SJ2000-SP1, District Water Supply Plan](#) (Vergara 2004). The primary focus of the 2004 interim update was the addition of 11 water supply development projects in the east-central Florida area.

SJRWMD is currently developing the 2005 version of the DWSP with a planning horizon of 2025. This plan is currently scheduled to be considered for approval by the SJRWMD Governing Board at its September 2005 meeting.

### **Water Conservation**

SJRWMD's goal for [water conservation](#) is to implement water conservation strategies and projects to maximize conservation of water within economically, technically, and environmentally feasible limits. This goal is expressed in Section 40C-2.301(e), F.A.C., as follows:

*40C-2.301(e) All available water conservation measures must be implemented unless the applicant demonstrates that implementation is not economically, environmentally or technically feasible.*

This goal is to be achieved through planning, regulation, public outreach, technical assistance, cooperative and cost-shared projects, and investigations. Details concerning how this goal is to be achieved will be provided in the District Water Supply Plan 2005.

SJRWMD is a signatory on the [Joint Statement of Commitment Developing a Comprehensive Statewide Water Conservation Program for Public Water Supply](#), along

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with the other WMDs, FDEP, the [Florida Public Service Commission](#), the Florida Section of the American Water Works Association Utility Council, the Utility Council of the Florida Water Environment Association, and the [Florida Rural Water Association](#). This document commits the signatories to work together to implement the requirements of [Section 373.227, FS](#). SJRWMD staff are actively participating in this process.

Sufficient data have not heretofore been available to formulate meaningful numerical water conservation objectives. Work currently is in progress to evaluate the amount of water that reasonably can be conserved through specific practices at affordable costs. SJRWMD proposes to identify measurable conservation objectives on completion of this investigation.

### Conservation Rate Structures

Paragraph 12.2.5.1(f) of the [SJRWMD Consumptive Use Permit Applicant's Handbook](#), which is incorporated into Chapter 40C-2, F.A.C., by reference, provides for a flexible approach to requiring water supply utilities to have conservation rate structures, as follows:

*Permitting of Consumptive Uses of Water. The applicant must submit a written proposal and implement a water conservation promoting rate structure, unless the applicant demonstrates that the cost of implementing such a rate structure is not justified because it will have little or no effect on reducing water use. In the event that the applicant has a water conservation promoting rate structure in effect, the applicant must submit a written assessment of whether the existing rate structure would be more effective in promoting water conservation if it were modified, and if so, describe and implement the needed changes.*

### Use of Reclaimed Water

SJRWMD regards reclaimed water (water that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility) as a valuable resource, which can replace other water sources for many uses and extend natural potable supplies. SJRWMD endeavors to achieve beneficial [reuse](#) to the extent economically, environmentally, and technically feasible, and provide greater availability of reclaimed water districtwide to conserve available water resources, in accordance with the state of Florida objective to encourage and promote water conservation and reuse. Therefore, all SJRWMD programs pertaining to reuse, including all pertinent regulatory requirements, planning, coordination efforts, and funding programs, are applied districtwide.

Chapter 40C-2, F.A.C., requires reuse of reclaimed water wherever feasible. All consumptive use permit applicants are subject to this requirement:

40C-2.301(4) Conditions for Issuance of Permits

*(f) When reclaimed water is readily available it must be used in place of higher quality water sources unless the applicant demonstrates that it is not economically, environmentally, or technically feasible.*

*(g) The lowest acceptable quality water source, including reclaimed water which is addressed in paragraph 40C-2.301(4)(f) above, must be utilized for each consumptive use. To use a higher quality water source an applicant must demonstrate that the use of all lower quality water sources will not be economically, environmentally, or technically feasible.*

In addition, SJRWMD has a more restrictive definition of reuse than FDEP, excluding any use that does not take the place of an existing or potential use of higher quality water. Sprayfields and other uses that are primarily for the purpose of wastewater disposal are not considered to be reuse under SJRWMD rule.

### **Water Shortage Planning**

Chapter 40C-21, F.A.C., is the [SJRWMD Water Shortage Plan](#). The rules in this chapter comprise SJRWMD's water shortage plan pursuant to Subsection 373.246(1), FS. The purposes of the plan are to protect the water resources of SJRWMD 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.

### **Cost-Effectiveness of Water Supply Alternatives**

SJRWMD estimates conceptual level costs for alternative water supply projects identified in its water supply plans. These costs are presented as unit production costs in dollars per 1,000 gallons. Unit production costs include capital costs and operation and maintenance costs. SJRWMD uses standards for cost estimating and economic criteria so that all unit production costs for water supply development projects identified by SJRWMD are comparable. These standards for the 2005 water supply planning process are included in a document titled [Cost Estimating and Economic Criteria for 2005 District Water Supply Plan](#) (CH2M HILL 2004).

SJRWMD has examined the financial impact of using alternative water supplies to meet the demands of public supply utilities. This examination is reported in the technical memorandum titled [Financial Impact of Alternative Water Supply](#) (Burton & Associates 2003). A major conclusion of this work is that the blending of surface water and groundwater in east-central Florida will likely increase the price of water service but not to a level that would be considered excessive or unaffordable based on the U.S.

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Environmental Protection Agency (EPA) affordability guidelines. This examination supported the development of the 2002 SJRWMD Governing Board position paper titled "Recommendations on the St. Johns River Water Management District's Involvement in Water Resource Development and Water Supply Development."

## SOURCE PROTECTION

### Aquifer Recharge Areas

Maps of recharge areas are useful planning tools for groundwater resource management. Groundwater recharge to the [Floridan aquifer](#) is the addition of water to the Floridan aquifer from the overlying surficial aquifer or more directly from rainfall in areas where the surficial aquifer is thin or absent and the limestones of the Floridan aquifer are at or near land surface. The amount of water available as recharge to the Floridan aquifer is that part of rainfall, after losses to runoff and evapotranspiration, which infiltrates through the soil zone to the water table and continues to move downward to underlying aquifer systems.

Recharge to the Floridan aquifer occurs in areas where the water table elevation is higher than the Upper Floridan aquifer potentiometric elevation, creating downward hydraulic pressure to move water through the confining unit. In areas where the Upper Floridan aquifer potentiometric surface is at a higher elevation than the water table, leakage is upward from the Floridan aquifer to the surficial aquifer. The areas of upward leakage define the discharge areas of the Floridan aquifer. Where Floridan aquifer potentiometric elevations are above the land surface, springs and free-flowing artesian wells occur.

Recharge rates to the Floridan aquifer were calculated based on an analysis of the hydraulic pressure differences between the surficial aquifer water table and the Floridan aquifer potentiometric surface, and on the leakage of water through the confining unit separating the aquifers. Recharge also occurs directly from infiltrating rainfall where the limestones of the Floridan aquifer are at or near land surface. Significant recharge may also occur where the confining unit is breached by sinkholes and sinkhole-related features, depending on the hydrogeologic relationships between the surficial and Floridan aquifers. Recharge rates were mapped at a 4-inch/year contour interval.

The recharge map published in [Recharge Areas of the Floridan Aquifer in the St. Johns River Water Management District](#) (Boniol et al. 1993) provides a regional assessment of recharge to the Floridan aquifer. The map, which was updated in December 2004, is intended to be used as a regional planning aid for groundwater resource management, and is not intended for site-specific assessments.

Concern for appropriate management of groundwater recharge as a means of assuring reasonable groundwater availability resulted in the inclusion of the [Aquifer Protection Program](#) as a water resource development project in the 2000 DWSP. A document titled *Data Evaluation and Interpretation for Development of an Aquifer Protection Plan* (Barnes, Ferland and Associates 2003) includes recommendations to SJRWMD for management of groundwater recharge.

### **Wellfield Capture Zones**

SJRWMD has provided support to local governments in the evaluation of the horizontal groundwater travel times in the vicinity of public supply wells. These evaluations have been performed for local governments upon request to assist in the delineation of wellhead protection areas that support the development of wellhead protection ordinances. Wellhead protection area delineation projects have been completed for the following local governments:

- Alachua County
- Flagler County
- Marion County
- Orange County
- Seminole County
- St. Johns County
- City of Eustis
- City of Fruitland Park
- City of Green Cove Springs
- City of Groveland
- City of Lake Helen
- City of Minneola
- City of Ormond Beach
- City of Palatka

In addition to the delineation of potential wellhead protection areas, SJRWMD has delineated 2-year travel times for all public supply wells in SJRWMD in association with FDEP's [Source Water Assessment and Protection Program](#). This information will be published by FDEP in the near future.

### **Delineated Areas**

Numerous delineated areas based on the provisions of Chapter 62-524, *F.A.C.*, have been identified in SJRWMD ([Figure III-1](#)). These are areas within which special well construction standards are necessary to avoid contamination of water produced by

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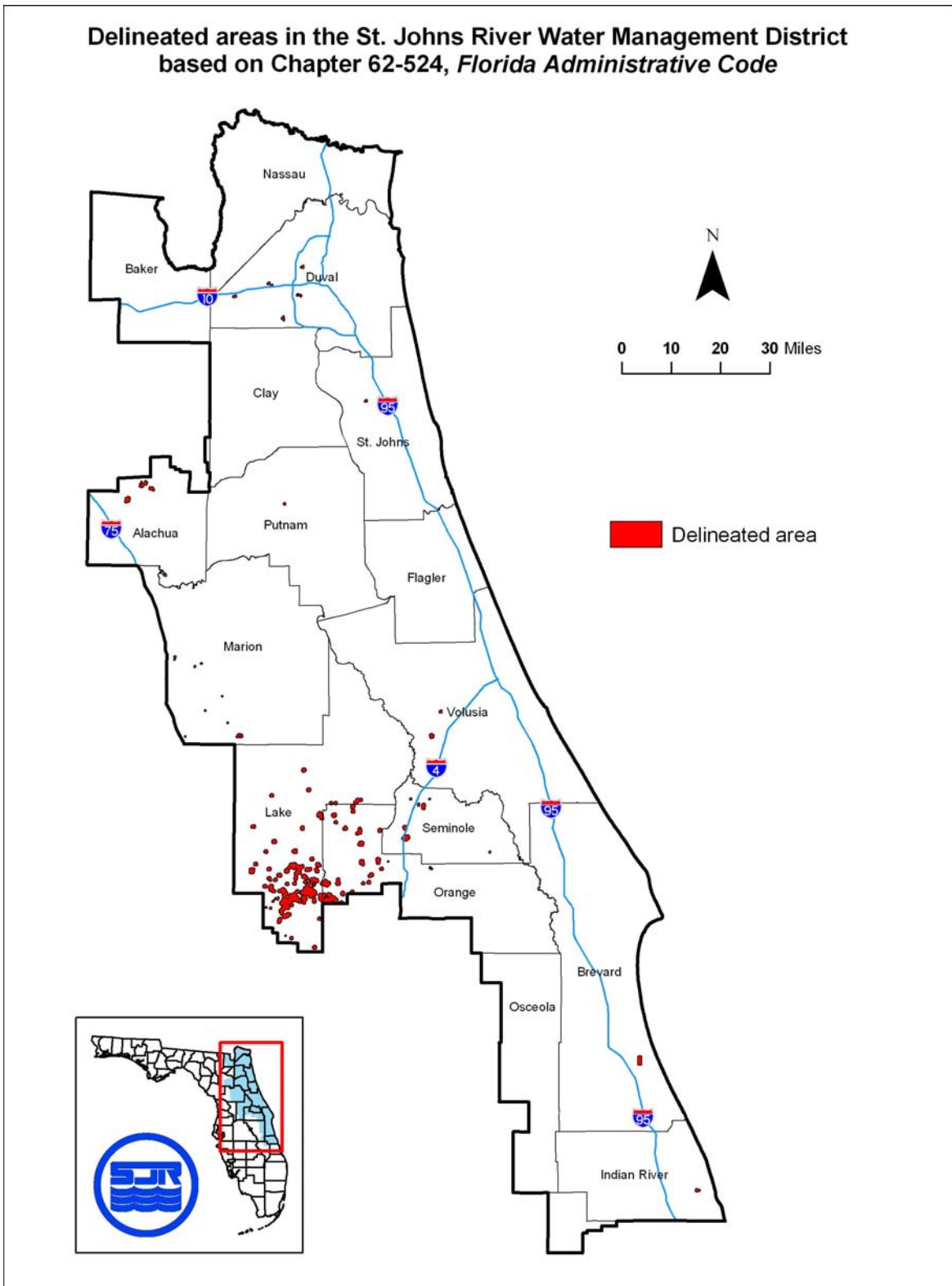


Figure III-1. Delineated areas in the St. Johns River Water Management District

water supply wells. SJRWMD administers the permitting and management program, within its jurisdictional area, pursuant to the requirements of Chapter 62-524, *F.A.C.*, in cooperation with FDEP and the [Florida Department of Health](#).

### **Water Supply Issues**

Listed below each Issue are specific Objectives and Strategies necessary to resolve the Issue. An Objective is essentially the outcome that will result once the appropriate Strategy is implemented. Listed below each Strategy are the tasks or actions suggested within each Strategy to accomplish the Objective. In addition, the SJRWMD entity responsible for completion of the task, along with a completion date estimate, is included after each task.

#### **Priority Water Resource Caution Areas**

##### **Objective**

To increase available water supplies and maximize overall water use efficiency to meet identified existing and future needs through implementation of the DWSP

##### **Strategies**

- (1) Water supply planning
  - Update the Water Supply Assessment 2003 (draft) in fiscal year (FY) 2007–2008, as required by statute. (Division of Water Supply Management, 2007–2008)
  - Revise the April 2000 DWSP in FY 2004–2005, as required by statute. (Division of Water Supply Management, 2004–2005)
  - Prepare annual updates to the [Water Resource Development Work Program](#). (Division of Water Supply Management, annual)
  - Develop and maintain an integrated program management structure, including a reporting schedule. (Division of Water Supply Management, ongoing)
  
- (2) Water use data management
  - Provide electronically accessible data. (Division of Water Supply Management, annual)
  - Continue data collection for all water use categories. (Division of Water Supply Management, ongoing)
  - Maintain the reuse end-users and service area boundaries data sets. (Division of Water Supply Management, ongoing)
  - Provide [water use data](#) on the Internet and the intraweb, as server space allows. (Division of Water Supply Management, ongoing)

- Update water use data for SJRWMD modeling staff as requested by staff via established data request procedures. (Division of Water Supply Management, ongoing)
  - Continue to collect agricultural actual water use data and other related data through the Benchmark Farms Program. (Division of Water Supply Management, ongoing)
  - Continue to compile actual golf course water use data and maintain the database. (Division of Water Supply Management, ongoing)
- (3) Local government assistance
- Maintain a [Web page](#) with current information intended to assist local governments with integrating water supply planning in their comprehensive plans. (Office of Communications and Governmental Affairs, ongoing)
  - Develop and distribute a [potable water availability worksheet](#) or other tool for local governments to include in comprehensive plan amendment submittal packages, to help local governments identify water supply availability, considering infrastructure, permitted allocation under consumptive use permits, and source. (Office of Communications and Governmental Affairs, ongoing)
  - Emphasize the link between SJRWMD's water supply planning and local governments' land use planning in SJRWMD's reviews of [water supply facilities work plans](#) that are now required by state law to be included in the comprehensive plans of local governments that have responsibility for water supply facilities. (Office of Communications and Governmental Affairs, ongoing)
  - Develop and distribute a fact sheet as a source of information for local governments as they prepare their water supply facility work plans. (Office of Communications and Governmental Affairs, ongoing)
- (4) Integrated management and planning system
- Prepare issue papers for significant unresolved policy areas as they arise. (Office of Communications and Governmental Affairs, ongoing)
- (5) Land acquisition
- Participate in the purchase of lands necessary to complete priority water resource development projects identified in the DWSP and the annual update of the Water Resource Development Work Program. (Division of Water Supply Management, Division of Land Acquisition, ongoing)
-

- (6) Water resource development projects
    - Implement the water resource development projects included in the DWSP as scheduled in the Water Resource Development Work Program. (Department of Resource Management, ongoing)
  
  - (7) Water supply development assistance
    - Continue the [Alternative Water Supply Development Construction Cost Share Program](#), as required by statute, as a means of assisting in the development of alternative water supply projects. (Division of Water Supply Management, ongoing)
    - Expand SJRWMD funding to assist water users in implementing alternative water supply projects consistent with the DWSP. (Governing Board, ongoing)
    - Seek state and federal funding to assist water users in the design and construction of water supply development projects consistent with the DWSP. (Executive Office, ongoing)
  
  - (8) Consumptive use permitting
    - Make adjustments in the [Consumptive Use Permitting Program](#) as necessary to ensure that the DWSP and permitting are complementary. (Department of Resource Management, ongoing)
    - Revise the Water Shortage Plan and rules to improve and provide consistency among the WMDs and FDEP. (Division of Water Supply Management and Office of General Counsel, ongoing)
    - Continue to provide Web-based access to permit data. (Division of Permit Data Services, ongoing)
  
  - (9) Environmental resource permitting
    - Complete projects for developing water conservation best management practices and alternative sources of water for irrigation for nurseries. (Division of Water Supply Management, ongoing)
  
  - (10) Outreach
    - Increase awareness of water supply planning, water resource development projects, and water supply development assistance using appropriate techniques such as coordinating with the media, making presentations, or producing publications. Develop and present water conservation programs. (Office of Communications and Governmental Affairs, ongoing)
    - Assist in attracting federal and state cost-share funding to implement priority alternative water supplies identified in the DWSP. (Executive Office, ongoing)
-

### **Performance Measures**

- Percentage of domestic wastewater that is reused
- Gross per capita public water use (public supply) by SJRWMD and water supply planning regions
- Within each water supply planning region:
  - The estimated additional quantities of water supply to be made available through the water resource development component of the regional water supply plan
  - The percentage of the estimated amount of water under development
  - The percentage of the estimated amount of water actually made available
  - The estimated additional quantities of water supply made available through SJRWMD water supply development assistance

### **Source Protection Issues**

#### **Public supply wells, surface water sources, and Floridan and surficial aquifer recharge areas**

#### **Objective**

To prevent contamination of water supply sources

#### **Strategies**

- (1) Local government assistance
  - Continue to provide technical assistance to local governments in support of the [FDEP Wellhead Protection Program](#) and complete wellhead protection area delineations within 12 months of request. (Department of Resource Management, ongoing)
  - Delineate significant surficial aquifer recharge areas in counties where the aquifer is a source of public supply. (Department of Resource Management, ongoing)
- (2) Outreach
  - Increase awareness of source protection using appropriate techniques such as coordinating with the media, making presentations, or producing publications. (Office of Communications and Governmental Affairs, ongoing)

#### **Performance Measures**

- Percentage of surface water supply sources for which water quality fully attains the designated use
  - Improving, degrading, and stable trends in groundwater quality
  - Improving, degrading, and stable trends in nitrate concentrations in springs
-

## IV. FLOOD PROTECTION AND FLOODPLAIN MANAGEMENT

### Flood Protection and Floodplain Management Goal

*To minimize flood damage and to maintain natural floodplain features and functions, giving preference to use of non-structural water management approaches*

### Core Mission

*To prevent increases in flooding and operate and maintain SJRWMD's regional flood control projects*

### Near-Term Focus

*Focus on implementing the environmental resource permitting program and maintaining and operating the Upper St. Johns River Basin and the Ocklawaha River Basin regional flood control projects.*

Flooding is a natural phenomenon, occurring periodically along streams, rivers, lakes, and coasts. It becomes a problem when people, property, and roads or other infrastructures are adversely affected. Floodplains, the low-lying lands subject to inundation from floodwaters, have a variety of functions, including water storage and conveyance, filtration of nutrients and other pollutants from runoff, erosion control, groundwater recharge, providing fish and wildlife habitat, and recreation. They are delineated according to the estimated frequency of flooding. The 100-year floodplain, commonly delineated for regulatory purposes, defines an area with a 1% chance of being inundated in any given year. More than 3.1 million acres, or almost 39%, of the land and water area covered by SJRWMD are in the 100-year floodplain.

Local governments have the primary responsibility for determining and regulating land uses in floodplains and flood prone areas and play an important role in the emergency management arena. Local measures include land use planning, construction standards, stormwater management facilities, flood control structures, and local mitigation strategies. The WMDs, including SJRWMD, complement local efforts by implementing regional programs for flood protection and floodplain management. As part of this regional program, SJRWMD prepares digital orthophoto quad maps, which include all floodplains. The current mapping effort was completed in 2004. The next update of these maps is scheduled for completion in 2009-2010. Other mapping of floodplains is conducted as needed on a continuous basis.

Intergovernmental coordination efforts have resulted in the establishment of stormwater working groups that identify flooding problems and work on joint

solutions between or among cities, counties, and regional and state agencies. Flood protection assessments completed by SJRWMD or with SJRWMD assistance have expanded and improved upon information available on floodplains and flooding problems in SJRWMD.

The two largest flood control projects in SJRWMD are the Upper St. Johns River Basin Project, located primarily in Brevard and Indian River counties, and the Ocklawaha River component of the Four River Basins Florida Project, located in portions of Orange, Lake, and Marion counties. The [Lake County Water Authority](#) manages a basinwide flood control project for the Palatka River Basin.

Fifteen water control districts (WCDs) are located in whole or in part in SJRWMD. These districts own and operate a variety of facilities and, due to their size and role in flood control and drainage for agricultural and urban purposes, have significant impacts on surface water management in the areas where they operate. Eleven of the WCDs in the group are subject to [Chapter 298, FS](#) and are required to have water control plans describing their activities and improvements. These plans are subject to WMD review for consistency with applicable water resource plans and policies. Table IV-1 lists the 15 WCDs in SJRWMD.

Table IV-1. Water control districts in SJRWMD

County	Water Control District (WCD)	Surface Water Basin
Brevard	Melbourne Tillman WCD	Upper St. Johns River Indian River Lagoon
Flagler	Flagler Estates Road and WCD*	Lower St. Johns River
Indian River	Delta Farms WCD* Fellsmere WCD* Indian River Farms WCD* St. Johns WCD* Sebastian River WCD* Vero Lakes WCD*	Indian River Lagoon Upper St. Johns River
Lake	Lake County Water Authority (Ocklawaha Basin Recreation and Water Conservation and Control Authority)	Ocklawaha River Middle St. Johns River Lake George
Nassau	Nassau County Recreation and Water Conservation and Control districts	Nassau River St. Marys River
Orange	Ranger Drainage District*	Middle St. Johns River
Putnam	Hastings Drainage District*	Lower St. Johns River
St. Johns	Elkton Drainage District* Hastings Drainage District* Flagler Estates Road and WCD*	Lower St. Johns River

\*WCDs subject to Chapter 298, FS

## Resource Assessments

SJRWMD operates a number of programs designed to achieve the flood protection and floodplain management goal. A brief overview of these programs, along with a discussion of overall results, is provided below. Issues identified through these programs and other sources of information are addressed through the objectives and strategies found later in this chapter.

### Structures and Works

SJRWMD operates and maintains [major and minor water control structures](#) or works on several of its properties. These include navigational locks, spillways, the Lake Washington weir, pump stations, and more than 200 miles of levees and canals.

### Environmental Resource Permitting

The [Environmental Resource Permitting and Surface Water Permitting](#) programs became effective in October 1995 as a result of a joint effort among all five WMDs and FDEP. Environmental resource permitting replaced the management and storage of surface waters, stormwater discharge, and wetland resource management permitting programs. The Environmental Resource Permitting Program includes permit application review, compliance activities, outreach to the regulated public, and rule development. The core mission of this program is to provide both surface water resource protection and flood protection.

These two components of the Environmental Resource Permitting Program ensure that stormwater is managed on development sites to avoid off-site water quality and flooding impacts. The program also helps avoid or minimize wetland impacts, preserving the flood protection benefits of wetlands.

Through its permitting programs, SJRWMD also ensures that new drainage ditches and significant changes to existing ditches are coordinated regionally across county and city boundaries. Such coordination ensures that there are no downstream impacts, such as flooding or water quality degradation.

### Land Acquisition

[Florida Forever](#), the primary state funding source for land acquisition, emphasizes water resource development and restoration projects as well as land acquisition for nonstructural flood protection and conservation. In addition to Florida Forever, SJRWMD uses ad valorem (property) taxes and mitigation funds for land acquisition.

SJRWMD has some form of interest in approximately 605,000 acres of land (through ownership, management, or conservation easement rights).

### **Flood Credit Assistance Program**

Communities that regulate new development in their floodplains are able to join the Federal Emergency Management Agency's (FEMA) [National Flood Insurance Program](#) (NFIP), which provides federally backed flood insurance for properties in participating communities. In Florida, there are more than 1.8 million insurance policies in force, nearly 40% of the more than 4.4 million policies in effect nationwide.

In 1996, SJRWMD initiated a flood credit assistance program to provide communities within SJRWMD with appropriate data for the "uniform minimum credits" for [community rating system](#) (CRS) activities that SJRWMD implements. SJRWMD also provides indirect credit to local governments through public information projects that advise citizens of flood hazards, the availability of flood insurance, and/or flood protection methods. The goal of the SJRWMD program is to provide documentation to local governments on as many credits as possible.

The CRS, a part of the NFIP, reduces flood insurance premiums to reflect what a community does beyond the NFIP's minimum requirements. The reduction in flood insurance premiums is in the form of a CRS classification. There are 10 community classes, each providing an additional 5% insurance rate reduction, up to 45%. A community's classification is based on the number of credit points it receives for its floodplain management activities. The 5% insurance rate reduction is awarded every time 500 credit points are accumulated. The goals of the CRS are to reduce flood losses, facilitate accurate insurance rating, and promote the awareness of flood insurance.

There are currently 207 communities in Florida that participate in the CRS program, representing more than 20% of the more than 900 communities participating nationwide. Within SJRWMD, all of the counties and 36 municipalities are currently participating in the CRS program.

### **Flood Protection and Floodplain Management Issues**

Listed below each issue are specific objectives and strategies necessary to resolve the issue. An objective is essentially the outcome that will result once the appropriate strategy is implemented. Listed below each strategy are the tasks or actions suggested within each strategy to accomplish the objective. In addition, the SJRWMD entity responsible for completion of the task, along with a completion date estimate, is included after each task.

## Areas With Flood Damage and Public Safety Concerns

### Objective

To minimize damage from flooding

### Strategies

- (1) Surface water resource planning
    - Upon request, review or provide technical assistance on local government stormwater master plans. (Department of Water Resources, ongoing)
  - (2) Local government assistance
    - Continue the SJRWMD Flood Credit Assistance Program. (Office of Communications and Governmental Affairs, ongoing)
    - Provide information to WCDs listed in Chapter 298, *FS*, to assist with development of water control plans. Review submitted plan, or plan amendments, for consistency with applicable water resource plans and policies and recommend any proposed changes within the statutory time frame. (Department of Water Resources, yearly)
    - Assist with comprehensive plans and amendments related to flood protection. (Office of Communications and Governmental Affairs, ongoing)
  - (3) Surface water projects
    - Identify opportunities for joint ventures with WCDs, particularly ones with components addressing flood protection and other SJRWMD AORs. (Districtwide, ongoing)
  - (4) Infrastructure management, operations, and maintenance
    - Maintain federal and SJRWMD-regulated water control structures in accordance with the federal master water control manuals. (Department of Operations and Land Resources, ongoing)
    - Modernize or restore water control structures in accordance with the Five-Year Infrastructure Management, Operations, and Maintenance Plan. (Department of Operations and Land Resources, 1–5 years)
    - Maintain 100% stabilization of levees and maintain them at the specified elevation for flood control and the width necessary for vehicle accessibility. (Department of Operations and Land Resources, ongoing)
    - Mechanically control invasive plants and other unwanted vegetation with 90% effectiveness in canals, ditches, and restoration sites, based on the annual maintenance schedule and programmed use of water conveyance systems. (Department of Operations and Land Resources, ongoing)
-

(5) Emergency management

- Participate in the state emergency management system on an ongoing basis. (Department of Operations and Land Resources, ongoing)
- Upon request, provide SJRWMD hydrologic data to assist federal, state, and local centers engaged in weather warning, public notification, and flood forecasting. (Division of Hydrologic Data Services, ongoing)

(6) Outreach

- Promote maintenance of permitted surface water and stormwater management systems through outreach and other efforts. (Office of Communications and Governmental Affairs, ongoing)
- Increase awareness of flood protection, floodplain management, flood prevention, and emergency management using appropriate techniques such as coordinating with the media, making presentations, and producing publications. (Office of Communications and Governmental Affairs, ongoing)

(7) Environmental resource permitting

- Continue site inspections of permitted surface water and stormwater management systems. (Division of Environmental Resource Compliance, ongoing)

**Performance Measure**

- Percentage of SJRWMD works maintained on schedule

**Objective**

To promote non-structural approaches to achieve flood protection and to protect and restore the natural features and functions of the 100-year floodplain

**Strategies**

(1) Surface water resource planning

- Assist in implementation of FEMA's [Flood Hazard Mapping Modernization Program](#). (Office of Communications and Governmental Affairs and Department of Water Resources, ongoing)

(2) Land acquisition

- Purchase 100% of the land identified in the SJRWMD [Florida Forever work plan annual update](#) necessary to allow completion of major SJRWMD surface water projects. (Division of Land Acquisition, ongoing)
- Acquire land in the 100-year floodplain identified in the Florida Forever work plan annual update, and restore it where necessary. (Division of Land Acquisition, ongoing)

(3) Outreach

- Increase awareness of the benefits of retaining natural floodplain features and functions using appropriate techniques such as coordinating with the media, making presentations, and producing publications. (Office of Communications and Governmental Affairs, ongoing)
- Provide [geographic information system \(GIS\)](#) maps of floodplains and wetlands to assist local governments to plan for future growth. (Office of Communications and Governmental Affairs, ongoing)

**Performance Measure**

Number of acres identified for acquisition in the 100-year floodplain and the percentage of those acres acquired

## V. WATER QUALITY

### Water Quality Goal

*To protect existing surface water quality from degradation and to improve and restore water quality where degraded*

### Core Mission

*To protect surface water resources of SJRWMD and improve those resources within SWIM basins and the Upper St. Johns River Basin within established guidelines*

### Near-Term Focus

*Implement the Upper St. Johns restoration project and SWIM plans within designated SWIM water bodies to restore water quality to state standards.*

Water quality management is generally divided into two sections: surface water and groundwater. The surface water quality section addresses issues affecting lakes, streams, springs, and estuaries. The groundwater section addresses the quality of water in aquifers. The following section includes discussion of the role SJRWMD's regulatory programs play in implementing water quality protection goals and strategies.

### Role of SJRWMD Regulatory Programs in Protecting Water Quality

The water well construction permitting and contractor licensing program was delegated to SJRWMD by FDEP in 1984. SJRWMD established construction standards and reporting requirements by rule to ensure that newly constructed water wells do not cause uncontrolled flow or degrade the water quality. SJRWMD licensed 339 water well contractors in 2000 to ensure their understanding of SJRWMD and state water well rules and regulations. SJRWMD also issued 452 water well construction permits, and 182 special condition permits in 2000 in the FDEP-delineated groundwater contamination areas (Chapter 62-524, F.A.C.). The goal of the well permitting program is to protect the aquifer and users by regulating water well construction activities and by licensing water well contractors within SJRWMD.

The environmental resource and surface water permitting program of SJRWMD became effective in October 1995 as a result of a joint effort among all five water management districts and FDEP. Environmental resource permitting replaced the management and storage of surface waters, stormwater discharge, and wetland resource management permitting programs. Wetland delineations conducted under the program follow a unified, statewide methodology adopted in 1994. Environmental resource permitting is a tool for managing the effects of land use changes on water quantity, water quality,

and wetland habitat. The program includes permit application review, compliance activities, outreach to the regulated public, and rule development. Monitoring and research activities that focus on discharges of surface water from agricultural areas also fall under the program. In addition, the program provides for collection of data on wetlands and completion of periodic assessments of wetland status and trends. The goal of the environmental resource and surface water permitting program is “to protect water resources through regulation of activities affecting surface waters, floodplains, and wetlands.”

The consumptive use permitting program of SJRWMD includes consumptive use permit (CUP) compliance and enforcement and water shortage plan support and enforcement. SJRWMD began permitting consumptive uses of water in 1983. All persons who want to use large amounts of water, except those exempt by statute or SJRWMD rule, are required to obtain a CUP. The issuance of a permit may be denied if the permit would allow withdrawals of water that would cause significant saline water intrusion, for example. Permits for consumptive use are issued for a finite duration and, upon expiration, must be renewed. Since 1991, all water users have been required to report their water use by using a water meter or by an alternative method approved by SJRWMD. The goal of the consumptive use permitting/water use regulatory program is “to provide water for reasonable-beneficial uses while protecting the water resources of SJRWMD.”

## **SURFACE WATER**

To be effective, programs must address both point (e.g., domestic and industrial wastewater facilities) and nonpoint (e.g., stormwater runoff) sources of pollution. Great strides have been made in reducing point source pollution since the 1970s. Management of nonpoint source pollution, however, has proven to be more intractable. Stormwater runoff now is considered to be the single most significant source of pollution for most surface waters. Existing developments initiated prior to the establishment of stormwater permitting programs still pose serious problems. Regulatory programs for stormwater runoff reduce the adverse impacts associated with new construction and redevelopment.

### **Resource Assessments**

SJRWMD conducted or used a number of resource assessments to help identify surface water quality issues. Issues identified through the assessments and other sources of information are addressed through the objectives and strategies.

## **SJRWMD Surface Water Quality**

SJRWMD collects and analyzes surface water quality data through its districtwide [Surface Water Quality Monitoring Program](#) and monitoring programs for the Indian River Lagoon, the Upper St. Johns River Basin, Lake Apopka, the Upper Ocklawaha River Basin, and the Lower St. Johns River Basin.

The SJRWMD Surface Water Quality Monitoring Program was established in 1983 and maintains an ambient surface water quality monitoring network of 72 stations located throughout SJRWMD. Fourteen of these stations are a part of the FDEP Temporal Variability Network and are sampled 12 times a year. The remaining 58 stations are sampled six times a year. Monitoring of priority pollutant sediment was added to the program in 1990, followed by benthic (underwater bottom) community sampling in 1999 to enhance understanding of the biological consequences of sediment pollution. FDEP-sponsored data generated under the program are uploaded to the EPA National [Water Quality Data Base \(STORET\)](#) and are used by FDEP for Florida's biennial [Integrated Water Quality Assessment for Florida](#) report and for determining [total maximum daily loads](#) (TMDLs). The program provides support for modeling efforts involving surface water quality and produces a biennial districtwide assessment of surface water quality status and trends, sediments, and benthic community health. This program also participates in FDEP's [Integrated Water Resources Monitoring Tier 1 Network](#).

In 1991, the program included pollutant load modeling as one of its components and, in 2000, added new ArcGIS technology to support the districtwide water quality status and trends assessment. The spatial models (e.g., BASINS, ArcHydro) are very important and valuable tools and will be beneficial to SJRWMD's mission of surface water resource protection and management.

Status and trends in water quality are also evaluated at selected sites in SJRWMD. See publication number SJ2004-3, available online at <http://www.sjrwmd.com/technicalreports/pdfs/TP/SJ2004-3.pdf>. This publication assesses ambient water quality data for a variety of water body sampling sites within SJRWMD for the purpose of characterizing the current status of and trends in water quality for water bodies districtwide. SJRWMD also has a districtwide sediment assessment report available online at <http://www.sjrwmd.com/technicalreports/pdfs/SP/SJ2004-SP32.pdf>.

## **FDEP Integrated Water Quality Assessment for Florida Report**

The federal [Clean Water Act](#) requires that each state conduct water quality surveys to determine whether its waters are of sufficient quality to meet their designated uses. The results of these surveys are reported to EPA in a biennial report prepared by FDEP, the

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[Integrated Water Quality Assessment for Florida](#) report. Results from the report have been used to prepare state biennial 303(d) lists of impaired waters requiring TMDL development, which are now part of the [Integrated Water Quality Assessment for Florida](#) report.

The [Integrated Water Quality Assessment for Florida](#) report provides an overview of Florida's surface water and groundwater quality, trends, and protection efforts. More recent reports reflect a transition from historic generalized assessments based on water quality indicators to consolidated integrated assessments addressing water quality monitoring strategies, data quality and data quantity needs, and data interpretation methodologies. The report discusses the federal water quality reporting requirements and their relationship to the 303(d) federal requirements to identify impaired waters and significant water quality findings, and summarizes attainment of designated use. Water quality trends are also summarized. Current monitoring efforts are briefly discussed. Wetlands protection and groundwater quality are both summarized. The complete report is available on the FDEP Web site at [http://www.floridadep.org/water/docs/2004\\_Integrated\\_Report.pdf](http://www.floridadep.org/water/docs/2004_Integrated_Report.pdf).

### Total Maximum Daily Loads and Pollutant Load Reduction Goals

Under Section 303(d) of the federal Clean Water Act and under 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." TMDLs will be developed, allocated, and implemented by FDEP through a watershed-based management approach (managing water resources within their natural boundaries) that addresses the state's 52 major hydrologic basins in five groups.

SJRWMD has the primary role of developing PLRGs, presumably providing the technical basis for the state's development of TMDLs for constituents of concern. PLRG development for SWIM priority water bodies is focused on those constituents verified in the [Integrated Water Quality Assessment for Florida](#) report. The table below lists the basins and water bodies scheduled for PLRG development through 2009.

### Pollutant Load Reduction Goal Schedule

Basin/Water Body	Complete Preliminary PLRG	Submit Final PLRG to FDEP
<b>Orange Creek Basin</b>		
Newnans Lake	2006	2007
Lake Lochloosa	2007	2008
Orange Lake	2008	2009
<b>Middle St. Johns River Basin</b>		
Lake Jesup	2006	2007

Basin/Water Body	Complete Preliminary PLRG	Submit Final PLRG to FDEP
Lake Monroe	2007	2008
Lake Harney	2008	2009
St. Johns River between Lake Monroe and Lake Harney	2008	2009
Wekiva River	2005	2007
Rock Springs Run	2005	2007

### Stormwater Cost-Share

SJRWMD established the [Stormwater Management Projects Cost-Sharing Program](#) in 1995 with an allocation of \$300,000 in funding. The intent of the program was to provide seed money to local governments for stormwater projects that could be completed generally within 12 to 18 months. Since then, SJRWMD has provided \$3.18 million to cost-share 138 stormwater management projects with local governments. During FY 2003–2004, the Governing Board approved \$2,200,000 in funding for 11 projects, including \$2 million in the FY 2004–2005 [budget](#) for stormwater management projects. The goal of this program is to support stormwater management efforts that promote the improvement of water quality by achieving PLRGs or TMDL allocations for identified priority pollutants and flood protection.

### Water Quality Issues

Listed below each Issue are specific Objectives and Strategies necessary to resolve the Issue. An Objective is essentially the outcome that will result once the appropriate Strategy is implemented. Listed below each Strategy are the tasks or actions suggested within each Strategy to accomplish the Objective. In addition, the SJRWMD entity responsible for completion of the task, along with a completion date estimate, is included after each task.

#### Surface water with degraded or degrading quality

##### Objective

To protect and improve surface water quality

##### Strategies

- (1) Surface water quality monitoring
  - On a continuing basis, collect, verify, approve, and analyze water quality data for the FDEP Temporal Variability Network and water quality, sediment, and biological data for the districtwide Surface Water Quality Monitoring Network

used for the FDEP [Integrated Water Quality Assessment for Florida](#) report and other purposes. (Division of Environmental Sciences and Division of Laboratory Services, ongoing)

- Complete annual updates of the SJRWMD water quality status and trends assessment, Integrated Water Resources Monitoring quarterly progress reports within contractual time frames, and assessment reports on the Integrated Water Resources Monitoring Tier 1 Network, and evaluate benthic and sediment interpretive reports produced by contractors. (Division of Environmental Sciences, annual)

(2) Surface water projects

- Recommend PLRGs according to schedules developed within priority SWIM basins and implement them through appropriate regulatory and non-regulatory programs. (Department of Water Resources, ongoing)
- Assist FDEP in establishing and implementing TMDLs for impaired waters and in evaluating the effectiveness of TMDL implementation as provided in the Florida Watershed Restoration Act. (Department of Water Resources, ongoing)

(3) Infrastructure management, operations, and maintenance

- Maintain and repair water control structures in surface water restoration sites in accordance with the Five-Year Infrastructure Management, Operations, and Maintenance Plan. (Department of Operations and Land Resources, ongoing)

(4) Environmental resource permitting

- Evaluate the effectiveness of currently accepted best management practices for surface water and stormwater management systems, publish evaluation results periodically, and develop and adopt new or improved best management practices when it is demonstrated that they are needed. (Department of Water Resources, ongoing)

(5) Local government assistance

- Continue SJRWMD's annual [Stormwater Management Projects Cost-Share Program](#). (Division of Engineering, annual)

(6) Land acquisition

- Participate in the acquisition of lands necessary for regional stormwater parks. (Division of Land Acquisition, ongoing)

### Performance Measure

Percentage of water bodies that attain or potentially do not attain their designated uses under the [TMDL Program](#)

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## GROUNDWATER

### Groundwater Quality Goal

*To protect existing groundwater quality from degradation and to improve and restore water quality where degraded*

SJRWMD has a general responsibility to protect groundwater quality. Contamination of groundwater can result from activities on the land surface and from improperly constructed or abandoned wells. Preventing contamination involves land use planning, regulation, and non-regulatory programs at the state, regional, and local levels.

### Resource Assessments

#### Groundwater Resource Assessment Program

SJRWMD has a [Groundwater Resource Assessment Program](#) that is administered by the Division of Groundwater Programs through work groups focused on resource assessment and field services. Northeast Florida relies on groundwater to meet more than 90% of its water supply needs. Long-term information is required in order to ensure the continued availability of this source of supply. The resource assessment group performs detailed hydrologic investigations, designs and evaluates monitoring networks, and conducts interpretive investigations. The field services group constructs and maintains monitoring wells, oversees contractual drilling services, conducts aquifer performance tests and related hydrologic testing, and provides geophysical logging services. This program directly supports the [Water Supply Management, Consumptive Use Permitting](#), and [Minimum Flows and Levels](#) programs and other [SJRWMD programs](#). The Groundwater Resource Assessment Program provides the means to evaluate the groundwater resources, identify long-term trends, detect potential problem areas, and gauge the effectiveness of management strategies.

Water quality data for chloride, sulfate, and total dissolved solids are collected as part of the FDEP [Groundwater Quality Monitoring Program](#). This program was established as a result of the Water Quality Assurance Act of 1983 in order to protect the state's groundwater resources.

#### Springs of SJRWMD

As part of the Groundwater Resource Assessment Program, SJRWMD produced [Springs of the St. Johns River Water Management District](#) (Osburn et al. 2002). This report includes the location of individual springs, their physical description, and, when available, a picture of the spring and the spring area, tabulations of spring flow and quality, and

historical trends in discharge and concentrations of chloride, sulfate, and total nitrogen (NO<sub>3</sub>+NO<sub>2</sub>). The data used in this report have been quality-assured by SJRWMD and come from the computer files of the [U.S. Geological Survey](#) and SJRWMD. All historical data through May 2000 are used in this report.

### **Groundwater Quality Issue**

Listed below each Issue are specific Objectives and Strategies necessary to resolve the Issue. An Objective is essentially the outcome that will result once the appropriate Strategy is implemented. Listed below each Strategy are the tasks or actions suggested within each Strategy to accomplish the Objective. In addition, the SJRWMD entity responsible for completion of the task, along with a completion date estimate, is included after each task.

#### **Groundwater with Degraded Quality or Vulnerable to Contamination**

##### **Objective**

To protect and improve groundwater quality

##### **Strategies**

###### **(1) Groundwater monitoring network**

- Design and review groundwater level and groundwater quality monitoring networks using geostatistical methods. (Division of Groundwater Programs, ongoing)
  - Collect and process geophysical well log data and distribute as needed. (Division of Groundwater Programs, ongoing)
  - Develop two-dimensional and three-dimensional models of geologic units based on geophysical well log data. (Division of Groundwater Programs, ongoing)
  - Reduce the need for new monitoring well construction by integrating hydrologic compliance data into the SJRWMD data collection network. (Division of Groundwater Programs, ongoing)
  - Review and analyze monitoring data utilizing statistical and geostatistical methods on a regular basis to evaluate and refine the distribution of the wells needed within the groundwater network for the purpose of assessing the conditions of the groundwater resources. (Division of Groundwater Programs, ongoing)
  - Evaluate the temporal changes (trends) in water levels and water quality, primarily chlorides, to assess the occurrence and movement of saline water within the Floridan aquifer. (Division of Groundwater Programs, ongoing)
-

(2) Abandoned artesian well plugging

- Detect and control additional abandoned artesian wells by improving local level contacts, and expedite the resolution of non-compliance wells through enforcement. (Department of Resource Management, ongoing)
- Create a GIS coverage of wells with geophysical logs and develop the capability to generate geologic cross sections. (Division of Groundwater Programs, ongoing)
- Make geophysical log data available to SJRWMD staff as needed. (Division of Groundwater Programs, ongoing)
- Plug or control abandoned wells on public lands at the time of acquisition. (Division of Groundwater Programs, ongoing)

(3) Water well construction permitting and contractor licensing

- Continue to administer special well construction standards in FDEP-delineated contaminated areas. (Division of Groundwater Programs, ongoing)

**Performance Measures**

- Improving, degrading, and stable trends in groundwater quality
- Improving, degrading, and stable trends in nitrate concentrations in springs

## VI. NATURAL SYSTEMS

### Natural Systems Goal

*To maintain native biological diversity and productivity by protecting ecosystems and restoring altered systems to a naturally functioning condition*

### Core Mission

*To implement a regional strategy to provide sufficient water for the environment, and protect surface water resources of SJRWMD*

### Near-Term Focus

*Restore natural systems to achieve planned environmental, recreational, and economic benefits, and implement the environmental resource permitting program.*

Natural systems is an AOR that includes two major components: ecosystem protection and MFLs. Ecosystem protection emphasizes the protection of ecological communities and fish and wildlife. MFLs address the identification of surface water flows and levels and groundwater levels needed to maintain natural systems.

### Resource Assessments

#### Ecosystem Protection

Maintaining and restoring the ecological communities within SJRWMD helps to preserve native plants and wildlife and also safeguards water supply sources, floodplain functions, and surface water and groundwater quality. Regulatory programs are targeted toward protecting aquatic and wetland-dependent species and their habitat. Other SJRWMD programs, such as land acquisition, technical assistance to local governments, and SWIM, are directed toward a broader level of protection of ecological systems within the general framework of SJRWMD's authority and responsibilities.

#### SJRWMD Projects for the Restoration or Enhancement of Wetlands

SJRWMD wetland restoration efforts are planned or under way or have been completed in the SJRWMD major basin project areas, including the [Ocklawaha River](#), [Upper St. Johns River](#), [Indian River Lagoon](#), [Northern Coastal](#), and [Lower St. Johns River](#) basins. Approximately 166,000 acres of altered wetlands are in some phase of restoration, including 52,000 acres that are being, or are planned to be, converted to shallow water bodies. Another 80,000 acres of wetlands have been or are being enhanced or are

planned for enhancement through re-establishment of natural flow patterns. In addition to wetlands restored by SJRWMD projects, 6,293 acres of wetlands were created or restored between 1987 and 1997 through the SJRWMD permitting process.

### **Minimum Flows and Levels**

MFLs are being set to protect water bodies, watercourses, associated wetlands, and aquifers from significant harm resulting from surface or groundwater withdrawals or diversions. SJRWMD's MFLs method establishes multiple MFLs that define a minimum hydrologic regime to ensure that high, average, and low hydrologic conditions are protected. MFLs are represented by hydrologic statistics composed of magnitude (flow and/or level), duration (days), and return interval (years) components. MFLs are implemented with output from hydrologic water budget models that simulate long-term system hydrology. The method enables water management decisions to be made in an *a priori* and cumulative manner, evaluating how proposed water management decisions might affect system hydrologic conditions and existing legal water users. MFLs are adopted by rule in Chapter 40C-8, *F.A.C.* They are used in the assessment of water supply sources and are protected through the consumptive use and environmental resource permitting programs, the water shortage rule, and construction and operation of SJRWMD water resource projects.

The [MFLs Program](#) addresses all the requirements identified in the Florida Water Resources Act (Chapter 373, *FS*) and the Water Resource Implementation Rule (Chapter 62-40, *F.A.C.*). SJRWMD intends to continue the following efforts:

- Identify, prioritize, and schedule water bodies for setting MFLs.
- Perform data collection and applied research needed to support establishing scientifically sound MFLs.
- Perform more-detailed investigations and studies to establish MFLs for priority water bodies.
- Perform ongoing monitoring and periodic re-evaluation of MFLs.
- Develop and refine groundwater and surface water models, including developing an interface between ground and surface water models, where appropriate, to predict if water withdrawals will cause a violation of established MFLs.
- Provide information about MFLs to local governments for their comprehensive planning.

Additional information concerning the MFLs Program, including the annual priority list schedule for establishing MFLs, can be found in the SJRWMD Minimum Flows and Levels Program Plan (unpublished) and in the [MFLs Program](#) area of the SJRWMD Web site.

## Minimum Flows and Levels Development

Priority surface water sites for the setting of MFLs are identified by SJRWMD staff using the following criteria:

- Legislative or legal mandates require setting MFLs for specified water bodies/courses.
- Demand for water in the area is sufficient to have meaningful effects on flows and/or levels.
- SJRWMD has the ability to maintain or influence flows and/or levels in the area through water control structures or other water management projects and water resource restoration projects.
- The system includes regionally significant environmental resources, including those identified in the SJRWMD DWMP.
- The area is experiencing or is expected to experience stress resulting from chronic low groundwater or surface water levels or low surface water flows.
- Historic hydrologic records (flows and/or levels) are available to allow statistical analysis.

As of October 2004, MFLs have been adopted by rule for 120 systems: 104 lakes, three wetlands, eight springs, and five river reaches. Major systems with adopted MFLs are the Wekiva River and Black Water Creek; Lake Washington and the St. Johns River downstream of Lake Washington; Taylor Creek; the St. Johns River at SR 44; and the Blue Cypress Water Management Area. In many cases, voluntary peer review, hydrologic data collection, and water budget models have been completed prior to MFLs adoption. A [priority list and schedule](#) has been developed for adopting MFLs during the period 2005–2009. This list prioritizes 22 lakes, 10 springs, and three river systems for the determination of MFLs during the next 5-year period.

## Natural Systems Issues

Listed below each Issue are specific Objectives and Strategies necessary to resolve the Issue. An Objective is essentially the outcome that will result once the appropriate Strategy is implemented. Listed below each Strategy are the tasks or actions suggested within each Strategy to accomplish the Objective. In addition, the SJRWMD entity responsible for completion of the task, along with a completion date estimate, is included after each task.

### Degraded Natural Systems

#### Objective

To restore degraded water resources and related natural systems to a naturally functioning condition

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## Strategies

### (1) Land acquisition

- Complete the Florida Forever work plan by January of each year. (Division of Land Acquisition, annual)
- Purchase 100% of the land identified in the SJRWMD Florida Forever work plan annual update necessary to allow completion of major SJRWMD surface water projects. (Division of Land Acquisition, annual)
- Utilize less-than-fee acquisition where continuation of existing land use is compatible with conservation objectives. (Division of Land Acquisition, ongoing)
- Cooperate on conservation land identification and acquisition with local governments and the [Florida Forever program](#). (Division of Land Acquisition, ongoing)

### (2) Land management

- Identify restoration needs on SJRWMD lands by preparing management plans within one year of acquisition and making updates to existing plans as required. (Division of Land Acquisition, ongoing)

### (3) Invasive plant management

- Implement a standard assessment method and inventory of upland invasive plants on 100% of SJRWMD-owned land on a 2-year cycle. (Division of Land Management, ongoing)
- Reduce the backlog of upland invasive plants by 50% and achieve maintenance control on all water bodies that have been managed by SJRWMD for at least 4 years. (Division of Land Management, ongoing)

## Performance Measures

- Acres of SJRWMD-owned land identified in land management plans as needing restoration, acres undergoing restoration, and acres with restoration activities completed
- Acres of invasive nonnative aquatic plants in inventoried public waters
- Acres of SJRWMD-managed land infested with invasive nonnative upland plants
- Number and percentage of land management plan activities being implemented according to plan schedules
- Acres of land acquired through fee simple and less-than-fee simple, respectively, on an annual and cumulative basis\*

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\*Required state strategy

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## **Wetlands**

### **Objective**

To maintain the integrity and functions of water resources and related natural systems

### **Strategies**

#### (1) Wetland Mapping

- Complete assessments of impacts to wetland functions, including water quality, hydrology, and habitat for all the SJRWMD major basins. (Department of Water Resources, ongoing)

#### (2) Environmental resource permitting

- Develop and maintain a [geographic information system \(GIS\)](#) data layer of conservation easements to facilitate tracking and enforcement of easement restrictions. (Division of Permit Data Services, ongoing)
- Assist FDEP to develop a functional assessment tool for wetlands as required by statute. (Department of Water Resources, ongoing)

### **Performance Measure**

Total acres of wetlands or other surface water authorized by environmental resource permits to be impacted and acres required to be created, enhanced, restored, and preserved\*

## **Water Bodies With Adopted or Scheduled MFLs**

### **Objective**

To prevent significant harm from occurring to priority water bodies or courses and to maintain the integrity and functions of water resources and related natural systems

### **Strategies**

#### (1) Consumptive use permitting

- Limit or deny additional withdrawals in consumptive use permit applications where necessary to prevent violations of adopted MFLs. (Department of Resource Management, ongoing)

#### (2) Minimum flows and levels

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\*Required state strategy

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- Adopt according to schedule, MFLs for lakes, rivers, and springs that have regional significance and a high probability of significant impacts from consumptive uses. (Department of Water Resources, ongoing)
- Complete peer review of selected MFLs systems according to the SJRWMD [2004 MFLs priority list and schedule](#). (Department of Water Resources, ongoing)
- Complete a hydrologic model for each MFLs system prior to rule adoption, for use in predicting whether proposed water withdrawals would violate MFLs. (Department of Water Resources, ongoing)
- Expand biological monitoring programs of MFLs systems to assess the success of adopted MFLs in preventing significant harm to water resources and associated habitats. (Department of Water Resources, ongoing)
- Continue MFLs criteria development, refinement, and testing. (Department of Water Resources, ongoing)
- Monitor rainfall and flows and/or levels at sites where MFLs have been determined. (Department of Water Resources, ongoing)
- Develop recovery plans or prevention strategies for water bodies or courses below or projected to fall below adopted MFLs, respectively. (Department of Water Resources, ongoing)

### (3) Outreach

- Increase public awareness of the MFLs Program by producing publications for dissemination in the public and scientific arenas, making presentations at public meetings and scientific symposia and conferences, and coordinating with the media. (Office of Communications and Governmental Affairs, ongoing)

### Performance Measures

- Number of MFLs, by water body type, established annually and cumulatively
- Percentage of MFLs established in accordance with the previous year's schedule

## VII. WATERSHEDS

SJRWMD contains 10 major surface water basins, divided into 50 planning units. For the purposes of this plan, “basin” and “watershed” are used interchangeably and mean the land that water flows across or under on its way to a stream, river, or lake. Because basins are defined by natural hydrology, they represent a logical basis for managing surface water resources. The resources become the focal point, and managers are able to gain a better understanding of overall conditions in an area.

SJRWMD has ongoing surface water programs in a number of its basins and has been involved in new or continuing community initiatives in others. SJRWMD’s priority water resource initiatives include the Upper St. Johns River Basin Project and the Indian River Lagoon Basin, Lake Apopka Basin, Upper Ocklawaha River Basin, Lower St. Johns River Basin, Middle St. Johns River Basin, and Northern Coastal Basin SWIM programs. Other programs focus on the Orange Creek Basin and the Florida Ridge Basin. In addition, SJRWMD provides staff support for the St. Marys River Management Committee and efforts in the Nassau River Basin, and participates in working groups focused on the Lake George Basin and Silver Springs and the Silver River.

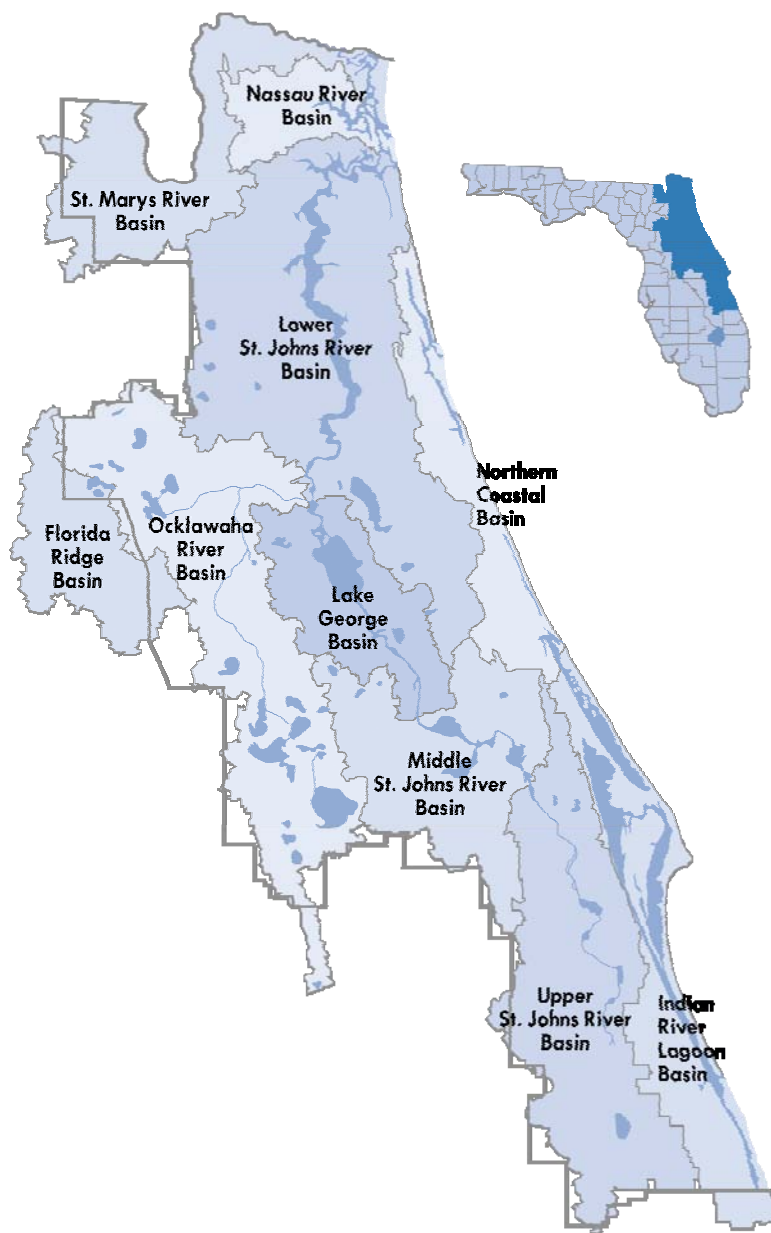


Figure VII-1. Major Watersheds in the St. Johns River Water Management District

In addition to surface water programs, SJRWMD is involved in other activities in the basins, including [permitting](#), [land acquisition and management](#), [local government assistance](#), [public education](#), and [water supply planning](#) and [development](#).

The purpose of this chapter is to provide an overview of each basin, including an introduction, a basin history, the major water bodies, the geographic area, and local government partners. In addition, a listing of issues and strategies relevant to each basin is provided. More detail on each of the priority SWIM basins, including resource assessments, objectives and goals, interagency coordination, public awareness, and water resource education, is available on the SJRWMD Web site at <http://www.sjrwmd.com/index.html>.

## FLORIDA RIDGE BASIN

### Introduction

The Florida Ridge Basin is located in northwestern Marion, southwestern Alachua, and eastern Levy counties and falls primarily within the [Southwest Florida Water Management District](#). Karst topography, high aquifer recharge, and extensive wet prairies with sinkhole drainage, including Levy and Kanapaha prairies in Alachua County, characterize the portion of the basin in SJRWMD.

### Overview

Diking and draining of Levy Prairie for agricultural purposes have affected its ability to store and convey floodwaters. Flooding is also an issue for older development in the basin unserved or inadequately served by stormwater management systems.

### Major Water Bodies

There are no major water bodies in this basin.

### Geographic Area

The basin is approximately 690 square miles in size, with approximately 125 square miles in SJRWMD.

### Local Government Partners

Alachua County  
Ocala

Marion County

## Issues and Strategies

### Protection of Floridan Aquifer Recharge Areas

- Provide information concerning aquifer recharge areas to local governments and encourage them to protect those areas through comprehensive plans and land development regulations, especially in sensitive karst areas.

### Protection of Water Quality in Springs and Spring Runs

- Continue to support a comprehensive, integrated approach to restoring and protecting ground and surface water quality and quantity in the Silver Springs groundwater basin.

### Flooding in Closed Basins

- Provide technical assistance in addressing flooding concerns in closed basins.

### Water Available for Reuse

- Provide assistance to increase reuse where appropriately treated wastewater is available and economically feasible.

## INDIAN RIVER LAGOON BASIN

### Introduction

The [Indian River Lagoon](#) (IRL) is one of the most diverse estuaries in North America. Stretching 156 miles from Ponce de Leon Inlet in Volusia County to Jupiter Inlet in Palm Beach County, it supports more than 4,300 species of plants and animals. At least 400 fish, 367 bird, 16 amphibian, 52 reptile, and 30 mammal species are dependent on the IRL, which provides 50% of the east Florida fish catch and 90% of Florida's clam harvest. Healthy seagrass beds, which are found where the water quality and water clarity are good, are important for sustaining this biological productivity and diversity. The economic impact of the IRL is \$730 million annually from recreational use, commercial fishing, and increased land value.

The basin includes parts of Volusia, Brevard, and Indian River counties in SJRWMD and parts of St. Lucie, Martin, and Palm Beach counties in the [South Florida Water Management District](#) (SFWMD). It contains two of the fastest growing cities in the United States – Palm Bay and Port St. Lucie. Its best known attraction is the Kennedy Space Center at Cape Canaveral. In addition, farms in the area produce the world-famous Indian River citrus.

## Overview

The IRL receives inputs of salt water from the ocean through inlets, and freshwater from direct precipitation, groundwater seepage, surface water runoff, and discharges from tributary streams and drainage canals. In 1916, the IRL watershed drained 572,000 acres of land. Over the course of the 20<sup>th</sup> century, this area was expanded by the diversion of agricultural runoff and floodwaters from the Upper St. Johns River Basin and Lake Okeechobee to the IRL.

The current watershed includes more than 1.4 million acres, 2.5 times the original drainage area. The increase in freshwater input resulting from this expansion of the watershed has dramatically altered the balance of the IRL system. SJRWMD's [C-1 Rediversion Project](#) has eliminated much of this freshwater discharge.

Domestic wastewater has historically been a source of pollution for the IRL. Discharge from domestic wastewater treatment plants has been substantially reduced as a result of the 1990 IRL No Discharge Act. However, septic tanks, used by one-third or more of the population in each of the three counties in SJRWMD, continue to be a cause of concern.

The IRL SWIM Program worked with county health departments to identify potential septic tank problem areas. EPA has provided funding to the [National Estuary Program](#) to determine the contribution of septic tanks to nutrient loading in the IRL and to locate the sources of high nutrients.

IRL wetlands historically provided filtration of surface water runoff and nursery habitat for estuarine organisms. In the 1950s and 1960s, more than 75% of the salt marsh in the IRL was diked and flooded for mosquito control, eliminating its estuarine nursery value. Restoration of the function of the impounded wetlands is a goal of the [IRL SWIM Program](#).

Destruction of the natural shoreline has resulted in the loss of acres of mangroves, which are critical for preventing shoreline erosion, protecting water quality, and providing nesting sites for birds. In the transitional areas from saltwater wetlands to uplands, Brazilian pepper, an invasive nonnative species, has replaced mangroves. Efforts are ongoing for pepper plant eradication and mangrove re-planting.

Since 1943, the IRL has lost about 18% of its sea grass. In the 50-mile stretch from NASA Causeway to Grant, seagrass acreage declined 70% from 1943 to 1992. Remarkably, seagrass abundance remains virtually unchanged in some nearly pristine areas of the IRL such as the southern Mosquito Lagoon, the north end of the Indian River proper, and the northern Banana River.

### **Major Water Bodies**

Banana River	Sykes Creek and Newfound Harbor
Crane Creek	Turkey Creek
Eau Gallie River	Turnbull Creek
Indian River	Taylor Creek (SFWMD)
Mosquito Lagoon	St. Lucie River (SFWMD)
Sebastian River	

### **Geographic Area**

The IRL extends along 40% of Florida’s east coast. The basin covers approximately 1,380 square miles in SJRWMD and SFWMD.

### **Local Government Partners**

Brevard County	Volusia County
Indian River County	

Cape Canaveral, Cocoa, Cocoa Beach, Edgewater, Indialantic, Indian Harbour Beach, Indian River Shores, Malabar, Melbourne, Melbourne Beach, Melbourne Village, New Smyrna Beach, Oak Hill, Orchid, Palm Bay, Palm Shores, Rockledge, Satellite Beach, Sebastian, Titusville, West Melbourne, Vero Beach

## **Issues and Strategies**

### **Protection of Surface Water Supply Sources**

- Work with local governments in developing land development regulations and other means of protecting the C-1 Canal if selected as a potential surface water source.

### **Wetland Losses**

- Pursue acquisitions within the IRL Blueway Conservation and Recreation Lands Project.

### **Potential Impacts From Projected Withdrawals for Water Supply**

- Implement water supply alternatives in the DWSP during the next 5 years to avoid impacts and meet future needs.

## Water Available for Reuse

- Provide assistance to increase reuse where treated wastewater is available and economically feasible.

## LAKE GEORGE BASIN

### Introduction

The Lake George Basin consists of the St. Johns River drainage area from the mouth of the Wekiva River to the mouth of the Ocklawaha River, located in parts of Volusia, Lake, Marion, and Putnam counties. Lake George, the second-largest lake in Florida with a surface area of 46,000 acres, is home to the second-largest population of bald eagles in the lower 48 states. Also, the basin has many springs, including the Silver Glen, Alexander, and Blue first-magnitude springs.

### Overview

In addition to the [Ocala National Forest](#), large tracts of land in the basin have been acquired for the public, including most of the eastern shore of Lake George. In 1990, SJRWMD and Volusia jointly purchased more than 18,000 acres. SJRWMD has since purchased several additional properties. It is undertaking long-term projects on much of this land to restore longleaf pine that was converted to pine plantations approximately 40 years ago. The restored habitats will provide increased biodiversity and recreational opportunities.

In 1997, an accumulation of muck and woody vegetation along portions of the shoreline prompted residents to form the Lake George Restoration Group. Membership includes representatives of local, regional, state, and federal agencies as well as area residents. The group's immediate objective is removal of the muck and vegetation from the lakeshore. Long-term goals include preventing its re-accumulation and ensuring the health of the lake.

### Major Water Bodies

Alexander Springs Creek  
Lake Dexter  
Lake George  
Juniper Creek

Lake Kerr  
St. Johns River  
Lake Woodruff

### Geographic Area

The basin is approximately 816 square miles in size.

### **Local Government Partners**

Lake County  
Marion County

Putnam County  
Volusia County

DeLand, Orange City, Pierson, Welaka

### **Issues and Strategies**

#### **Protection of Surface Water Supply Sources**

- Encourage local governments to use their comprehensive plans and land development regulations to protect the area around the St. Johns River near DeLand if it is selected as a site for surface water public supply.

#### **Protection of Floridan Aquifer Recharge Areas**

- Provide information concerning aquifer recharge areas to local governments and encourage them to protect those areas through their comprehensive plans and land development regulations.

#### **Protection of Water Quality in Springs and Spring Runs**

- Provide technical assistance regarding protection of aquifer recharge areas within spring groundwater basins.

#### **Flooding in Closed Basins**

- Provide technical assistance in addressing flooding concerns in closed basins.

#### **Water Resource Development Projects**

- Implement water supply alternatives provided in the DWSP to avoid impacts and meet future needs during the next 5 years.

#### **Water Available for Reuse**

- Provide assistance to increase reuse where treated wastewater is available and economically feasible.

## LOWER ST. JOHNS RIVER BASIN

### Introduction

The [Lower St. Johns River Basin](#) (LSJRB) is that portion of the St. Johns River extending from the confluence of the St. Johns and Ocklawaha rivers near Welaka, north to the mouth of the St. Johns River at Mayport, east of Jacksonville. The lower basin stretch of the river is also referred to as the St. Johns Estuary, a name indicating its importance as a breeding and feeding area for a large variety of fish and wildlife that have adapted to the freshwater and saltwater conditions.

### Overview

The St. Johns River provides a major route for commercial shipping, with Jacksonville being one of the largest ports on the East Coast. Commercial and sport fishing on the river is a multimillion dollar industry. Boating of all kinds flourishes along the river, creating one of the region's most viable industries and recreational opportunities. Many hiking and jogging trails, including the [Florida National Scenic Trail](#), wind their way along the river.

However, residential, commercial and industrial development, agricultural activities, and numerous domestic wastewater and industrial outflows along the lower St. Johns River and its tributaries have negatively affected water quality.

### Major Water Bodies

Arlington River	Julington Creek
Black Creek	Ortega River
Boggy Branch	Pablo Creek
Cedar River	Peters Creek
Clarks Creek	Pottsburg Creek
Crescent Lake	Rice Creek
Deep Creek	Simms Creek
Doctors Lake	Sixmile Creek
Dunns Creek	Trout Creek
Durbin Creek	Trout River
Greens Creek	St. Johns River
Haw Creek	Sisters Creek

### Geographic Area

The basin has a total area of approximately 2,750 square miles.

### **Local Government Partners**

Alachua County  
Bradford County  
Clay County  
Flagler County

Putnam County  
St. Johns County  
Volusia County

Atlantic Beach, Bunnell, Crescent City, Green Cove Springs, Hastings, Jacksonville, Jacksonville Beach, Keystone Heights, Neptune Beach, Orange Park, Palatka, Penney Farms

### **Issues and Strategies**

#### **Protection of Floridan Aquifer Recharge Areas**

- Provide information concerning Floridan aquifer recharge areas to local governments and encourage them to protect those areas through their comprehensive plans and land development regulations.

#### **Potential Impacts From Projected Withdrawals for Water Supply**

- Implement water supply alternatives provided in the DWSP to avoid impacts and meet future needs during the next 5 years.

#### **Water Available for Reuse**

- Provide assistance to increase reuse where treated wastewater is available and economically feasible.

#### **Loss of Natural Floodplain Features and Functions**

- Complete final cooperative projects in the Five-Year Restoration Plan (1997–2002 funding cycle) for protecting and restoring aquatic habitat within the LSJRB.
- Continue to implement projects funded through the Lower St. Johns River Legislative Initiative.

#### **Degraded or Degrading Surface Water Quality**

- Assist FDEP with the identification and funding of projects through the TMDL allocation and basin management and planning efforts to reduce nutrient loading to the St. Johns River from point and nonpoint sources of pollution.

- Implement projects via the Lower St. Johns River Legislative Initiative to continue work to revise the PLRG revisions by 2008 in support of the refinement of TMDLs for the lower St. Johns River main stem, agricultural watersheds, and the Jacksonville urban area.

## MIDDLE ST. JOHNS RIVER BASIN

### Introduction

The [Middle St. Johns River Basin](#) (MSJRB) extends from the [Econlockhatchee \(Econ\) River](#) in Osceola, Orange, and Seminole counties, northward into Lake and Volusia counties. It contains the second-largest tributary to the St. Johns River, the Econ; the spring-fed Wekiva River, an [Outstanding Florida Water](#) and Aquatic Preserve; Lakes Harney and Monroe, which are formed by a broadening of the St. Johns River; and [Lake Jesup](#), one of the most polluted lakes directly connected to the St. Johns. It also encompasses a major black bear corridor to the [Ocala National Forest](#) and SJRWMD's portion of Orlando. SJRWMD adopted the MSJRB as a SWIM water body in 2002.

### Overview

Efforts of residents to preserve the natural attributes of the Wekiva River led to passage of the Wekiva River Protection Act by the state Legislature in 1988. This act directed SJRWMD and local governments to adopt rules and policies to protect the water quality and quantity, wetlands, and wildlife of the Wekiva River Basin. Additional special legislation was created for the Wekiva River springshed in 2004 to plan for the construction of the Wekiva Parkway, the final link to the Orlando Beltway. The new legislation expands the boundaries of the previous Wekiva River Basin, increases protection for the ground and surface water of the Wekiva River system, and directs SJRWMD, state agencies, and local governments to research some of the ground and surface water issues and adopt rules and policies in the Wekiva springshed. Special regulatory criteria were adopted by SJRWMD for the Wekiva River, and later for the Econ.

Significant public ownership exists along the Wekiva River, and much of the land along the Econ is publicly owned or is in large agricultural ownerships. In contrast, their tributaries – the Little Wekiva and the Little Econ – have been heavily impacted by urbanization.

Lake Jesup is a large, shallow lake near the center of Seminole County, connected to the St. Johns River by an outlet channel that is constricted by the SR 46 bridge. The lake receives urban runoff from Orlando, Winter Park, Casselberry, and Maitland, as well as agricultural runoff from adjacent farms.

SJRWMD has identified several areas in the MSJRB as having a high priority for restoration, including the Little Wekiva River, Lake Jesup, Lake Monroe, the Little Econlockhatchee River, and the Orlando Beltway Mitigation site.

### **Little Wekiva River**

Because much of the development in the watershed of the Little Wekiva River occurred prior to stormwater management requirements, it resulted in increased flow rates, flow volumes, and pollutant loads. The river has experienced severe erosion and sedimentation due to periods of high rainfall following many years of low rainfall.

A committee of stakeholders, the Little Wekiva River Technical Working Group, was organized in June 1995 and has been meeting regularly since that time. Members include governmental agencies (state, regional, county, and city), environmental advocacy groups, and residents. The group has worked together to compile lists of basin needs and to review potential projects.

Recognizing the adverse impacts caused by erosion, the Florida Legislature authorized appropriations in 1995, 1996, 1997, 1998, 2000, and 2001 to address the erosion and resulting sedimentation problems. A basinwide approach to the sediment transport problem in the river has been developed in the Little Wekiva River Watershed Management Plan. The plan, completed in May 1998, includes 16 specific projects that may be implemented to reduce the erosion and sediment transport within the main stem of the river.

### **Lake Jesup**

This lake is hypereutrophic and nearly devoid of submerged aquatic vegetation, having excessive concentrations of phosphorus and nitrogen, extensive organic muck deposits, and declining fish populations. Lake Jesup has been identified as an impaired water body by FDEP, and a TMDL is scheduled to be developed for this water body in 2005.

From 1994 to 1998, the Lake Jesup Act provided for the creation of a 16-member local citizens advisory team. As mandated by the Act, the [Lake Jesup project](#) involves feasibility studies and demonstration projects for implementation of selected restoration methods. As a result of studies funded by the Lake Jesup Act, there is an emphasis on reducing phosphorus loading levels to targeted concentrations. Current implementation projects are the construction of several regional stormwater facilities and the removal of the causeway at the confluence of the St. Johns River and Lake Jesup. A redesigned bridge at SR 46 is planned for construction in 2007.

### **Lake Monroe and the Little Econlockhatchee River**

Impairments in the water quality have been identified in the [Lake Monroe](#) and Little Econlockhatchee River systems of the MSJRB. SJRWMD is working with the local governments to provide technical assistance and to seek funding as they implement stormwater master plans to address the water quality improvement needs in these systems.

### **Orlando Beltway Mitigation**

The goal of this program is to develop and implement preservation and restoration plans for [mitigation](#) of roadway impacts associated with construction of the Central Florida Beltway. SJRWMD and Orange County jointly acquired environmentally sensitive lands that are now managed as the Hal Scott Regional Park and Preserve.

### **Major Water Bodies**

Lake Ashby  
Black Water Creek  
Deep Creek  
Lake Dorr  
Econlockhatchee River  
Little Econlockhatchee River  
Lake Harney

Lake Jesup  
Lake Monroe  
Lake Norris  
St. Johns River  
Little Wekiva River  
Wekiva River

### **Geographic Area**

The MSJRB covers approximately 1,200 square miles.

### **Local Government Partners**

Lake County  
Orange County  
Altamonte Springs, Casselberry, DeBary, Deltona, Eatonville, Edgewood, Lake Helen, Lake Mary, Longwood, Maitland, Orlando, Oviedo, Sanford, Winter Park, Winter Springs

Seminole County  
Volusia County

## Issues and Strategies

### Protection of Floridan Aquifer Recharge Areas

- Provide information concerning aquifer recharge areas to local governments and encourage them to protect those areas through their comprehensive plans and land development regulations.
- Provide technical assistance regarding protection of aquifer recharge areas within spring groundwater basins.

### Flooding in Closed Basins

- Provide technical assistance in addressing flooding concerns in closed basins or isolated depressions.

### Degraded or Degrading Water Quality

- Pursue acquisitions along the Wekiva and Econ rivers, Lake Jesup, Lake Monroe, and Lake Harney to provide water quality improvements, protect natural floodplains, and link important natural areas.
- Reduce nutrient loads in storm water through development of stormwater parks, use of wetland treatment systems, and other appropriate methods.
- Develop PLRGs consistent with the requirements of the state SWIM rule and the FDEP impaired water bodies list.

### Potential Impacts From Projected Withdrawals for Water Supply

- Implement water supply alternatives provided in the DWSP for the east-central Florida area to avoid impacts and meet future needs.

### Water Available for Reuse

- Provide assistance to increase reuse in population centers where large amounts of treated wastewater are available.

## NASSAU RIVER BASIN

### Introduction

The Nassau River Basin is located in northeastern Florida, covering much of Nassau County and a portion of Duval County to the south. The main drainage features are the Nassau River and its numerous tributaries. Flowing eastward, the river forms a part of

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the boundary between the two counties. At the coast, it joins other surface waters, forming a highly productive estuarine system.

### **Overview**

This basin is largely undeveloped. Upland forests (including silviculture) and wetlands still constitute more than 75% of the land cover, although residential development is increasing as the Jacksonville urban area expands. Amelia Island has long been a popular tourist destination.

### **Major Water Bodies**

Alligator Creek	Pumpkin Hill Creek
Fort George River	Nassau River
Lofton Creek	Sisters Creek
Mills Creek	South Amelia River
Nassau River	Thomas Creek
Plummer Creek	

### **Geographic Area**

The basin is approximately 430 square miles in size.

### **Local Government Partners**

Nassau County	Duval County
Callahan	

## **Issues and Strategies**

### **Loss of Natural Floodplain Features and Functions**

- Identify land acquisition opportunities in the Nassau River Basin.

### **Water Available for Reuse**

- Provide assistance to increase reuse where appropriately treated wastewater is available and economically feasible.

### **Status of Classified Shellfish Harvesting Areas**

- Support water quality monitoring to assist in maintaining classified shellfish harvesting areas in Duval County.

## NORTHERN COASTAL BASIN

### Introduction

The [Northern Coastal Basin](#) covers the watersheds along the Intracoastal Waterway from Ponce Inlet in Volusia County, north through Flagler and St. Johns counties, to southern Duval County. Surface waters classified as [Outstanding Florida Waters](#) include waters in the Tomoka River and Spruce Creek basins in Volusia County, portions of the Guana-Tolomato-Matanzas system, and Pellicer Creek. Large areas of undeveloped land remain in the basin, including extensive landholdings by timber companies.

### Overview

The Northern Coastal Basin Program was initiated in 1995 in response to increasing concerns about the impact of existing and anticipated population growth and development on water quality. Some parts of the basin are already highly urbanized while others, such as areas along upper Spruce Creek and the Tolomato River, have become subject to development pressure.

In 1998, an initial reconnaissance report was completed and used as a resource guide in development of the [Northern Coastal Basin SWIM Plan](#). The purpose of the SWIM Plan, which was completed in 2003, is to set forth a proactive course of action, identifying the projects that address both estuarine water quality and habitat protection and the effort needed to accomplish them.

### Major Water Bodies

Bulow Creek	Moultrie Creek
Graham Swamp	Pellicer Creek
Guana River	San Sebastian River
Halifax River	Spruce Creek
Intracoastal Waterway	Tolomato River
Matanzas River	Tomoka River

### Geographic Area

The basin covers approximately 680 square miles.

### **Local Government Partners**

Flagler County

Volusia County

St. Johns County

Beverly Beach, Daytona Beach, Daytona Beach Shores, Flagler Beach, Holly Hill, Marineland, Ormond Beach, Ponce Inlet, Ponte Vedra, Port Orange, South Daytona, St. Augustine, St. Augustine Beach

### **Issues and Strategies**

#### **Protection of Floridan Aquifer Recharge Areas**

- Provide information concerning Floridan aquifer recharge areas to local governments and encourage them to protect those areas through their comprehensive plans and land development regulations.

#### **Flood Damage**

- Provide technical assistance in addressing flooding concerns in isolated depressions.

#### **Loss of Natural Floodplain Features and Functions**

- Pursue acquisition of shorelines, wetlands, and coastal habitats in areas such as the Tomoka River; Spruce, Bulow, and Moses creeks; and Twelve Mile Swamp.
- Implement the water supply alternatives provided in the DWSP to avoid impacts and meet future needs during the next 5 years.

#### **Potential Impacts From Projected Withdrawals for Water Supply**

- Provide assistance to increase reuse where treated wastewater is available and economically feasible.

## **OCKLAWAHA RIVER BASIN**

### **Introduction**

The [Ocklawaha River Basin](#) is located near the center of peninsular Florida. Principal tributary to the St. Johns River, the Ocklawaha River forms from two headwaters – Lake Apopka, the fourth largest lake in Florida, and the Palatlahaha River in the Green Swamp area of northern Polk County. On its way north to meet the St. Johns River in

Putnam County, the Ocklawaha River is fed by Silver Springs, the largest non-coastal spring in Florida.

Surface waters in this basin have been heavily modified for farming, navigation, flood control, and construction of the now de-authorized Cross-Florida Barge Canal. SJRWMD is restoring thousands of acres of muck farms to aquatic and wetland habitat along the river and adjacent to Lake Apopka and lakes in the Harris Chain of Lakes.

## **Overview**

The first large-scale human alteration of the basin was the attempt in the late 1800s and early 1900s to connect the Chain of Lakes and Lake Apopka to the St. Johns River. Canals were cut between the main lakes which, in the process, significantly decreased the level of Lake Apopka.

In the early 1900s, the Ocklawaha River was diverted from its natural course by construction of the C-212 and C-231 canals. About 15 miles of the old river channel were abandoned, and more than 5,700 acres of wetlands were drained and converted to farmland. In the 1960s, as part of construction of the Cross-Florida Barge Canal, the lower Ocklawaha River was dammed and about 20 miles of river flooded, creating Rodman Reservoir.

SJRWMD has identified several areas in the Ocklawaha River Basin as having a high priority for restoration, including Lake Apopka, the Upper Ocklawaha River Basin, and the Orange Creek Basin.

## **Lake Apopka**

[Lake Apopka](#) has a history of more than 100 years of human alteration, beginning with construction of the Apopka-Beauclair Canal in 1888. In 1941, as part of the war effort, a levee was built along the north shore to drain 20,000 acres of shallow marsh for farming. The discharge of water rich in nutrients from agricultural and other sources produced conditions that created a chronic algal bloom and resulted in loss of the lake's recreational value and game fish populations.

Legislation passed in 1985 and 1987 mandated that SJRWMD develop and implement plans to restore Lake Apopka to Class III water quality. Planning, diagnostic, and feasibility studies for the lake began under the 1985 Lake Apopka Restoration Act, and the 1987 SWIM Act included the lake as a priority water body in need of restoration. The 1996 Lake Apopka Restoration Act included authorization for SJRWMD to set a criterion to be used in limiting phosphorus discharges to the lake and provided funding to initiate a mandated buyout of the muck farms on the north shore of the lake.

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SJRWMD adopted a phosphorus criterion by rule in 1996 and completed buyout of the muck farms in 1999.

The restoration phase of Lake Apopka is expected to continue for at least 25 years. It involves filtration of lake water through a marsh flow-way and annual harvests of gizzard shad to reduce the phosphorus concentration in the lake, adoption and implementation of a waste allocation rule to control phosphorus concentration in the lake, reestablishment of more-natural lake level fluctuations and flows, planting of native emergent plants to stabilize sediments and improve shoreline habitat, and restoration of the former muck farms to aquatic and wetland habitats.

### **Upper Ocklawaha River Basin**

The [Upper Ocklawaha River Basin](#) (UORB) encompasses 638 square miles, including the Harris Chain of Lakes north of Lake Apopka and the upper Ocklawaha River to the confluence of the Silver River near SR 40 in Marion County. Water quality and aquatic and wetland habitats in the basin declined dramatically over the last century. The Ocklawaha River was dredged for navigation and 15 miles of the upper river channel were abandoned, 15,000 acres of floodplain wetlands were drained for agriculture, three dams stabilized lake water levels, and urban growth became a major factor in the basin. Pollutants from upstream Lake Apopka and in stormwater and wastewater discharges promoted algae growth in the lakes, leading to eutrophication in lakes throughout the basin. Valuable aquatic plant habitat was lost as murky waters prevented sunlight from penetrating the water. Fish populations shifted from large numbers of sport fish to rough fish, dominated by gizzard shad. Stabilized water levels and reduced flows contributed to further degradation of water quality by limiting once-normal flushing of nutrients and sediments. In 1988, the UORB was designated by SJRWMD as a SWIM priority water body in need of restoration. Restoration efforts focus on reducing nutrients and other pollutants in basin water bodies, re-establishing more-natural water level fluctuations and flows, restoring portions of the original river channel, and restoring aquatic and wetland habitats at former muck farms.

Progress toward achieving the program goal through implementation of the UORB SWIM Plan has accelerated in recent years due to substantial program budget support from several cooperative partners and by legislative appropriations. The U.S. Department of Agriculture-Natural Resources Conservation Service, the [U.S. Army Corps of Engineers](#), FDEP, and the [Lake County Water Authority](#) have contributed important financial support to several projects. The [Florida Fish and Wildlife Conservation Commission](#) has provided important assistance in development of a regional aquatic habitat improvement initiative. Recent data indicate a dramatic and sustained improvement in water quality in Lake Griffin after a period of drought combined with reduction of external nutrient loading and harvesting of 1.7 million

pounds of gizzard shad from the lake. Construction of the [Sunnyhill Wetland Restoration Project](#) through the federal Section 1135 program will begin in FY 2004–2005, after several years of planning and design. The next decade will further advance improvements in water quality and aquatic habitat throughout the UORB.

### **Orange Creek Basin**

The 600-square-mile [Orange Creek Basin](#) is located in the lower Ocklawaha River system in Alachua, Marion, and Putnam counties. A major feature is [Paynes Prairie State Preserve](#), a wet prairie that receives urban discharge from streams flowing from the city of Gainesville. Diversion of Prairie Creek from Paynes Prairie to Orange Lake and construction of the Orange Lake weir, the Newnans Lake dam, U.S. highways 301 and 441, and Interstate 75 have altered natural flow patterns and water level fluctuations. Conversion of wetlands along Orange Creek for agricultural use has diminished water quality and habitat. As a result of these changes, Newnans Lake has become hypereutrophic and woody vegetation has spread over a part of Paynes Prairie.

### **Major Water Bodies**

Lake Apopka	Lake Lochloosa
Lake Beauclair	Lake Louisa
Lake Carlton	Newnans Lake
Dead River	Ocklawaha River
Lake Denham	Orange Lake
Lake Dora	Palatlahaha River
Lake Eustis	Silver River
Lake Griffin	Trout Lake
Haines Creek	Lake Weir
Lakes Harris/Little Harris	Lake Yale
Helena Run	Yale-Griffin Canal

### **Geographic Area**

The Ocklawaha River Basin has a total area of approximately 2,116 square miles.

### **Local Government Partners**

Alachua County

Orange County

Lake County

Putnam County

Marion County

Astatula, Clermont, Eustis, Fruitland Park, Gainesville, Groveland, Howey-in-the-Hills, Interlachen, Lady Lake, Leesburg, Mascotte, Minneola, Montverde, Mount Dora, Oakland, Ocoee, Tavares, Umatilla, Winter Garden

### **Issues and Strategies**

#### **Potential Impacts From Projected Withdrawals for Water Supply**

- Encourage local governments to use their comprehensive plans and land development regulations to protect areas in the lower and Upper Ocklawaha River basins if selected as sites for surface water public supply.
- Implement water supply alternatives provided in the DWSP to avoid impacts and meet future needs during the next 5 years.

#### **Protection of Floridan Aquifer Recharge Areas**

- Provide information concerning aquifer recharge areas to local governments and encourage them to protect those areas through their comprehensive plans and land development regulations.
- Provide technical assistance regarding protection of aquifer recharge areas within spring groundwater basins.

#### **Protection of Water Quality in Springs and Spring Runs**

- Continue to support a comprehensive, integrated approach to restoring and protecting ground and surface water quality and quantity in the Silver Springs groundwater basin.

#### **Flooding in Closed Basins**

- Provide technical assistance in addressing flooding concerns in closed basins or isolated depressions.

#### **Water Available for Reuse**

- Provide assistance to increase reuse in population centers, especially Gainesville and southern Lake County, where large amounts of treated wastewater are available.

## ST. MARYS RIVER BASIN

### Introduction

The [St. Marys River](#) is a remote blackwater stream with an extensive marsh system located in southeastern Georgia and northeastern Florida. For its entire 130-mile length, it serves as a natural border between the two states. Beginning in the peat bogs of the Okefenokee Swamp and the Pinhook Swamp, it eventually empties into Cumberland Sound and the Atlantic Ocean. The lower portion of the St. Marys River is tidally influenced, and reverse flows occur daily.

### Overview

In the late 1800s, the St. Marys River was an active shipping route for the numerous lumber mills located along its banks, such as those at Colerain, Kings Ferry, and Crandell. Logging activity lasted until the early 1900s, when the mills closed because of depleted timber resources, allowing substantial reforestation to occur.

### Major Water Bodies

Amelia River  
Cedar Creek  
Deep Creek  
Egans Creek

Little St. Marys River  
St. Marys River  
Turkey Creek

### Geographic Area

The basin is approximately 1,580 square miles in size, with approximately 873 square miles in SJRWMD.

### Local Government Partners

Baker County  
Nassau County  
Duval County

Charlton County (Georgia)  
Camden County (Georgia)

Florida: Baldwin, Glen St. Mary, Macclenny, Fernandina Beach, Hilliard  
Georgia: Folkston, St. Marys, Kingsland

## Issues and Strategies

### Loss of Natural Floodplain Features and Functions

- Identify land acquisition opportunities in the St. Marys River basin.

### Water Available for Reuse

- Provide assistance to increase reuse where appropriately treated wastewater is available and economically feasible.

## UPPER ST. JOHNS RIVER BASIN

### Introduction

The [Upper St. Johns River Basin](#) (USJRB) extends nearly 80 miles from the headwaters of the St. Johns River in Indian River and Okeechobee counties to the southern end of Lake Harney in Volusia County. It contains SJRWMD's two surface water sources for potable water, Lake Washington and Taylor Creek.

Most of the basin is rural, with the population concentrated near the Indian River Lagoon Basin on the Atlantic coast. The area is probably best known for its agricultural production, especially cattle and citrus. Nutrient loads to the river associated with these activities have been reduced through implementation of best management practices by farms and restoration of thousands of acres of ditched, diked, and drained floodplain wetlands in the USJRB Project.

### Overview

Originally, there were more than 400,000 acres of floodplain marsh in the USJRB. Over the 111 river miles of the basin, the river elevation drops an average of only one foot per five river miles. This low gradient and large floodplain allowed the upper St. Johns River marshes to function as water storage areas, serving as natural regulators during high and low water stages.

Beginning at the turn of the century, and accelerating in the 1940s and 1950s, large portions of the marsh were diked and drained for agricultural use. After a series of floods in the 1940s, a federal flood control project was authorized and the [U.S. Army Corps of Engineers](#) built an extensive network of drainage canals to divert waters to the IRL. By the early 1970s, 62% of the floodplain marsh was lost. Impacts included loss of storage areas for hurricane floodwaters, significant decreases in fish and wildlife populations, diminished water quality in the river, and excessive freshwater in the IRL.

The wetlands that remained were further degraded by alterations in hydrology and increases in nutrients from agricultural runoff pumped into the marsh.

In 1977, SJRWMD took over local sponsorship of the federal project and developed a plan with the U.S. Army Corps of Engineers to achieve flood control objectives while providing significant environmental benefits. The USJRB Project is designed to reduce damage from floods, decrease stormwater discharge to the lagoon, improve water quality in the river, and restore or enhance 150,000 acres of wetlands.

### **Major Water Bodies**

Blue Cypress Lake	St. Johns River
Lake Hell 'n' Blazes	Sawgrass/Little Sawgrass lakes
Jane Green Creek	Taylor Creek
Lake Poinsett	Lake Washington
Puzzle Lake	Lake Winder
St. Johns Marsh	

### **Geographic Area**

The entire USJRB encompasses more than one million acres, or about 1,700 square miles. Most of the basin, about 1,680 square miles, is in SJRWMD, with the remaining area in [SFWMD](#).

### **Local Government Partners**

Brevard County	Orange County
Indian River County	Osceola County
Okeechobee County	Volusia County
Cocoa, Fellsmere, Melbourne, Palm Bay, Rockledge, Okeechobee, Titusville, West Melbourne	

## **Issues and Strategies**

### **Protection of Floridan Aquifer Recharge Areas**

- Provide information concerning Floridan aquifer recharge areas to local governments and encourage them to protect those areas through their comprehensive plans and land development regulations.

### **Protection of Surface Water Supply Sources**

- Assist local governments to protect public water supplies at Lake Washington and Taylor Creek through land development regulations and maintenance of the low-density residential land use around the lake.
- Encourage local governments to use their comprehensive plans and land development regulations to protect the C-1 Canal and the areas around the St. Johns River near Titusville and Cocoa if any are selected as sites for surface water public supply.

### **Potential Impacts From Projected Withdrawals for Water Supply**

- Implement water supply alternatives provided in the DWSP to avoid impacts and meet future needs during the next 5 years.

### **Water Available for Reuse**

- Provide assistance to increase reuse where treated wastewater is available and economically feasible.

### **Degraded or Degrading Surface Water**

- Continue to monitor water quality at agricultural discharge locations in the USJRB and take appropriate corrective action to ensure that water quality standards and PLRGs are met.

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## APPENDIX A

### CROSS REFERENCE OF STATE BUDGET REPORTING CATEGORIES TO SJRWMD PROGRAMS

State Budget Reporting Categories <sup>1</sup>	SJRWMD Program Number <sup>2</sup>	SJRWMD Program Name <sup>3</sup>
<b>1.0 – Water Resources Planning and Monitoring</b>		
1.1 – District Water Management Planning		
1.1.1 – Water Supply Planning	5110	Water Supply Planning
	5111	Groundwater Resource Assessment
	5112	Water Use Data Management
1.1.2 – Minimum Flows and Levels	5120	Minimum Flows and Levels
1.1.3 – Other Water Resources Planning		N/A <sup>4</sup>
1.2 – Research, Data Collection, Analysis, and Monitoring	5210	Hydrologic Data Collection
	5220	Surface Water Quality Monitoring
	5240	Laboratory Services
	5250	Survey Support
	5260	Geographic Information Systems
1.3 – Technical Assistance		N/A <sup>4</sup>
<b>2.0 – Acquisition, Restoration, and Public Works</b>		
2.1 – Land Acquisition	6100	Land Acquisition
2.2 – Water Source Development		
2.2.1 – Water Resource Development Projects	6210	Water Resource Development Projects
2.2.2 – Water Supply Development Assistance	6220	Water Supply Development Assistance
2.2.3 – Other Water Resource Development Activities	6230	Abandoned Artesian Well Plugging
2.3 – Surface Water Projects	6301	Surface Water Projects Program Support
	6302	Mitigation – Other
	6309	FDOT Mitigation
	6320	Lower St. Johns River Basin
	6330	Middle St. Johns River Basin
	6350	Upper St. Johns River Basin

State Budget Reporting Categories <sup>1</sup>	SJRWMD Program Number <sup>2</sup>	SJRWMD Program Name <sup>3</sup>
	6360	Ocklawaha River Basin
	6361	Upper Ocklawaha River Basin
	6362	Lake Apopka Basin
	6367	Orange Creek Basin
	6380	Northern Coastal Basin
	6390	Indian River Lagoon Basin
2.4 – Other Cooperative Projects	6410	Stormwater Cost Share
2.5 – Facilities Construction and Major Renovations	6510	Facilities Construction
<b>3.0 – Operation and Maintenance of Lands and Works</b>		
3.1 – Land Management	7110	Land Management
3.2 – Works	7200	Structures and Levees Operations and Maintenance
3.3 – Facilities	7310	Facilities Management
3.4 – Invasive Plant Control	7410	Invasive Plant Management
3.5 – Other Operation and Maintenance Activities	7510	Emergency Management
	7520	Environmental Management Program
	7550	Operations and Maintenance Program Support
<b>4.0 – Regulation</b>		
4.1 – Consumptive Use Permitting	8100	Consumptive Use Permitting
4.2 – Water Well Construction Permitting and Contractor Licensing	8200	Water Well Construction Permitting and Contractor Licensing
4.3 – Environmental Resource and Surface Water Permitting	8300	Environmental Resource and Surface Water Permitting
4.4 – Other Regulatory and Enforcement Activities	8410	Regulatory Program Support-Resource Management
<b>5.0 – Outreach</b>		
5.1 – Water Resource Education	9200	Public Information
5.2 – Public Information	9200	Public Information
5.3 – Public Relations		N/A <sup>4</sup>
5.4 – Lobbying	9400	Lobbying
5.5 – Other Outreach Activities	9200	Public Information
<b>6.0 – District Management and Administration</b>		
6.1 – Administrative and Operations Support		

State Budget Reporting Categories <sup>1</sup>	SJRWMD Program Number <sup>2</sup>	SJRWMD Program Name <sup>3</sup>
6.1.1 – Executive Direction	0010	Executive Direction
6.1.2 – General Counsel	0030	General Counsel
6.1.3 – Inspector General	0050	Inspector General
6.1.4 – Administrative Support	0100	Administrative Support
6.1.5 – Fleet Services	0151	Transportation and Equipment Management
6.1.7 – Human Resources	0060	Human Resources
6.1.8 – Communication	0080	Communications (Telecommunications)
6.2 – Computers/Computer Support	0200	
6.2.1 – Executive Direction	0200	IR Computer Information Systems
6.2.2 – Administrative Service	0200	IR Computer Information Systems
6.2.3 – Application Development	0230	IR Application Development
6.2.4 – Computer Operations	0200	IR Computer Information Systems
6.2.5 – Network Support	0200	IR Computer Information Systems
6.2.6 – Desk Top Support	0200	IR Computer Information Systems
6.2.7 – Asset Acquisition	0200	IR Computer Information Systems
6.2.8 – Other	0200	IR Computer Information Systems
6.3 – Reserves	0300	Reserves and Designations
6.4 – Other (tax collector/property appraiser fees)	0410	Property Appraisers and Tax Collectors Commissions

Note: FDOT = Florida Department of Transportation

<sup>1</sup>Based on the Executive Office of the Governor format

<sup>2</sup>SJRWMD internal budget program code for the program

<sup>3</sup>Program names as described in SJRWMD's Work Breakdown Structure

<sup>4</sup>No program category exists, as this is not a function conducted by SJRWMD

## APPENDIX B

### MAJOR ACCOMPLISHMENTS SINCE LAST PLAN REVISION

- **District Water Management Planning – Water Supply Planning**

Facilitation of Regional Water Supply Planning and Development: SJRWMD worked with local governments to develop interlocal agreements to identify alternative water supply projects to meet the future water needs of the local government partners. Three county agreements were signed in FY 2004-2005: Flagler County, Lake County, and Seminole County. Additionally, an agreement to design and obtain permits for the St. Johns River/Taylor Creek Reservoir Project is close to being signed. This agreement brings together seven public and private partners who intend to develop this project once engineering design and permitting are completed.

- **Minimum Flows and Levels (MFLs)**

Minimum Flows and Levels Set or Re-evaluated: SJRWMD completed MFLs determination reports for six major systems, completed MFLs re-evaluations for nine lakes, and initiated rule-making in FY 2004-2005.

- **Regulation**

E-Permitting: E-permitting was implemented in FY 2004-2005. Online applications currently available are well drilling contractor licensing (new and renewals), water well construction permits, consumptive use permits (CUP) and environmental resource (ERP) permits. Future application types will include CUP notice general permits (NGP), ERP agriculture permits, and formal wetland determinations. Compliance reports that can be submitted online include water well completion reports, meter calibration data, EN-57 (construction commencement notice), EN-50 (water use) data, water quality data, vegetation transect data, elevation transect data, soils transect data and as-built certifications (without substantial modifications). More e-permitting capabilities are under development.

E-Permitting has been accomplished in four major phases.

- a) Phase I – known as the e-information phase – was completed in 2001. At that time, the SJRWMD Web site included rules, application forms, applicant handbooks, and the monthly Governing Board’s regulatory agendas and staff reports. In addition, a geographic information system (GIS) interface was made available for the public to access basic information on permits.

- b) During Phase II, e-noticing was completed. In 2002, the site was expanded to include CUP application notices, ERP “intended District decision” notices, ERP application notices with attachments, and CUP “intended District decisions” notices with attachments.
- c) Phase III, completed in 2003, was known as the “e-compliance” phase. This brought to the site the ability to submit required compliance data and to search for application and permit information, such as status, recommendations and pertinent dates. The system was fully integrated with SJRWMD’s document management system, giving the public access to permit documents. In addition, well construction permit application and contractor licensing renewal were brought online.
- d) Phase IV – “e-submittal” – included the final development of the software and hardware to allow for online submission of permit applications. SJRWMD began accepting online submittals of CUP and ERP applications in December 2004. Submittals include signed and sealed plans or documents and the ability to pay for permits online. An educational process has begun to help consultants and others who need permits understand the online process. To access the e-permitting application, browse to [www.sjrwmd.com](http://www.sjrwmd.com) and select the “Permitting” tab.

This project included collaboration with Florida’s water management districts to create an interactive permitting Internet portal that assists members of the public in obtaining regulatory information, submitting compliance information and in submitting a permit application. The five water management districts partnered to jointly develop this statewide site. A project expectation is that the districts would have improved customer service by providing tools that guide the users to where they need to go and by presenting a common look and feel on the portal that will direct the public to the correct district Web site. The portal can be accessed at <http://floridawaterpermits.com>.

- **Outreach**

Water Conservation Public Awareness Campaign: As part of its water supply and water conservation efforts, SJRWMD implemented a mass media campaign to educate the public about proper lawn and landscape irrigation techniques. Prior to the campaign, SJRWMD conducted 12 focus groups (eight with the general public and four with landscape/irrigation professionals) and conducted a telephone survey of 400 homes to gauge the level of awareness of water-saving irrigation techniques and watering rules. The campaign was implemented from March through June 2005. SJRWMD allotted \$1.5 million toward the campaign and 19 local government and water supply utility partners contributed \$348,250 to purchase radio, television and print media, reaching more than 90 percent of adults within SJRWMD. Follow-up surveys indicate that levels of awareness of appropriate irrigation techniques increased significantly as a result of the campaign.

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Water's Journey – The River Returns: SJRWMD completed its participation in the two-year effort to produce a high-definition adventure television program about the St. Johns River. The goals of this outreach effort were to create a public consensus about protecting water resources and to give the residents of SJRWMD a connection to and understanding of their environment, particularly their connection to the St. Johns River.

The Great Water Odyssey<sup>SM</sup> (E-Learning): Development was completed for grades three and four of this interactive, animated classroom curriculum that introduces students to water resource issues. This curriculum:

- Features cartoon animation with friendly characters, voices and music
- Highlights activities in multiple subjects, including reading, history, geography, math, social studies, and science
- Employs and enhances critical thinking skills
- Correlates to Sunshine State Standards and provides Florida Comprehensive Assessment Test (FCAT) prompts for third, fourth and fifth grades

The third-grade curriculum is being implemented in the classroom, and the fourth-grade curriculum is being pilot tested. The fifth-grade curriculum, under development, will be pilot tested in November 2005, with both grades 4 and 5 being launched in February 2006.

- **Springs Initiative**

The statewide Florida Springs Initiative is charged with assessing and protecting Florida's springs. Since the program's initiation in 2002, SJRWMD received funding (\$339,923) from FDEP for two projects, including (1) Approximation of Contributing Area of Groundwater Flow to First Magnitude Springs in the SJRWMD (\$59,820), and (2) Silver Springs: A 50-Year Retrospective of the Relationships Between Environmental and Water Resource Related Systems (\$280,103). Both projects have been completed.

The first project was completed in 2003 on time and subsequently a USGS Report was published. This work was a collaborative effort with the USGS, the University of Florida and SJRWMD. The results are published in Open-File Report 03-448, "*Comparison of Estimated Areas Contributing Recharge to Selected Springs in North-Central Florida by Using Multiple Ground-Water Flow Models.*" The work presents the results of numerical groundwater flow model simulations for specific springs in north-central Florida. Comparisons of model results are used to make inferences about model conceptualization and scale as related to determining areas that provide groundwater recharge to springs.

The second project was performed in 2004 and 2005 is also a collaborative effort with the University of Florida, Wetland Solutions, and SJRWMD. The results of this work are found in the report entitled "*Silver Springs: A 50-Year Retrospective of the Relationships Between Environmental and Water Resource Related Systems.*" This report has been submitted to FDEP staff for review. The work presents a review of historic work and current data collection efforts in water quality, flow, fisheries, phytoplankton and submersed aquatic plants. Comparisons are made to historic information to evaluate cause and effect relationships with specific emphasis on nitrogen loading to the Silver Springs and run area.

- **Research, Data Collection, Analysis and Monitoring**

Hydrologic Data Collection, Redundant Radio Telemetry System: The Division of Hydrologic Data Services has built and placed into operation during the months of June and July 2005 a redundant radio telemetry system that operates as a backup at SJRWMD's 17 priority flood monitoring sites. This backup system now provides an independent, parallel data stream of water level information to supplement our primary system. This system may be monitored from any computer via a secure connection over the Internet. Data collected by this redundant system is stored at a secure facility outside of Florida and can be accessed and downloaded as needed for flood control decisions. Built in response to public telecommunications failures during the 2004 hurricane season that temporarily impacted SJRWMD's receipt of data collected by its primary radio telemetry system, this system has enhanced public safety.

- **Land Acquisition**

Land Acquisition: SJRWMD acquired an interest in 39,360 acres of land, including 24,300 acres in conservation easements, in FY 2004-2005 alone. The total purchase price was \$53 million and SJRWMD's share was \$29.5 million. Approximately 30,000 acres were acquired in partnership with the state, including an 18,553-acre conservation easement in Flagler County. In addition, SJRWMD entered into purchase agreements totaling 1,080 acres with a total estimated value of \$15.5 million.

Debt Service: SJRWMD achieved savings of \$4.759 million through two transactions related to the 1996 Water Management Lands Trust Fund bonds. In October 2004, SJRWMD refunded \$39.005 million of the 1996 issue. By refunding this portion of the issue, SJRWMD achieved a net savings, after costs, of \$3.850 million. Additionally, in June 2005, SJRWMD exercised a call option on a portion of the 1996 issue that resulted in additional net savings of \$909,026.

- **Land Management**

Prescribed burns: Completed 76 prescribed burns on 28,717 acres, including 15 in the urban interface in FY 2004-2005. These burns help restore/maintain natural communities and reduce the risk of wildfire.

Timber sales: Five timber sales and one cabbage palm sale were executed in FY 2004-2005 and are in progress. They have generated \$547,046 in income to date. SJRWMD also planted 332 acres of longleaf pine. These sales and plantings help restore/maintain natural communities while offsetting management costs.

Public Recreation: District staff conducted 7 Recreational Public Meetings and 7 Management Review Team (MRT) site visits in FY 2004-2005. Three new properties were opened for public use. One hundred twenty-five miles of marked trails have been maintained. These projects help meet the statutory guidelines for public recreation. The meetings allow the public to interact with SJRWMD staff and share information about SJRWMD-managed lands and provide input to SJRWMD management plans.

Land Use Agreements: More than 90 land use agreements, special use authorizations, and leases were completed during FY 2004-2005. The agreements provide for a range of activities such as cattle leases, recreation events, and intergovernmental agreements.

Construction, Repair and Maintenance in Support of Public Recreation on SJRWMD lands: In an effort to provide access to SJRWMD property for management, and maintenance activities and to provide safe access for public recreation, staff have designed, fabricated and constructed two bridges, at Lake Apopka and at Lake Jesup, repaired one bridge at Lake George and installed approximately 15 culverts and/or low water crossings throughout SJRWMD at a cost of approximately \$200,000. In addition to the bridge and culvert installations to accommodate better access, staff constructed and/or stabilized more than 50 miles of road and trails, constructed public parking areas, secured SJRWMD property by means of fence construction and provided safe public use facilities, such as observation towers and platforms, boat docks and launching areas, weather shelters and recreational signage and information kiosks.

- **Facilities Construction**

Completed renovation of the Water Resources Building. The renovation included adding an additional story to the previous one story structure, increasing square footage to 30,000 square feet. The facility houses 120 staff. This renovation project was completed 87 days ahead of schedule and the final cost was 5% under budget (a savings of \$139,610.65). The renovation included the design, purchase and installation of 120 office furniture systems.

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- **Surface Water Projects**

Lower St. Johns River Basin (LSJRB): Completed projects include:

- a) Deep Creek West (Yarborough) Regional Stormwater Treatment Facility, tri-county agricultural area.
  - b) Cooperative Holly Point Stormwater treatment project with the town of Orange Park.
  - c) Multi-year investigation of nutrient limitation within the LSJRB that has shown that both nitrogen and phosphorus are co-limiting for phytoplankton production, which means that both nutrients need to be controlled if nuisance and harmful algal blooms are to be avoided. (This work followed the establishment of the LSJRB pollutant load reduction goal and the adoption of the Nutrient TMDL.)
  - d) Water quality modeling support for FDEP to support the LSJRB TMDL Allocations.
  - e) Agricultural Best Management Practices (BMPs) Cost-share Program – 52% of the row crop (by land area) and 54% of the growers are enrolled and applying BMPs.
  - f) A three-year determination of nutrient release curves for potato crops, which included field scale application. Results have been used to develop a high-tech controlled release fertilizer that automatically applies the fertilizer at the rate needed by the crop minimizing excess that can be lost to the environment in storm water.
  - g) Detrital Load Study. Findings were very useful in demonstrating the environmental value of natural wetland systems compared to man-made (engineered urban stormwater systems) “wetlands” and the results will be used in the LSJRB water quality model.
  - h) Analysis of hyperspectral aerial photography as a tool to locate and map submersed aquatic vegetation in the dark waters of the St. Johns River. Results look promising and may provide a means of monitoring the health of these important habitat areas efficiently and economically.
  - i) Analysis of five years of sediment and tissue contamination data and presented the findings to various state and local agencies. Results show that some toxins exceed published advisory levels within the St. Johns River and that additional monitoring is warranted, especially in identified “hot spots.”
  - j) Groundwater nutrient loading assessment that shows that nutrient laden groundwater can be a significant source of harmful nutrients entering the St. Johns River. This has numerous water management implications, including the feasibility of reuse as a wastewater treatment plant disposal method and the suitability of septic tanks as a disposal method in watersheds in close proximity to the river.
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In addition, the Dog Branch - Edgefield Regional Stormwater Treatment Facility (tri-county agricultural area) is 90% complete. During FY 2004-2005, initiated a Point Source Pollution Assessment project, which is targeted to identify needs to exceed the LSJRB Nutrient TMDL.

Middle St. Johns River Basin: Accomplishments and key efforts include:

- a) Development and implementation of local government stormwater master plans and projects
- b) Implementing Little Wekiva River erosion control projects
- c) Developing the Wekiva Springs PLRG

Upper St. Johns River Basin: Accomplishments and key efforts include:

- Fort Drum Marsh Conservation Area Restoration

The goal of this project is to restore a wetland landscape to 1,500 acres of historic Fort Drum Creek floodplain by removing approximately 100 miles of remnant farm levees. These levees have altered the hydrology of the area and have created an upland habitat for invasive species such as Brazilian pepper and willow. The project is being accomplished in two concurrent phases. Phase I involves the removal of the dense vegetation from the levee so that in Phase II, heavy equipment can degrade the levee in the adjacent borrow ditch. Phase I of the restoration was initiated in August 2004 and Phase II began in May 2005. Hurricanes in 2004 and a wet "dry season" following have hampered progress. To date, approximately 15 miles of levees have been cleared of vegetation and 6 miles have been degraded. The project is expected to be complete by the end of FY 2005-2006.

- C-1 Rediversion Project

The goal of this project is to substantially reduce the amount of stormwater discharge flowing to the Indian River Lagoon from the Melbourne-Tillman Water Control District by diverting to the St. Johns River, as it did historically. Construction of a major drainage canal was initiated at the beginning of FY 2004-2005 and will be completed in FY 2005-2006. A conceptual design of the primary water control structure, along with the detailed design of two other project components, were also completed in FY 2004-2005.

Upper Ocklawaha River Basin: Accomplishments and key efforts include:

- Emerald Marsh Restoration (1-3 Year Priority Project)

- a) Completed restoration and reconnection of the first portion of marsh to Lake Griffin (the old Knight North Farm). This major step begins the final restoration phase for the entire Emerald Marsh system.

b) Completed the selection of the restoration alternative for the Lowrie-Brown parcel. This phase involved cooperative evaluation and design with staff from the Florida Fish and Wildlife Conservation Commission and the Lake County Water Authority (LCWA).

- Sunnyhill Restoration Project (1-3 Year Priority Project)

Completed amended agreement with the U.S. Department of Agriculture (NRCS) modifying the restoration plan and time frames for construction of the restoration project.

- Basin Planning and Management

Amended funding agreement with LCWA to make available an additional \$684,700 for the Lake Griffin Canal Dredging Project. This brings the total funds (legislative appropriations) transferred to LCWA for the project to \$1,886,700. An additional \$2,000,000 was made available by the Legislature in 2005 for this work.

Lake Apopka: Accomplishments and key efforts include:

- a) Installed an alum system to treat water from the West Marsh area prior to discharge into the Apopka-Beauclair Canal.
- b) Completed the first year of the marsh flow-way operation. Currently, the flow-way has treated 82% of lake volume with the removal of metric tons of nitrogen, phosphorus and suspended solids.
- c) Continued expansion of reflooding former wetlands on the north shore of Apopka. Currently all or part of Duda, West Marsh, and Sand Farm are reflooded. No negative or unpredicted pesticide issues.
- d) Nearly completed retrofit of alum systems for former Zellwood drainage district properties.
- e) Completed data collection for pesticide bioaccumulation study.
- f) Removed more than 1 million pounds of shad during harvest, bringing the cumulative total since 1993 to more than 12 million pounds. Water quality in the lake continues to improve following the 2004 hurricanes. Native submersed plants have reappeared all around lake and are more abundant than at any time since SJRWMD began monitoring. Initial littoral zone planting using experimental techniques for rooting submersed plants has been initiated.
- g) Permitting requests submitted for soil inversion project for remediation of surface soil organochlorine pesticides.
- h) Rehabilitation of Apopka Lock and Dam completed.

Indian River Lagoon: Accomplishments and key efforts include:

- a) Completed construction of the 100-acre Dredge Material Containment Area (DMCA) for the St. Sebastian River dredging project scheduled to begin muck sediment dredging in the fall of 2005. Project benefits include reduction in the re-suspension of muck materials and discharge of turbid water to the Indian River Lagoon; reestablishment of natural Sebastian River storage areas for capture and storage of future suspended matter loadings from the watershed; enhancement of IRL sea grasses through improved water clarity and reduced nutrient and sediment loadings; restoration of natural communities within the Sebastian River as a result of restoring dredged areas to natural river bottom; and enhancement of manatee migration into the Sebastian River.
- b) Completed construction of the 146-acre regional Sebastian Stormwater Treatment Park adjacent to the Collier Creek Canal to provide treatment for a 1,407-acre watershed. Project benefits include decreased freshwater inflows to minimize impacts on salinity in the IRL; decreased suspended materials and nutrient loadings; provision of passive recreational facilities and educational facilities related to stormwater treatment and the importance of wetlands.
- c) Completed construction of 14 local government and agricultural stormwater cooperative retrofit projects. Project benefits include providing stormwater treatment for more than 1,500 acres of urban and agricultural lands, reduce localized flooding, improvement of water quality and sea grass resources in the IRL.
- d) Completed restoration of 19 acres of dragline impacted salt marsh habitat in the Mosquito Lagoon. Project benefits include restoration of natural marsh elevations and functionality for wildlife and fisheries habitat enhancements.
- e) Established PLRGs and recommended seagrass coverage targets for the IRL and Banana River Lagoon for freshwater, total nitrogen, total phosphorous and total suspended solids loadings. Project benefits include delivery of PLRGs to FDEP and EPA to assist in the development and adoption of TMDLs for waters verified as impaired in the IRL by FY 2006-2007.
- f) Provided financial assistance for a grants writer to secure \$8.8 million in federal nonpoint source management grant funds. Project benefits include implementation of \$30.7 million worth of cooperative local government stormwater retrofit improvements throughout the IRL's watershed.
- g) Supported citizen volunteer habitat enhancement projects removing invasive Brazilian pepper trees and re-planting native mangrove fringe. Project benefits include rehabilitation of more than 15 acres of natural lagoon shoreline and associated enhancements in education and citizen involvement activities for IRL restoration activities.
- h) Submitted the final Environmental Restoration Report on the Turkey Creek C-1 Re-Diversion Project to the U.S. Army Corps of Engineers. Project benefits

include identification of project benefits and impacts to enable the design and specification phase to commence in FY2005-2006.

- i) Initiated monitoring of short-term and long-term impacts associated with the 2004 hurricane season on lagoon seagrass resources and water quality.

## APPENDIX C

### PROCEDURES FOR PLAN DEVELOPMENT AND EVALUATION

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, and is updated at least once every 5 years. According to *Florida Statutes (FS)*, the Governing Board must hold a public hearing at least 30 days before completing the development or revision of the DWMP.

A draft update of this DWMP was provided to the Governing Board on December 7, 2004, followed by public workshops on December 8 and 21. The final draft was approved by the Governing Board at its April 12, 2005, meeting. The updated DWMP was forwarded on May 27, 2005, to FDEP for review and comment, as required by the Water Resource Implementation Rule (Chapter 62-40, *F.A.C.*). The Governing Board took final action on this DWMP at its meeting on September 13, 2005, after considering FDEP's recommendations and comments.

### INTERAGENCY COORDINATION

#### Format and Guidelines

The water management districts (WMDs) and the [Florida Department of Environmental Protection](#) (FDEP) developed guidelines to establish minimum criteria for each DWMP and a common plan format. The guidelines supplement the requirements of Section 62-40.520, [Florida Administrative Code](#) (*F.A.C.*), and [Section 373.036](#), *FS*.

#### Coordination Inventory

The St. Johns River Water Management District (SJRWMD) recognizes that coordination with the many government agencies engaged in protecting Florida's water resources is essential to effective implementation of the DWMP. During the preparation of this DWMP, all [five WMDs](#) and [FDEP](#) have been meeting to clarify the format and guidelines for the 5-year updates to the DWMPs. As part of that process, it became clear that many levels and types of coordination exist among the WMDs, but are not commonly known to residents, legislators, utilities, and local governments.

A coordination inventory was developed that documents the many vehicles the WMDs (often along with FDEP) do have that relate to our responsibilities. This inventory shows what is being done to achieve consistency wherever possible. It is important to recognize that some groups may be temporal, meeting on an as-needed basis. A listing

of collaborations identified to date, including a brief purpose statement, is included at the end of this section.

### **Definitions**

FDEP and the five WMDs developed a common list of definitions for water management terms. The definitions will be used by the six agencies and may be incorporated into rules, plans, and reports, as appropriate. Definitions will be consistent with those contained in the Water Resource Implementation Rule (Chapter 62-40, F.A.C.).

### **Conventions**

Another important aspect of coordination among FDEP and the WMDs was the development of common approaches to key water management issues. Interagency staff committees worked on or are working out consistent methods and nomenclature, or “conventions,” that are implemented by the WMDs and FDEP as they are agreed upon.

## **RESOURCE ASSESSMENTS**

A variety of resource assessments was conducted in the areas of water supply, flood protection, water quality, and natural systems. Some of the assessments involved using existing data from state and federal agencies. Descriptions and discussion of the resource assessments appear in Chapters III–VI.

## **COMMUNITY AND LOCAL GOVERNMENT INVOLVEMENT**

Residents, local government staff, elected officials, and other interested entities were involved in the development of the previous DWMPs and this update. A variety of tools was used to inform local governments and the public about these meetings. Letters of invitation were distributed to local governments, state and regional agencies, other key target groups, and interested residents using SJRWMD’s [StreamLines](#) mailing list and community organization lists. In addition, SJRWMD staff prepared and distributed press releases and participated in media interviews.

## **EVALUATION PROCEDURES**

### **Performance Measures**

The Governor’s Office, FDEP, and the WMDs worked together to develop a common set of performance measures that each WMD incorporates into its DWMP. In addition, each WMD develops measures specific to its programs. All of these measures will be used to (1) monitor the achievement of key goals and objectives, (2) improve resource

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management, (3) make budget decisions, and (4) provide accountability to the Legislature and the public. They may also be used by the Governor's Office in review of WMD budgets.

Both the state performance measures and SJRWMD-specific performance measures are included in the respective chapters of this document.

### **SJRWMD Reporting**

Each DWMP is evaluated in two ways, as required by the Water Resource Implementation Rule. The DWMP must be updated and progress toward its desired goals assessed every 5 years. This 5-year appraisal is a performance-based assessment of the effectiveness of a district's actions in achieving desired goals.

In addition to the 5-year appraisal, each WMD is required to produce an annual progress report that outlines that district's success toward implementing the DWMP and meeting performance measures. This annual progress report is activity-based, measuring whether the district is meeting schedules, tasks, and benchmarks described in the DWMP and tracking success towards the performance measures. The annual progress report is transmitted to FDEP by November 15 of each year. Copies of the report are made available to [regional planning councils](#), local governments, and members of the public.

Senate Bill 2832, which became law in the 2004 legislative session, directed the South Florida Water Management District (SFWMD) to undertake a [pilot project](#) to coordinate and consolidate certain legislatively mandated plans and reports regarding the status of SFWMD programs and water resources within its jurisdiction. The purpose of the pilot project is to determine how SFWMD can provide information to the Legislature in a more effective and efficient manner. SFWMD is statutorily required to create approximately 35 annual plans or reports regarding the status of programs and water resources within its jurisdiction, and is required to review and comment on other water-related plans and reports. The Legislature concluded that statutory reporting and planning requirements should be examined to determine if fewer reporting documents or even one reporting document could be used to replace the currently required reports. SJRWMD and the other WMDs are also subject to similar requirements.

This bill, while not directly affecting SJRWMD, may shape the direction of future DWMPs, in that the bill required SFWMD to submit a report to the Governor, the President of the Senate, and the Speaker of the House of Representatives by February 15, 2005, on efforts to better coordinate and, where appropriate, consolidate legislatively mandated plans and reports, including the DWMP. The report includes proposed statutory changes, including recommendations for proposed changes from the other four WMDs and FDEP.

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### Coordination Inventory

1. **Reuse Coordinating Committee** – To coordinate reclaimed water planning and implementation issues statewide. Key contact: David York (FDEP)
  2. **Florida Water Conservation Initiative Water Reuse Workgroup** – To develop reuse goals and objectives as part of the Governor’s Water Conservation Initiative. Key Contact: David York (FDEP)
  3. **Secretary/Governing Board Chairs/Executive Directors Group** – To coordinate water management activities in Florida to assure consistency whenever appropriate. Key contact: Kirby Green
  4. **Land Staff Quarterly Interdistrict Group** – To coordinate land acquisition and management activities so all parties are well informed. Key contact: Rotates by district each quarter
  5. **Public Land Acquisition/Management Annual Conference** – To share information on acquiring and managing lands in Florida. Key contact: Hosted annually by rotation among districts (SRWMD and NFWMD in 2004)
  6. **Interdistrict Vegetation Management Group** – To discuss and coordinate invasive species management issues common to all the districts
  7. **Invasive Species Working Group** – To coordinate invasive species management issues common to all state agencies. Includes all five WMDs and FDEP, FDOT, DACS, and FWC
  8. **Annual Conference on Water Management** – To share water management programs and strategies that best represent the public interest in terms of the development, use, conservation, and protection of the waters of the state. Key contact: Hosted annually by rotation among the WMDs and FDEP
  9. **Water Management Legislative Team** – To coordinate current legislative issues. Key contact: Mike Slayton
  10. **Interdistrict/FDEP Consumptive Use Permitting Group** – To keep each other apprised of consumptive use permitting issues so that the WMDs can respond in a consistent manner, when appropriate
  11. **Environmental Resource Permit Anti-Drift Group** – To ensure consistency of environmental resource permit rules among the districts
  12. **Interagency Task Force on Water Control Structures** – To eliminate all structure-related manatee deaths through coordination among FWC, the U.S. Fish and Wildlife Conservation Commission, the U.S. Army Corps of Engineers, FDEP, the Department of Environmental Resource Management, SFWMD, and SWFWMD
  13. **FDEP Water Planning Coordination Group** – To assure coordination and consistency in water supply planning efforts such as water resource development and regional water supply planning. Key contact: Tom Swihart (FDEP)
  14. **District Water Management Plan Format and Guidelines Group** – To achieve consistency and comparability in the long-range planning efforts for water management. Key contact: Tom Swihart (FDEP)
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15. **Statewide Comprehensive Water Conservation Initiative** – To coordinate with local utilities and others in order to foster efficient water use through the voluntary application of proven technologies, processes, and methods while allowing local communities the flexibility to creatively achieve water conservation goals. Key contact: Tom Swihart (FDEP)
  16. **Water Management Public Communications meetings** – To coordinate public education efforts and realize cost savings in the dissemination of water resource management information statewide. Key contact: Linda Burnette
  17. **FDEP Status and Trends Network** – To coordinate FDEP’s revenue contracts for collection of water quality data among all the WMDs and some counties. Key contact: Gail Sloan (FDEP)
  18. **FDEP Springs Task Force** – To coordinate among agencies, including the WMDs, FWC, bottled water producers, and interested residents on efforts to protect and enhance Florida’s springs. Key contact: Gary Maddox (FDEP)
  19. **Florida Aquifer Vulnerability Assessment** – To coordinate the redesign of DRASTIC using new methods among the WMDs, FDEP, and FGS. Key contact: Jon Arthur (FGS)
  20. **Florida Hydrostratigraphy Ad Hoc Committee** – To standardize hydrostratigraphy across WMD boundaries through coordination among the WMDs, FDEP, FGS, and the private sector. Key contact: Jon Arthur (FGS)
  21. **Management and Administrative Services Coordination Group** – To address items of mutual interest that require interdistrict coordination (e.g., an interdistrict Internet site). This includes numerous administration departments from each WMD, including Human Resources, Risk Management, Budget, Facilities, Fleet Services, etc.
  22. **Land and Water Planning Coordination Group** – To coordinate efforts to implement the 2002 legislative requirements for local governments to prepare water supply facilities work plans among DCA, FDEP, and the WMDs
  23. **Geographic Information Systems Managers Group** – To coordinate activities among the five WMDs and FDEP that are associated with the collection, management, distribution, and display of spatial data used in geographic information systems
  24. **Interdistrict Permitting Portal Work Group** – To coordinate e-permitting efforts among the WMDs to ensure consistency
  25. **Water Shortage Coordination Group** – To coordinate water shortage restrictions and strategies, as well as year-round water conservation measures, among all WMDs
  26. **FEMA Map Modernization Coordination Group** – To coordinate the FEMA map modernization activities between the WMDs and DCA
  27. **FEMA Data Coordination Group** – To coordinate and collaborate with the WMDs, FEMA, and their contractors on data standards and to express the conditions and methods used in Florida
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28. **The Governmental Lab Partnership** – To discuss laboratory activities, equipment, purchasing opportunities, contracts, and other laboratory operations (last met formally a couple of years ago, but currently have a shared purchasing agreement for laboratory services in effect)
29. **SWIM Coordination Group** – To provide coordination for the state’s SWIM Program among the WMDs and FDEP. Key contact: Fred Calder (FDEP)
30. **Memorandum of Understanding for Water Use/Consumptive Use Permits** – To provide interagency coordination and communication in WMD border areas among SJRWMD, SFWMD, and SWFWMD
31. **Environmental Resource and Regulatory Agency Group** – To partner in a collaborative effort to achieve a balance between Florida’s environmental protection and the state’s transportation needs. Key contact: Carl Gibilaro (FDOT)

## APPENDIX D

### RESPONSE TO FDEP COMMENTS ON THE MAY 2005 DRAFT DWMP

FDEP's comments are shown in *italics* with SJRWMD's response below.

#### Technical Comments

1. *The organization of the chapters could be improved. Goals, mission, and near-term focus would be more helpful to understanding the chapters if they were at the beginning, rather than in the middle of the chapter.*

**Response:** The goals, core missions, and near-term focuses have been moved as suggested for the four chapters relating to the areas of responsibility.

2. *Consider including in the water quality chapter introduction a discussion of the role of regulatory programs in protecting water quality.*

**Response:** The discussion has been added on pp. 34–35.

3. *There appears to be no reference to specific threats to local or regional surface or groundwater quality, or strategies to address them.*

**Response:** The Water Quality chapter includes the information described in the Format and Guidelines. The chapter includes strategies for surface water quality monitoring and groundwater monitoring.

4. *The plan does not appear to include details or strategies for the management of land acquired by SJRWMD.*

**Response:** The Natural Systems chapter includes a strategy for preparing management plans within one year of acquisition. Also, on pg. 50, the link to “land acquisition and management” provides access to information, including the land management program overview, the Florida Forever Work Plan Annual Update, and Land Acquisition and Management Five-Year Plan Maps.

5. *Working with local governments to identify and protect recharge areas is an important task. The plan should have objectives and strategies for linking land use and water resource planning, including specific actions the district plans to take to protect these areas.*

**Response:** Policies for linking land use and water resource planning are found on pp. 11 and 12. Strategies for linking land use and water resource planning are found on pp. 22 and 23 under local government assistance.

6. *Consider the usefulness to your floodplain protection program of adding a performance measure relating to the number of stormwater management facilities that are in compliance, and the number of illegally constructed facilities discovered and brought into compliance.*

**Response:** A performance measure within the ERP program already addresses the number of stormwater management facilities that are in compliance. In collecting data, SJRWMD currently does not distinguish between projects located within the floodplain and projects outside of the floodplain. As such, the usefulness of tabulating the number of illegally constructed facilities discovered and brought into compliance as a measure of the floodplain protection program would be very limited.

7. *Throughout the plan, the 305(b) report should be referred to as the "Integrated Water Quality Assessment for Florida."*

**Response:** The citation has been revised as suggested throughout the DWMP.

8. *On page 35, 2<sup>nd</sup> paragraph there is a typo "+6" in the next to last sentence.*

**Response:** The typo has been corrected.

9. *On page 39, the last bullet under strategy 1, clarify the objective of the statistical analysis referred to. Is it for trend detection or some other purpose?*

**Response:** Language has been added to clarify the objective of the strategy.

10. *A map showing the basins discussed beginning on page 47 of the (May 2005) draft would be helpful to readers who are using the hard copy.*

**Response:** The map has been added (pg. 47).

**Other Comments**

A listing of major accomplishments by SJRWMD since the last DWMP has been provided in Appendix B.

The following letter from SJRWMD's executive director to FDEP includes comments about this DWMP and the water planning process in general.



# St. Johns River Water Management District

Kirby B. Green III, Executive Director • David W. Fisk, Assistant Executive Director

4049 Reid Street • P.O. Box 1429 • Palatka, FL 32178-1429 • (386) 329-4500  
On the Internet at [www.sjrwmd.com](http://www.sjrwmd.com).

August 12, 2005

Ms. Janet G. Llewellyn  
Deputy Director, Division of Water Resource Management  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Subject: District Water Management Plan 2005

Dear Ms. <sup>Janet</sup>Llewellyn:

Thank you for your letter of August 2, 2005 regarding the St. Johns River Water Management District's (District) May 2005 District Water Management Plan (DWMP). Your review and comments are appreciated, and I wanted to let you know that we plan to take the DWMP to the District Governing Board for final action at its September 13, 2005 meeting. We will provide you with a copy of the final version of the DWMP in late September.

I have asked District staff to prepare responses to the technical comments that you submitted with your letter. We are working to incorporate those changes into the DWMP. Those responses will be provided under separate cover after we have had an opportunity to make adjustments as necessary. I would like to take this opportunity to address the general comments and issues raised in your letter.

In your letter, you indicated that the Department is considering proposing to the legislature that the South Florida Water Management District's (SFWMD) strategic planning approach become the model for the Florida Water Plan and the DWMPs. At the time we were developing our DWMP, HB 727 was under consideration and became law effective on July 1, 2005. The new legislation provides an option to pursue either a strategic plan or a DWMP. While the strategic plan option may hold promise for future planning efforts, we needed to meet our deadline to update our DWMP by May 2005. Therefore, we did not defer our planning process while this bill was pending and proceeded with development of our DWMP.

We certainly are open to discussing developing a better water planning approach, which could include a strategic plan such as the plan developed by the SFWMD, but would not wish to preclude discussion of other alternatives at this time. Our annual budget process provides for focused, strategic planning that could be incorporated into such a process. We want to work with you as you prepare your February 1, 2006, report to the Legislature and provide input on any

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GOVERNING BOARD

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recommended changes to, or consolidation of, the existing planning and reporting requirements of Chapter 373.

As you know, District staff coordinated review of this DWMP with Department staff throughout the process. The Department's involvement, reviews and comments throughout the process were beneficial in shaping the DWMP into the product that we submitted to you, and we appreciate the opportunity to have worked so closely together.

District staff sought to develop a DWMP that was a viable and useful document. We believe our DWMP meets this objective, complies with the applicable statute and rules, and adheres to the general format and recommended guidelines. It is our belief that the final document will serve its purpose much more efficiently and effectively than the previous edition of the DWMP.

Thank you again for your review and comments. We look forward to working with you on these issues. Linda Burnette, Director of the Office of Communications and Governmental Affairs, is available to address any questions you may have. She can be reached at (386) 329-4289/Suncom 860-4289 or [lburnette@sjrwmd.com](mailto:lburnette@sjrwmd.com).

Sincerely,



Kirby B. Green III  
Executive Director

KBG/GCS

cc: Linda Burnette, SJRWMD  
Vicki Kroger, SJRWMD  
Jeff Cole, SJRWMD  
Paul Thorpe, NFWWMD  
Kirk Webster, SRWMD  
Terry Johnson, SWFWMD  
Beth Williams, SWFWMD