

District Water Management Plan

2003 Annual Report

November 2003



sfwmd.gov

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INTRODUCTION

Water resource issues are major forces shaping the future of South Florida. The South Florida Water Management District's success in resolving complex water resource matters depends upon its ability to anticipate and plan for the future. In August 2000, the South Florida Water Management District's Governing Board approved the *District Water Management Plan*, which incorporated a comprehensive examination of water resource management in the 16-county South Florida region.

The policies, programs and activities of the South Florida Water Management District described in the *District Water Management Plan* reflected the multi-functional nature of water resource management in the region. The interrelated nature of areas of responsibility was considered in the development of the *District Water Management Plan*. The effects of activities identified under one area of responsibility on the other areas of responsibility continue to be considered in the implementation of the *District Water Management Plan*.

The *District Water Management Plan* was developed consistent with the requirements of Section 373.036, Florida Statutes and Section 62-40.520, Florida Administrative Code. The Florida Department of Environmental Protection in conjunction with the five water management districts developed additional criteria for the *District Water Management Plan*.

The *District Water Management Plan* provides comprehensive long-range guidance for the actions of the District in implementing its responsibilities under state and federal laws. The *District Water Management Plan* must be updated at least once every five years, and the South Florida Water Management District has committed to the development of the next comprehensive *District Water Management Plan* update in 2004.

Given the long-range nature of the *District Water Management Plan*, it is important to periodically evaluate the progress of the District toward accomplishing the goals established in the plan. The necessity for the regular review and evaluation of progress in achieving planning goals is explicitly recognized in the State Water Resource Implementation Rule, which requires regular review of the *District Water Management Plan*, pursuant to Chapter 62-40.520, Florida Administrative Code. The South Florida Water Management District is required to report annually to the Florida Department of Environmental Protection regarding its progress in implementing this plan. The *District Water Management Plan* annual reports serve as status reports on the activities undertaken by the South Florida Water Management District, as well as on the performance measures contained within the *District Water Management Plan*, between updates of the plan.

In an effort to facilitate comparison of the plans of each of the water management districts, the *District Water Management Plan* was organized to reflect the four areas of responsibility of the water management districts: water supply, flood protection and floodplain management, water quality and natural systems. This common format is also used for the *District Water Management Plan* annual reports to help track the progress each district has made in implementing its respective district water management plans. This annual report covers progress made by the District during Fiscal Year 2003.

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CHAPTER I

SUMMARY OF ACTIVITIES

The South Florida Water Management District (SFWMD or District) established an ambitious schedule of activities in its 2000 update of the *District Water Management Plan*. This schedule called for activities in each of the areas of responsibility in the years following the plan's acceptance. The District has largely adhered to the schedule of activities described in the *District Water Management Plan*.

This chapter summarizes the progress the District has made on the activities described in the *District Water Management Plan*. Unless otherwise stated, activity summaries cover the time from October 1, 2002 through September 30, 2003, along with any significant accomplishments. The tables are organized by the four areas of responsibility:

A. Water Supply

Goals of the Water Supply area of responsibility:

- Assure an adequate supply of water for all existing and projected reasonable/beneficial uses
- Increase available water supply
- Promote the use of alternative water supply sources and conservation
- Protect the water quality of source water from degradation and natural systems from significant harm, which would result from water use

B. Flood Protection and Floodplain Management

Goals of the Flood Protection and Floodplain Management area of responsibility:

- Protect from and mitigate for the impacts of flood events
- Protect and restore natural features of floodplains

C. Water Quality

Goals of Water Quality area of responsibility:

- Protect and improve surface water quality
- Protect and improve ground water quality

D. Natural Systems

Goals of the Natural Systems area of responsibility:

- Preserve native ecosystems, along with their water resource related functions
- Restore altered ecosystems, where appropriate, along with their water resource related functions

Each program has been described in the *District Water Management Plan* and in this report within the area of responsibility that is the primary function of the respective program. In both philosophy and practice, however, the District recognizes the multi-functional, multi-disciplinary nature of water management in South Florida. The four areas of responsibility are highly interrelated and the complex interactions are carefully considered within each program and activity. Accordingly, activities may focus on one area of responsibility but have implications in multiple areas of responsibility.

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Part A. Water Supply

The water supply portion of the *District Water Management Plan* addresses two core water supply objectives:

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

Core Objective WS 2: Prevent contamination of water supply sources

Table 1. The Fiscal Year 2003 Status of the *District Water Management Plan* Water Supply Activities

Activity	Status	Comments
Core Objective WS 1: Increase available water supplies and maximize overall water use efficiency to meet identified existing and future needs		
Planning		
Lower East Coast Water Supply Plan Development and Coordination District Contact: Jim Jackson	Complete (Plan was completed in FY 2000)	The <i>Lower East Coast Regional Water Supply Plan</i> is a long-range strategy for dealing with the future water supply needs of a growing population, as well as the local environment in the Lower East Coast Planning Area. The planning area consists of Palm Beach, Broward and Miami-Dade Counties, as well as portions of Hendry, Collier and Monroe Counties. The plan projects future water demands for urban areas and agriculture for 2020 and develops strategies to meet those demands while also meeting the needs of the environment. The plan's strategies and recommendations incorporate regional and local responsibilities and identify potential funding sources.
Lower West Coast Water Supply Plan Development and Coordination District Contact: TBD (Linda Hoppes, Acting)	Complete (Plan was completed in FY 2000)	The <i>Lower West Coast Water Supply Plan</i> is a long-range strategy for dealing with the future water supply needs of a growing population, as well as the local environment in the Lower West Coast Planning Area. The planning area consists of Lee County, most of Collier and Hendry Counties, and portions of Charlotte, Glades and Monroe Counties. The plan projects future water demands for urban areas and agriculture for 2020 and develops strategies to meet those demands while also meeting the needs of the environment. The plan's strategies and recommendations incorporate regional and local responsibilities, and identify potential funding sources. The 2005 update process for this plan will begin in 2004 and be finished by October 2005. Future water demands will be projected for a 20-year period.
Caloosahatchee Water Management Plan District Contact: Jacque Rippe	Ongoing	This activity coordinates implementation projects from the <i>Caloosahatchee Water Management Plan</i> , which was approved by the Governing Board in April 2000. The projects are related to the Caloosahatchee River and Estuary and the river's tributary basins. Per plan recommendations, the issues identified by the <i>Caloosahatchee Water Management Plan</i> , as well as the models and analyses tools used, are being incorporated into the Southwest Florida Feasibility Study, which is ongoing. The Caloosahatchee River Aquifer Storage and Recovery Pilot Project and the C-43 Regional Storage Projects, recommendations 1.1.1 and 1.1.2 of the <i>Caloosahatchee Water Management Plan</i> , are ongoing. Minimum Flows and Levels have been established for the Caloosahatchee Estuary per <i>Caloosahatchee Water Management Plan</i> recommendation 3.1 and will be incorporated into subsequent water supply plan updates.
Kissimmee Basin Water Supply Plan Development and Coordination District Contact: Chris Sweazy	Complete (Plan was completed in FY 2000)	The <i>Kissimmee Basin Water Supply Plan</i> is a long-range strategy for dealing with the future water supply needs of a growing population, as well as the local environment in the Kissimmee Basin Planning Area. The planning area consists of portions of Orange, Osceola, Polk, Highlands, Glades and Okeechobee Counties. The plan projects future water demands for urban areas and agriculture for 2020 and develops strategies to meet these demands while also meeting the needs of the environment. The plan's strategies and recommendations incorporate regional and local responsibilities, and identify potential funding sources. The update of the previous <i>Kissimmee Basin Water Supply Plan</i> is underway, extending the water use projections and plans until the year 2025. Completion of the updated plan is anticipated in 2005.

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Activity	Status	Comments
Northern Palm Beach County Comprehensive Water Resources Management Plan District Contact: Patricia Walker	Complete (Plan was completed in May 2002)	The <i>Northern Palm Beach County Comprehensive Water Resources Management Plan</i> is a sub-regional plan, which focuses on the Southern L-8 Basin, the City of West Palm Beach Water Catchment Area/water supply lake system and the C-18 Basin, which includes the Loxahatchee Slough and the Loxahatchee River, especially the Northwest Fork of the Loxahatchee River. The plan projects future water demands for environmental, agricultural and urban for 2020, and identifies projects that, if built, will bring supplemental water into the area. The plan's strategies and recommendations incorporate regional and local responsibilities, and identify potential funding sources. The Plan was accepted by the Governing Board in May 2002.
Upper East Coast Water Supply Plan Development and Coordination District Contact: Mark Elsner	Complete (Plan was completed in FY 1998)	The <i>Upper East Coast Water Supply Plan</i> is a long-range strategy for dealing with the future water supply needs of a growing population, as well as the local environment in the Upper East Coast Planning Area. The planning area consists of Martin and St. Lucie Counties and eastern Okeechobee County. The plan projects future water demands for urban areas and agriculture for 2020 and develops strategies to meet these demands while also meeting the needs of the environment. The plan's strategies and recommendations incorporate regional and local responsibilities, and identify potential funding sources. This plan was the first water supply plan completed by the District. It is scheduled to be updated in 2004.
Public Works Construction		
Ten Mile Creek Critical Project District Contact: Denise Arrieta	On schedule	Land acquisition for the Ten Mile Creek Critical Project has been completed. Plans and specifications were completed in May 2002. The Notice-to-Proceed and Pre-Construction Meeting are scheduled for October 2003. Construction is scheduled to begin in November 2003 and be complete in December 2005.
Hillsboro Aquifer Storage and Recovery Pilot Project (formerly, Western Hillsboro [Site 1] Aquifer Storage and Recovery Pilot Project) District Contact: Rick Nevulis	Behind schedule	Since completion of the Project Management Plan in March 2001, source water characterization has been initiated, but has experienced schedule delays. Initial data gathering tasks were concluded at the end of the second quarter of Fiscal Year 2003. The Pilot Project Design Report and Environmental Impact Statement are being prepared. Detailed design of the Aquifer Storage and Recovery water treatment facilities should begin in the first quarter of Fiscal Year 2004.
L-31North Seepage Management Pilot Project District Contact: John Shaffer	Behind schedule	The Project Management Plan was approved and the Pilot Project Design Report was initiated in April 2002. The updated schedule will be presented, and change control initiated, during early Fiscal Year 2004. Significant data acquisition and early modeling efforts were completed during Fiscal Year 2003. Three core borings were completed and two monitoring well clusters with four wells per cluster were substantially completed by the end of Fiscal Year 2003. These wells will be completed in their entirety during early Fiscal Year 2004. The Baseline Water Quality Monitoring plan was completed in Fiscal Year 2003 and will be implemented early in Fiscal Year 2004. Plan formulation is on-going, and a Tentatively Selected Plan should be recommended by the end of Fiscal Year 2004 for construction in June of 2006.
Caloosahatchee River (C-43) Basin Aquifer Storage and Recovery Pilot Project (formerly, Caloosahatchee Aquifer Storage and Recovery Pilot Project) District Contact: Robert Verrastro	On schedule	The Project Management Plan was completed in February 2002. An exploratory well is under construction and a combined Aquifer Storage and Recovery Pilot Project Design Report/Environmental Impact Statement is being prepared. Source water characterization and the conceptual design of the water treatment system have been completed. The District has accelerated the construction of this project, which should take place during mid-2004.
Water Conservation Area 3A and 3B Seepage Management District Contact: Max Day	Behind schedule	The draft Project Management Plan has been completed and the Project Implementation report initiated with approval of an early work letter. The draft Project Implementation Report is targeted for completion by April 2004. Completion of the draft Project Management Plan was delayed due to changes in the plan formulation process; however, completion of the draft Project Implementation Report by April 2004 reflects considerable improvement over the previous schedule of two-and-a-half years. Emphasis on early implementation of this and other projects authorized by the Water Resources Development Act of 2000 will continue the process toward expedited project completion.

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Activity	Status	Comments
<p>Broward County Secondary Canal System</p> <p>District Contact: John Shaffer</p>	Behind schedule	<p>The Project Management Plan was approved, and the Pilot Project Design Report initiated in April 2002. The updated schedule will be presented and change control initiated in October and November 2003, respectively. Significant data acquisition and early modeling efforts were completed in Fiscal Year 2003. Three core borings were also completed, and two monitoring well clusters (four wells per cluster) were substantially completed by the end of Fiscal Year 2003. The wells will be completed in their entirety</p> <p>In early Fiscal Year 2004. The Baseline Water Quality Monitoring Plan was completed in Fiscal Year 2003 and will be implemented early in Fiscal Year 2004. Plan formation is on-going, and a Tentatively Selected Plan should be recommended by September 2004 for construction in June 2006.</p>
<p>C-23, C-24 Regional Attenuation Stormwater Treatment Areas</p> <p>(formerly, C-23 and C-24 Basins Water Preserve Area)</p> <p>District Contact: Beth Kacvinsky</p>	On schedule	<p>These Regional Attenuation Stormwater Treatment Areas are part of the Indian River Lagoon Project. Pre-construction, Engineering and Design work is scheduled to begin in Fiscal Year 2004 following completion of the Project Implementation Report.</p>
<p>Lake Belt In-Ground Reservoir Technology Pilot Project</p> <p>(formerly, Lake Belt Technology Pilot Project)</p> <p>District Contact: Jorge Jaramillo</p>	On schedule	<p>The Project Management Plan was completed in March 2002. Work continues on the Pilot Project Design Report, which was initiated in April 2002. Site selection is complete; the North Stair Step site, which is owned by the District, was selected for the pilot reservoir. Selection of seepage barrier technologies for the pilot and Phase I geotechnical investigations were completed during Fiscal Year 2003. The Phase 2 geotechnical investigations will be completed during Fiscal Year 2004.</p>
<p>Southern L-8 In-Ground Reservoir</p> <p>District Contact: Michael Voich</p>	Ahead of schedule	<p>This is part of the North Palm Beach County - Part 1 Project. Work is in progress to complete the Project Management Plan in December 2003. Approval was granted to move forward with work on the L-8 test reservoir prior to approval of the Project Management Plan in order to immediately capture and store water and to gather data necessary for the Project Implementation Report. The project schedule is being finalized.</p>
<p>Water Conservation Area 3A and 3B Flows to Central Lake Belt Storage Area</p> <p>(formerly, Flows From Water Conservation Area 3 to the Central Lake Belt Area)</p> <p>District Contact: Max Day</p>	Deferred	<p>The project has been placed in a deferred status until such time as the Decentralization project is scheduled. An analysis of <i>Comprehensive Everglades Restoration Plan</i> project sequencing reflected that the project has utility only after Decentralization has been completed.</p>
<p>Flows From Central Lake Belt Storage Area to Water Conservation Area 3B</p> <p>District Contact: Dewey Worth</p>	On schedule – Not yet started	<p>This is part of the Diverting Water Conservation Areas Flows to Central Lake Belt Storage to Downstream Natural Areas Project. It is scheduled to begin in Fiscal Year 2009. This activity is linked to completion of the Lake Belt Storage Reservoir and the canal improvements for the C-9 and C-11 basin impoundments. Diverting flows to Water Conservation Area 3B will not be implemented until completion of these projects.</p>
<p>Eastern Hillsboro Aquifer Storage and Recovery Project</p> <p>District Contact: Rick Nevulis</p>	On a revised schedule	<p>This project, cooperatively funded with the Palm Beach County Water Utilities Department, includes the installation of one 5.0-million gallon per day Aquifer Storage and Recovery well, one upper Floridan aquifer monitoring well, five surficial aquifer supply wells and raw water piping to convey water from the surficial wells to the Aquifer Storage and Recovery well. Construction is complete, however testing continues.</p>
<p>Lower East Coast Water Supply Development Implementation</p> <p>District Contact: Jim Jackson</p>	Ongoing	<p>The <i>Lower East Coast Regional Water Supply Plan</i> will be implemented by using regional and local water supply planning efforts to predict when alternative sources will be needed and to provide guidance as to which source may be most appropriate for meeting the particular needs of each user.</p>
<p>Miami-Dade County Aquifer Storage and Recovery</p> <p>District Contact: Jim Jackson</p>	Ongoing	<p>The Miami-Dade County Aquifer Storage and Recovery Project will use excess wellfield capacity available from existing wellfields in the surficial aquifer during the wet season to provide water for storage in the Upper Floridan Aquifer System. This water will later be recovered during the dry season to reduce the demands of the utility wellfields on the surficial aquifer. This project is underway.</p>
<p>Capital Program</p> <p>District Contact: Vince Loehrlein and Zan Kuglar</p>	Ongoing	<p>The Capital Program includes capital improvements, modifications or repairs to District water control and conveyance facilities.</p>

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Kissimmee Basin Water Resource Development Implementation District Contact: Chris Sweazy	Ongoing	This activity is for the implementation of the regional water resource development projects recommended in the <i>Kissimmee Basin Water Supply Plan</i> . Among the projects being completed under this activity are: reclaimed injection pilot project, aquifer recharge enhancement project, development of a management plan for the Lake Istokpoga/Indian Prairie Basin, and numerous hydrologic, geologic and ground water modeling studies
Lower West Coast Water Resource Development Implementation District Contact: TBD (Linda Hoppes, Acting)	Ongoing	This activity is for the implementation of regional water resource development projects recommended in the <i>Lower West Coast Water Supply Plan</i> . Significant milestones to date include: adoption of Minimum Flows and Levels for the Caloosahatchee River and Estuary and Lower West Coast aquifers (except for the water table and Floridan); addition of one mobile irrigation lab in Collier County; addition of 19 monitoring wells in the surficial and intermediate aquifer system; completion of the Reverse Osmosis feasibility study, which resulted in Florida Power and Light Company and Lee County pursuing a joint agreement for a facility on the Caloosahatchee River); and completion of initial studies and drafts affecting numerous <i>Comprehensive Everglades Restoration Plan</i> projects. The potentiometric mapping of the aquifer has been completed. The initial Regional Irrigation Distribution Study has been completed and sub-regional analysis continues.
Upper East Coast Water Resource Development Implementation District Contact: Mark Elsner	Ongoing	This activity is for the implementation of regional water resource development projects recommended in the <i>Upper East Coast Water Supply Plan</i> . The plan is scheduled to be updated in 2004.
Comprehensive Everglades Restoration Plan Reserves District Contact: Steve Reel	Ongoing	This activity is for the management of the cash reserves for the implementation of the <i>Comprehensive Everglades Restoration Plan</i> .
Operations and Maintenance		
Lake Istokpoga Regulation Schedule District Contact: Lewis Hornung	Merged into another project	During development of a Project Management Plan, staff determined that the scope of the problems will require solutions beyond operational modifications. This project has, therefore, been incorporated into the Lake Okeechobee Watershed Project. This will expand the consideration of potential solutions to include structural measures that are more likely to fully address the water resources problems.
Structure Operations District Contact: Bob Howard	Ongoing	Structure operations include the movement of water, pumping operations activities, and automation for the Central and Southern Florida Project canal system.
Water Control Structure Maintenance District Contact: Lindel Williams	Ongoing	This activity is for water control structure maintenance, including District pump stations, structures, project culverts and special construction projects as determined.
Canal/Levee Maintenance District Contact: Lindel Williams	Ongoing	This activity is for the maintenance of canals and levees, including replacement of project culverts, bank stabilization, revegetation, mowing, tree removal and shoal removal.
Equipment Maintenance District Contact: Mike Grace	Ongoing	Equipment maintenance consists of preventive and cyclic maintenance and restoration of a variety of equipment.
Electronics, Communications, and Control Device District Contact: Patricia Strayer	Ongoing	District communication, electronics, monitoring and control devices must be developed, installed, supported, and maintained. These are categorized as supervisory control and data acquisition system devices, and include data loggers / remote terminal units, sensors, radio frequency devices which utilize the microwave network backbone for transfer of data or control functions. This provides the required operational control of water resources for flood protection and historical data for water supply planning and implementation.
Exotic Plant Control District Contact: Dan Thayer	Ongoing	Invasive exotic aquatic and terrestrial vegetation within District canals, canal banks, lakes, rights-of-way and preserve lands must be controlled. This control is accomplished through in-house and contracted herbicidal, mechanical and biological control methods. This program works primarily to ensure conveyance capacity within canals and water bodies.
General Maintenance District Contact: Lovis Williams	Ongoing	This activity provides preventative maintenance and repairs to District fixed facilities and equipment to ensure operation of the District water control system and provides maintenance and repairs to District field facilities.

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Central and Southern Florida Project Operational Planning District Contact: Luis Cadavid	Ongoing	This activity includes, but is not limited to: regional modeling support for the District and the United States Army Corp of Engineers to develop and implement short-term and/or routine operational procedures (e.g., implementation of the Water Supply and Environment schedule for Lake Okeechobee); development of rain-driven operating rules recommended for the Everglades by the <i>Lower East Coast Regional Water Supply Plan</i> and the <i>Comprehensive Everglades Restoration Plan</i> ; development of operational modifications recommended in the <i>Lower East Coast Regional Water Supply Plan</i> (e.g., supply-side management modifications, rain-driven operations); and development of operational plans for components of the <i>Lower East Coast Regional Water Supply Plan</i> and the <i>Comprehensive Everglades Restoration Plan</i> .
Regulation		
Water Use Permitting District Contact: Scott Burns	Ongoing	This program involves the review of water use permit applications. The objective is to ensure safe, efficient, equitable, and reliable development of the state's water resources. The major components are to: review and prepare recommendations for permit applications for all consumptive uses of water within the District boundaries; provide post-permit compliance checks on priority projects based on staffing resources; and review and issue well construction permits for specific water wells within the District boundaries. Water use permitting also includes permit planning, permit issuance, dispute resolution, mitigation support, technical support for enforcement, communication with the water supply planning activities of this agency, and criteria and rule development.
Revise Consumptive Use Permitting Rules District Contact: Scott Burns	Ongoing	The District completed rule making and has implemented the following revisions to its consumptive use rules: Minimum Flows and Levels have been adopted for two additional water bodies; the Loxahatchee River and the St. Lucie River, administrative revisions to the rules, known as the "A" list revisions were completed in August 2002. Revisions to criteria portions of the rules, known as the "B" list revisions, became effective in September 2003. The next phase of rule revisions is focusing on assuring consumptive uses are consistent with the <i>Comprehensive Everglades Restoration Plan</i> .
Outreach		
Hillsboro Aquifer Storage and Recovery Pilot Project District Contact: Rick Nevulis	On a revised schedule	Since completion of the Project Management Plan in March 2001, the water quality characterization of the source water characterization was out-sourced, initiated and experienced schedule delays. Initial data gathering tasks were concluded at the end of the second quarter of Fiscal Year 2003. The Pilot Project Design Report and Aquifer Storage and Recovery system design, both on the critical path, were initiated during Fiscal Year 2003.
Lower East Coast Water Supply Development Implementation District Contact: Jim Jackson	Ongoing	The <i>Lower East Coast Regional Water Supply Plan</i> will be implemented by using regional and local water supply planning efforts to predict when alternative sources will be needed, and to provide guidance as to which source may be most appropriate for meeting the particular needs of each user.
Miami-Dade County Aquifer Storage and Recovery District Contact: Jim Jackson	Ongoing	The Miami-Dade County Aquifer Storage and Recovery Project will use excess wellfield capacity available from existing wellfields in the surficial aquifer during the wet season to provide water for storage in the Upper Floridan Aquifer System. This water will later be recovered during the dry season to reduce the demands of the utility wellfields on the surficial aquifer. This project is underway.
Lower West Coast Water Supply Development Implementation District Contact: TBD (Linda Hoppes, Acting)	Ongoing	This activity will evaluate Lower West Coast alternative water supply sources, or a combination of alternatives, with local water users to find the combination that best suits local requirements and conditions. The water conservation educational campaign continued in the region to support the year-round conservation Rule 40E-24.
Alternative Water Supply Cooperative Projects District Contact: Jane Bucca	Ongoing	Alternative Water Supply Cooperative Projects annually provide for the following: the receipt of Alternative Water Supply project applications; the review, ranking and Governing Board approval of proposed contract awards; execution of the contractual agreements; and the development of annual reports to the Florida Legislature. The South Florida Water Management District provided funding totaling \$4 million for 16 projects in Fiscal Year 2003, saving or offsetting over 45 million gallons of water daily.
Water Conservation District Contact: Jane Bucca	Ongoing	The District's water conservation efforts, or demand management, refer to water use practices and technologies that provide the services desired by the users while using less water. The District's Demand Management Program incorporates water supply planning, regulation and supplemental measures in order to cultivate a conservation ethic in cooperation with water users. The District initiated a water demand conservation cooperative funding program that provides \$250,000 each year, and increased funding for outreach and public education.

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Monitoring and Evaluation		
Hydrologic Modeling and Analysis – Water Resource Development District Contact: Scott Burns	Discontinued	Originally, planning models were going to be modified to be compatible for regulatory applications. The resulting models would be available to the public and regulatory staff for the evaluation of potential impacts associated with proposed uses. Staffing and other issues caused the revision of the requirements for acceptable reasonable assurances in the “B” list rules. Applicants continue to be responsible for meeting these criteria.
Hydrologic Management – Hydrologic Studies District Contact: John Lukasiewicz	Ongoing	The fundamental hydrogeologic support projects are all on schedule and ongoing. The well inventory application has been integrated with the District’s corporate database and is now available through the Web Browser. U.S. Geological Survey projects continue to come in on schedule.
Water Supply Program Controls District Contact: David Gilpin-Hudson and Linda Hoppes	Ongoing	The status of each water supply plan recommendation (119 total) is reported on quarterly.
Core Objective WS 2: Prevent contamination of water supply sources		
Regulation		
Water Use Permitting (formerly, Water Use, Application, Compliance, and Criteria Development) District Contact: Scott Burns	Ongoing	Under the authorities granted under Part II of Chapter 373, Florida Statutes, the District has limited authority to evaluate the impacts of a proposed or permitted water use on water quality. Specific water use permit criteria prevent uses that would cause harmful saltwater intrusion or cause the movement of a source of contamination into areas that are not otherwise contaminated. These criteria must be met as a condition of permit issuance and must be met throughout the life of the permit. Monitoring requirements are placed on permits where the potential for water quality harm is possible. Permit staff review each application to determine whether the criteria will be met for the life of the permit and compliance staff review monitor data throughout the life of the data to verify the permit conditions are met.
Outreach		
Local Plan Review District Contact: P.K. Sharma	Ongoing	Pursuant to the requirements of Chapters 373 and 163, Florida Statutes, the District reviews local government comprehensive plans and amendments, and provides water resources-related technical assistance to local governments on efforts to prepare Evaluation and Appraisal Reports.
Local Liaison District Contact: John Higgins	Ongoing	This activity provides for a liaison with county and Chapter 298 Districts, and enables the coordination of agency review of Water Control District plans (Chapter 298, Florida Statutes).
Water Shortage Management District Contact: Bruce Adams	Ongoing	Because of favorable water resource conditions, water shortage orders were rescinded on October 11, 2001, for all areas of the District, except for certain portions of Orange County. The District is currently under rule development for Chapter 40-E21, the Water Shortage rule. Staff has conducted two rounds of public workshops throughout the District on proposed revisions to the rule.
Wellhead Protection Programs District Contact: <i>Assigned as needed by the Water Supply Department</i>	As needed	The Florida Department of Environmental Protection is the agency responsible for this activity. The District will provide assistance to the Florida Department of Environmental Protection and local governments as needed. The Florida Department of Environmental Protection has a number of regulations under the Florida Administrative Code that function to regulate hazardous and solid waste, stormwater discharges, storage tank systems, etc. The primary goal of these legislative policies is to prevent problems before they occur, as contrasted to correcting or providing remedial action for preexisting problems. The intent of these ordinances is to protect and safeguard the health, safety, and welfare of the public by providing criteria for regulating and prohibiting the use, handling, production, and storage of certain deleterious substances that may impair present and future public water supply wells and wellfields. The District has and will continue to provide assistance to local governments in the preparation of their wellfield protection ordinances. No wellhead protection activity has occurred since the last update of the <i>District Water Management Plan</i> .

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<p>Recharge Mapping</p> <p>District Contact: <i>Assigned as needed by the Water Supply Department</i></p>	<p>As needed</p>	<p>As directed by Chapter 373, Florida Statutes, the District provides ground water recharge information to local governments to assist them with the development and implementation of appropriate water resource policies. In order to accomplish this, the District undertook a project to map recharge areas within its four planning regions. This effort was completed in 1995. The maps delineate precipitation recharge and leakage rates for all the primary public water supply aquifers utilized throughout South Florida. The District has and will provide assistance to local governments in the delineation of prime recharge areas in order to implement voluntary tax assessment programs (under the Bluebelt Act) that protect the state's prime recharge areas. No recharge mapping was performed since the last update of the <i>District Water Management Plan</i>.</p>
<p>Monitoring and Evaluation</p>		
<p>Wetland Criteria Development and Support</p> <p>District Contact: Deborah Goss</p>	<p>Completed</p>	<p>This activity supported the Regulation Program in developing a scientific basis for wetland protection criteria used in water use permitting. The District adopted a new rule based on the work completed for this project. The rule was adopted by the Governing Board in June and became effective in September 2003.</p>

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Part B. Flood Protection and Floodplain Management

Historically, flood protection has been at the core of the District's activities. The District was originally established in 1949 as the Central and Southern Florida Flood Control District. The Flood Protection and Floodplain Management portion of the *District Water Management Plan* is divided into two core objectives:

Core Objective FP 1: Minimize damage from flooding

Core Objective FP 2: Promote nonstructural approaches to achieve flood protection, and to protect and restore the natural features and functions of the 100-year floodplain

Table 2. The Fiscal Year 2003 Status of the *District Water Management Plan* Flood Protection and Floodplain Management Activities

Activity	Status	Comments
Core Objective FP 1: Minimize damage from flooding		
Planning		
Big Cypress Basin Watershed Management Plan District Contact: Ananta Nath	Ongoing	This activity includes development of a set of calibrated hydrologic-hydraulic models and ecologic assessment of an approximately 1,200-square mile area of western Collier watershed and incorporation of engineering, economic, and environmental analyses of alternative water management strategies to formulate continuing plans and road maps for capital projects in the Big Cypress Basin. During 2001, a comprehensive evaluation of surface and groundwater elements of the Basin was incorporated by an integrated surface water/ground water model. The model is also being used in evaluating alternative water management elements of the Basin's Ecosystem Restoration projects.
South Lee County Watershed Plan District Contact: Jacque Rippe	Plan: Completed Implementation: Ongoing	Severe flooding in 1995 raised the issue of water flows in southern Lee County. The South Lee County Watershed Plan addressed this issue. The work in this project involved three phases. Phase I focused on collection and analyses of background data and hydrologic and hydraulic model development for the study area. During Phase II, the ecological value of the study area was assessed and the target hydrologic parameters for restored conditions were identified. During Phase III, models were applied to evaluate the performance of existing water management facilities in the study area, existing problems were identified and alternative facilities and systems recommended. The plan was completed in July 1999 and several of the recommendations have been implemented. River and creek systems restoration involving removal of exotic vegetation and debris has been completed on major creeks in the study area. A maintenance schedule that keeps these systems clean is ongoing. Acquisition of flood plain in the east Bonita Springs area as recommended in the plan is ongoing. Finally, a Regional Flow way concept recommended by the plan is being implemented through the Regulatory process.
Public Works Construction		
Capital Program District Contact: Vince Loehrlein and Zan Kugler	Ongoing	The Capital Program includes capital improvements, modifications or repairs to District water control and conveyance facilities.
Modified Water Deliveries to Everglades National Park Project District Contact: Paul Linton	Behind schedule	The Modified Water Deliveries Project is designed to restore the hydrologic balance between western Shark River Slough and northeastern Shark River Slough, to benefit Everglades National Park flora and fauna. This project has been delayed approximately six months due to litigation on the U.S. Army Corps of Engineers' Authority to implement the selected plan for the 8.5 Square Mile Area.

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Activity	Status	Comments
C-111 Project Implementation District Contact: Paul Linton	On schedule	The C-111 Project consists of both structural and nonstructural modifications to the existing works within the C-111 Basin to promote more natural hydroperiods in Taylor Slough and the eastern panhandle ecosystems of Everglades National Park. Flood protection within the C-111 Basin east of the L-31N and C-111 canals will be maintained. During Fiscal Year 2001, 90% of the land acquisition was completed. The General Reevaluation Report supplement is under development. The project is on schedule for construction to be performed during the 2004-2005 dry season.
Kissimmee River Restoration Engineering Design and Implementation District Contact: Cled Weldon	Ongoing	The Kissimmee River Restoration Project is a partnership with the U.S. Army Corps of Engineers. Included are analyses, design and implementation of construction features that will continue to provide existing level of flood protection when ecosystem restoration features are fully constructed as part of this project. The project should be completed in 2012.
Operations and Maintenance		
Structure Operations District Contact: Bob Howard	Ongoing	Structure operations include the movement of water, pumping operations activities and automation for the Central and Southern Florida Project canal system.
Water Control Structure Maintenance District Contact: Lindel Williams	Ongoing	Water control structure maintenance includes District pump stations, structures, project culverts and special construction projects.
Canal/Levee Maintenance District Contact: Lindel Williams	Ongoing	Canals and levees must be maintained. Maintenance includes replacement of project culverts, bank stabilization, re-vegetation, mowing, tree removal and shoal removal.
Equipment Maintenance District Contact: Mike Grace	Ongoing	Equipment maintenance consists of preventive and cyclic maintenance and restoration of a variety of equipment for the regional flood control systems.
Electronics, Communications, and Control Devices District Contact: Patricia Strayer	Ongoing	District communication, electronics, monitoring and control devices must be developed, installed, supported and maintained. These are categorized as supervisory control and data acquisition system devices, and include data loggers / remote terminal units, sensors, radio frequency devices which utilize the microwave network backbone for transfer of data or control functions. This provides the required functional real-time control and monitoring of the District's Central and Southern Florida system canals and water control structures for operational decisions, data archive and hydrologic-hydraulic modeling.
Exotic Plant Control District Contact: Dan Thayer	Ongoing	Invasive exotic aquatic and terrestrial vegetation within District canals, canal banks, lakes, rights-of-way and preserve lands must be controlled. This control is accomplished through in-house and contracted herbicidal, mechanical and biological control methods. This program works primarily to ensure conveyance capacity within canals and water bodies.
Right-of-Way Management District Contact: Tom Fratz	Ongoing	Right-of-Way Management involves the management of uses of District rights-of-way by means of permitting and enforcement initiatives designed to minimize outside impacts on the District's ability to operate and maintain the canal and levee system.
Emergency Management District Contact: Olivia McLean	As needed	The District is required under Florida Statutes Chapter 252 to develop an "all hazards" Emergency Management Plan which outlines the District's policies and procedures for preparing for, response to, mitigating against and recovering from emergencies or disasters. The activities performed under this plan ensure the District's capability to continue its mission during any adverse conditions which may be due to a natural, technical or man-made event.

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Regulation		
Environmental Resource Permitting District Contact: Terrie Bates	Ongoing	This ongoing activity involves the review of environmental resource permit applications. It includes the following: <ul style="list-style-type: none"> • Technical engineering and environmental review and evaluation of construction and conceptual plans for proposed development activities • Recommendations for project design changes to ensure proposed activities meet District criteria for flood, water quality, and environmental protection • Negotiations with permit applicants • Field inspections of project sites requesting permits or wetland determinations • Review of wetland mitigation plans • Preparation of requests for additional information • Preparation of technical staff reports • Compliance review of permitted sites • Compliance review of submitted documents required by permit special conditions • Administrative and automation support critical to the Environmental Resource Permitting Program
Outreach		
Local Plan Review District Contact: P.K. Sharma	Ongoing	Pursuant to the requirements of Chapters 373 and 163, Florida Statutes, the District reviews local government comprehensive plans and amendments, and provides water resources related technical assistance to local governments on their efforts to prepare Evaluation and Appraisal Reports.
Monitoring and Evaluation		
Flood Control Level of Service Basin Flood Studies District Contact: Ken Konyha	Discontinued Ongoing	Funding was not available for this activity. This activity consists of basin flood studies in the C-17 and C-51 Basins. The C-17 Basin Study will investigate increasing flood mitigation and conveyance capacity of the C-17 Canal and the S-44 Structure without adversely affecting the receiving water body (Lake Worth Lagoon). The C-51 Basin Study will reevaluate the C-51 Basin Rule (surface water management permitting criteria). The C-11 and C-4 Basins are also being studied.
Core Objective FP 2: Promote nonstructural approaches to achieve flood protection, and to protect and restore the natural features and functions of the 100-year floodplain		
Land Acquisition		
Stewardship Save Our River Lands District Contact: Fred Davis	Ongoing	Save Our Rivers stewardship activities include planning and implementing a stewardship work plan, administering a land acquisition plan, administering a public use rule and administering mitigation banks/projects.
General Land Acquisition District Contact: Fred Davis	Ongoing	This activity involves the acquisition of lands in support of District programs for water management, water supply, and the conservation and protection of water resources.
Regulation		
Environmental Resource Permitting District Contact: Terrie Bates	Ongoing	This activity involves the review of environmental resource permit applications. It includes the following: <ul style="list-style-type: none"> • Technical engineering and environmental review and evaluation of construction and conceptual plans for proposed development activities • Recommendations for project design changes to ensure proposed activities meet District criteria for flood, water quality, and environmental protection • Negotiations with permit applicants • Field inspections of project sites requesting permits or wetland determinations • Review of wetland mitigation plans • Preparation of requests for additional information • Preparation of technical staff reports • Compliance review of permitted sites • Compliance review of submitted documents required by permit special conditions • Administrative and automation support critical to the Environmental Resource Permitting Program

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Part C. Water Quality

The water quality section of the *District Water Management Plan* addresses efforts to ensure that water quality standards are met throughout the District. The *District Water Management Plan* utilizes two core water quality objectives:

Core Objective WQ 1: Protect and improve surface water quality

Core Objective WQ 2: Protect and improve ground water quality

Table 3. The Fiscal Year 2003 Status of the *District Water Management Plan* Water Quality Activities

Activity	Status	Comments
Core Objective WQ 1: Protect and improve surface water quality		
Planning		
Kissimmee Basin Plan Development	Discontinued	This activity was eliminated due to budget constraints.
Florida Bay and Florida Keys Feasibility Study (formerly, Florida Bay Feasibility Study) District Contact: Dewey Worth	Behind schedule	The Florida Bay and Florida Keys Feasibility Study will determine the types of modifications that are needed to successfully restore and protect the water quality and ecological conditions of the Florida Bay and the Florida Keys' reef tract. The study will evaluate the quantity, timing, distribution and quality of fresh water that should flow to Florida Bay and provide recommendations for any modification of water deliveries that are expected as a result of the implementation of Everglades restoration programs. The Project Management Plan was finalized in February 2002. The feasibility study was initiated in March 2002. Performance measures and evaluation models are being developed. The final feasibility report is scheduled for completion in December 2008.
Comprehensive Integrated Water Quality Plan	Not a District project	The Comprehensive Integrated Water Quality Plan is being developed and implemented by the Florida Department of Environmental Protection.
Florida Keys Water Quality Plan District Contact: Cecelia Weaver	Ongoing	The strategies identified in the Florida Keys Water Quality Plan focus on eliminating water quality problems that are related to land-based activities in the Florida Keys. These problems may be caused by inadequate or nonexistent treatment of storm water runoff and wastewater. The plan builds upon several other plans, notably the Water Quality Protection Program and the Management Plan for the Florida Keys National Marine Sanctuary, and focuses on restoration strategies and projects that could be initiated or assisted by the District.
Indian River Lagoon Surface Water Improvement and Management Plan Documentation District Contact: Pat Gostel	Ongoing	This activity involves maintenance of documentation relative to progress on Surface Water Improvement and Management Project goals and objectives for the Indian River Lagoon. The South Florida Water Management District and the St. Johns River Water Management District jointly administer the <i>Indian River Lagoon Surface Water Improvement and Management Plan</i> . The plan is designed to develop and execute a combination of research, monitoring, modeling and implementation actions to protect and/or restore environmental resources in the Indian River Lagoon and its watershed. Documentation of progress and future requirements are compiled in periodic updates to the <i>Indian River Lagoon Surface Water Improvement and Management Plan</i> . The most recent update to the <i>Indian River Lagoon Surface Water Improvement and Management Plan</i> was December 2002.
Lake Okeechobee Surface Water Improvement and Management Plan Implementation District Contact: Kim O'Dell	Ongoing	This activity includes work required to ensure that the 2002 <i>Surface Water Improvement and Management Plan – Update for Lake Okeechobee</i> is being implemented as intended. A plan update was completed in 2002,
Public Works Construction		
Lake Okeechobee Water Retention/ Phosphorus Removal District Contact: Jose Otero	Revised schedule	Plans and specifications for the Taylor Creek and Nubbin Slough stormwater treatment areas were finalized. Value engineering options were incorporated into the plans and specifications in Fiscal Year 2003. Advertising and contracting began in Fiscal Year 2003. Construction is scheduled to begin in Fiscal Year 2004 and will be completed in Fiscal Year 2006.

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Activity	Status	Comments
Western C-11 Water Quality Improvement Critical Project (formerly, Western C-11 [S-9] Water Quality Treatment Project) District Contact: Susan Ray	Behind schedule	Phase 1 involved the construction of pump station S-9A, which includes four new seepage return pumps, located adjacent to pump station S-9. The station was handed over to the District in September 2002. The water control plan for the project was completed in June 2002. Construction was initiated in November 2001 on the new divide structure under Phase 2, but was halted in April 2002 in order to change the divide structure design in response to concerns about potential flooding impacts. The new design incorporated an Obermeyer inflatable air bladder gate system and was completed in April 2003. Construction is anticipated to be complete by December 2004.
Lake Okeechobee Tributary Sediment Dredging District Contact: Lewis Hornung	On schedule	This is part of the Lake Okeechobee Watershed Project. The Project Management Plan was completed in July 2001. A watershed assessment has been completed. Alternative plan formulation is underway.
Everglades Construction Project District Contact: Gary Goforth	On Schedule	The District and the Florida Department of Environmental Protection have set in motion a program that forms a comprehensive and consistent set of strategies to carry out the requirements of the Everglades Forever Act. Fully operational Stormwater Treatment Areas are: STA-1West, STA-2, STA-5 and STA-6. In final construction are: STA-1East and STA-3/4.
Pineland and Hardwood Hammock Restoration (C-111 Basin)	Discontinued	This is not a District project. Miami-Dade County is the local sponsor of this <i>Comprehensive Everglades Restoration Plan</i> project.
Taylor Creek/Nubbin Slough Reservoir and Stormwater Treatment Area District Contact: Lewis Hornung	On schedule	This is part of the Lake Okeechobee Watershed Project. The Project Management Plan was completed in July 2001. A watershed assessment has been completed. Alternative plan formulation is underway.
Operations and Maintenance		
Operations and Maintenance of Everglades Construction Project District Contact: Sharon Trost	Ongoing	The operations and maintenance of the Everglades Construction Project is mandated by the Everglades Forever Act. This includes costs associated with the operations and maintenance of canals, levees, pipes, culverts, pump stations and monitoring test cells within the Everglades Construction Project.
Regulation		
Everglades Works of the District Permitting District Contact: Pamela Sievers	Ongoing	The Federal Settlement Agreement and the Everglades Forever Act mandate the implementation of the Everglades Best Management Practice Program for the Everglades Agricultural Area to control phosphorus. In addition, the Everglades Forever Act mandates additional regulatory programs to include other water quality parameters and to include additional basins. The implementation of Best Management Practices through this program has resulted in a 35 percent reduction in phosphorus loads in 2003. The three-year rolling average indicates a reduction in phosphorus loads of over 50 percent. Additionally, the Best Management Practices Program Rule was amended effective January 2003 to include the C-139 Basin. The first year of compliance determination for the C-139 Basin is Water Year 2003. The results for the C-39 Basin indicated that the basin has exceeded historic levels of phosphorus loads leaving the basin. In response, the District will be performing inspections to ensure Best Management Practices are properly implemented and is funding a grant program in partnership with Natural Resources Conservation Service and Florida Department of Agriculture and Consumer Services to provide incentives for voluntary early implementation of higher level Best Management Practices.
Everglades Storm Water Program (formerly, Non-Everglades Construction Initiative) District Contact: Pamela Sievers	Ongoing	The Everglades Storm Water Program was mandated by the Everglades Forever Act. The purpose of this program is to ensure that water quality standards are met at all structures that the District controls that pump water into, through, or from the Everglades Protection Area. This will be achieved through implementing the Non-Everglades Construction Project Permit, a combination of regulatory analysis, water quality monitoring, water quality improvement strategies, and solutions such as Best Management Practices, or construction projects. Another important component of the program is an education campaign. The District is preparing an application to the Florida Department of Environmental Protection to renew the Non-Everglades Construction Project permit which expires December 31, 2003.

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Monitoring and Evaluation		
Lake Okeechobee Works of the District Permitting District Contact: Gary Ritter	Ongoing	The purpose of the Works of the District activity is to inventory and permit all nondairy land uses in the priority basins of the northern Lake Okeechobee watershed. High phosphorus source areas will be identified through water quality surveys. Monitoring is being conducted to ensure compliance with Surface Water Improvement and Management phosphorus discharge concentration limits. Corrective actions will be required on those parcels determined to be out of compliance. This program is an integral component of the Lake Okeechobee Protection Plan. Efforts are underway to amend portions of the Lake Okeechobee Works of the District regulatory program to better support the intent of the Lake Okeechobee Protection Plan and the coordinating agencies responsible for implementing the plan.
Kissimmee Basin Data Collection and Evaluation District Contact: Tom James	On schedule	The Lake Okeechobee Protection Act (Section 373.4595, Florida Statutes) requires an assessment of the sources of phosphorus from the Upper Kissimmee Chain of Lakes and their relative contribution to the water quality of Lake Okeechobee. This has been completed. In addition, data evaluation and assessment efforts are ongoing to meet the total maximum daily load and Minimum Flows and Levels requirements.
Everglades Construction Project Research and Data Collection District Contact: Jana Newman	Ongoing	This activity represents the ongoing research and data collection efforts on behalf of the Everglades Construction Project. The Everglades Forever Act and Federal Everglades Settlement Agreement, as well as permits and other legislation mandates require the District to conduct research and monitoring activities.
Everglades Best Management Practices Effectiveness Research District Contact: Pamela Sievers	Ongoing	Best Management Practices research provides information on how efficiently to control pollutant releases from agricultural and other developed areas. The particular focus of this activity is on the prevention of phosphorus releases. Projects include research on understanding phosphorus releases from the Everglades Agricultural Area (and eventually C-139 basin) soils to optimize Best Management Practices. The recent Best Management Practices research activity required by the University of Florida Institute of Food and Agricultural Sciences is summarized in the chapter on Best Management Practices in the current <i>Everglades Consolidated Report</i> as required by statute.
404 Permit Research, Monitoring, and Modeling – Receiving Waters District Contact: Carlos Coronado	Ongoing	This activity assesses impacts of effluents from Stormwater Treatment Areas on water quality (nutrients and toxins), soils, periphyton and macrophytes. Pre-discharge (baseline) monitoring is complete. Post-discharge monitoring has been initiated. Research on hydrologic/nutrient effects on vegetation and soils is continuing.
Water Quality Monitoring – Florida Bay District Contact: Dave Rudnick	Ongoing	This activity supports monitoring of water quality throughout the Florida Bay region and monitoring of seagrass community in northeastern Florida Bay, Manatee Bay and Barnes Sound. Spatial and temporal trends of water quality are documented. Water quality impacts of changing freshwater flow through the southern Everglades and the effects of pulse releases from the C-111 canal are assessed.
St. Lucie Estuary / Indian River Lagoon District Contact: Kathy LaMartina	Ongoing	This activity consists of monitoring, research, and implementation projects in support of the <i>Indian River Lagoon Surface Water Improvement and Management Plan</i> and the Indian River Lagoon Restoration Feasibility Study. The Indian River Lagoon Restoration Feasibility Study Plan was completed in 2002. U.S. Army Corps of Engineers Division Engineers provided revisions to the document in September 2002 and final authorization by the U.S. Congress is forthcoming. Monitoring, research and implementation activities continue with <i>ad valorem</i> and St. Lucie River Issue Team funding. To date, the Issue Team has funded 96 projects in Martin and St. Lucie counties and their municipalities.
Lake Okeechobee Research and Data Collection District Contact: Karl Havens	Ongoing	This element includes the research- and monitoring-related activities being conducted in Lake Okeechobee and its watershed. This information is then fed to the planning and implementation projects to ensure that the District's restoration-related activities are based on sound and defensible science. The key activities include in-lake research devoted toward determining the impacts of water level, nutrients, and invasive plants; watershed research dealing with the fate and transport of phosphorus; modeling activities associated with the impacts of phosphorus in the watershed and the lake; Best Management Practices associated with beef cattle operations; water management practices assessment; Lake Istokpoga and Upper Kissimmee Chain-of-Lakes phosphorus source identification; feasibility study and natural resources economic evaluation of alternative nutrient reduction technologies; reservoir Stormwater Treatment Area optimization; residuals and manure land application study; and monitoring activities to assess the effectiveness of the District's restoration efforts.

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Water Quality Monitoring District Contact: Bahram Charkhian	Ongoing	The Water Quality Monitoring Program generates high quality chemical and physical data for assessing the status of South Florida's water resources, utilizing standardized sampling and analytical procedures. The activities under this element provide data for evaluating water quality conditions and trends, assessing permit compliance and support other District programs. Data reporting provides summaries and written reports on water quality and hydrologic conditions for planning and operations, as well as to meet permit and legally mandated requirements.
Lower West Coast Water Quality Monitoring District District Contact: Bahram Charkhian and Patricia Burke	Ongoing	This activity encompasses water quality monitoring for Lower West Coast estuaries from Cape Romano to the Caloosahatchee River, as well as monitoring of tributary inland waters within the Big Cypress Basin.
Core Objective WQ 2: Protect and improve ground water quality		
Planning		
Water Preserve Area Feasibility Study District Contact: Max Day	Discontinued	The Water Preserve Areas are intended to provide regional storage to assist in meeting the future water supply needs of all types of users – agricultural, urban and environmental. The Water Preserve Area Feasibility Study investigated and further developed conceptual designs developed under the <i>Central and Southern Florida Project Comprehensive Review Study</i> . The draft feasibility report was completed in October 2001. In June 2002, a revised strategy was formulated to close out the feasibility study and move forward with nine individual Project Implementation Reports for the 14 WPA components. Individual Project Management Plans have been initiated on an expedited basis for those for Water Preserve Area projects that were authorized under the Water Resources Development Act of 2000 (i.e., Acme Basin B Discharge, Strazzulla Wetlands, Site 1 Impoundment and the Broward County Water Preserve Area. The draft Project Management Plan for the Site 1 Impoundment has been approved along with Acme Basin B. Draft Project Management Plan. Plans are underway for the Strazzulla Wetlands and the Broward County Water Preserve Area, and completion is anticipated on or before March 2004. The Water Conservation Area 2 Flows to the Central Lake Belt Storage Area project has been deferred and the eastern C-4 Structure has been placed on hold. Completion of the draft Project Management Plan for the Bird Drive Recharge Area is anticipated by April 2004. Initiation of the remaining two projects is dependent upon an evaluation of overall priorities and sequencing; however, both were scheduled for Water Resources Development Act authorization in 2012.
Regulation		
Water Use Permitting (formerly, Water Use, Application, Compliance, and Criteria Development) District Contact: Scott Burns	Ongoing	Under the authorities granted under Part II of Chapter 373, Florida Statutes, the District has limited authority to evaluate the impacts of a proposed or permitted water use on water quality. Specific water use permit criteria prevent uses that would cause harmful saltwater intrusion or cause the movement of a source of contamination into areas that are not otherwise contaminated. These criteria must be met as a condition of permit issuance and must be met throughout the life of the permit. Monitoring requirements are placed on permits where the potential for water quality harm is possible. Permit staff review each application to determine whether the criteria will be met for the life of the permit and compliance staff review monitor data throughout the life of the data to verify the permit conditions are met.
Outreach		
Local Plan Review District Contact: P.K. Sharma	Ongoing	Pursuant to the requirements of Chapters 373 and 163, Florida Statutes, the District reviews local government comprehensive plans and amendments, and provides water resources related technical assistance to local governments on their efforts to prepare Evaluation and Appraisal Reports. Efforts to support this activity were significantly upgraded during Fiscal Year 2002 in support of linking land and water planning.
Water Shortage Management District Contact: Bruce Adams	Ongoing	Because of favorable water resource conditions, water shortage orders were rescinded on October 11, 2001, for all areas of the District, except for certain portions of Orange County. The District is currently under rule development for Chapter 40-E21, the Water Shortage Rule.

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<p>Wellhead Protection Programs</p> <p>District Contact: <i>Assigned as Needed by the Water Supply Department</i></p>	<p>As needed</p>	<p>The Florida Department of Environmental Protection is the agency responsible for this activity. The District will provide assistance to the Florida Department of Environmental Protection and local governments as needed. The Florida Department of Environmental Protection has a number of regulations under the Florida Administrative Code that function to regulate hazardous and solid waste, stormwater discharges, storage tank systems, etc. The primary goal of these legislative policies is to prevent problems before they occur, as contrasted to correcting or providing remedial action for preexisting problems. The intent of these ordinances is to protect and safeguard the health, safety, and welfare of the public by providing criteria for regulating and prohibiting the use, handling, production, and storage of certain deleterious substances that may impair present and future public water supply wells and wellfields. The District has and will continue to provide assistance to local governments in the preparation of their wellfield protection ordinances. No wellhead protection activity has occurred since the last update of the <i>District Water Management Plan</i>.</p>
<p>Recharge Mapping</p> <p>District Contact: <i>Assigned as Needed by the Water Supply Department</i></p>	<p>As needed</p>	<p>As directed by Chapter 373, Florida Statutes, the District provides ground water recharge information to local governments to assist them with the development and implementation of appropriate water resource policies. In order to accomplish this, the District undertook a project to map recharge areas within its four planning regions. This effort was completed in 1995. The maps delineate precipitation recharge and leakage rates for all the primary public water supply aquifers utilized throughout South Florida. The District has and will provide assistance to local governments in the delineation of prime recharge areas in order to implement voluntary tax assessment programs (under the Bluebelt Act) that protect the state's prime recharge areas. No recharge mapping was performed since the last update of the <i>District Water Management Plan</i>.</p>
<p>Monitoring and Evaluation</p>		
<p>Wetland Criteria Development and Support</p> <p>District Contact: Deborah Goss</p>	<p>Completed</p>	<p>This activity supported the Regulation Program in developing a scientific basis for wetland protection criteria used in water use permitting. The District adopted a new rule based on the work completed for this project. The rule was adopted by the Governing Board in June and became effective in September 2003.</p>
<p>Lake Okeechobee Aquifer Storage and Recovery Pilot Project</p> <p>District Contact: Pete Kwiatkowski</p>	<p>On a revised schedule</p>	<p>The Lake Okeechobee Aquifer Storage and Recovery Pilot Project Management Plan was approved in March 2001. Test wells have been constructed and hydrogeologic analyses of the wells were completed in Fiscal Year 2003. Construction of exploratory wells was initiated at two sites. Conceptual designs were prepared in support of the Pilot Project Design Report.</p>

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Part D. Natural Systems Management

The importance of natural systems management at the District has increased since the 1970s as a result of greater awareness of environmental issues. The land planning and environmental resource protection legislation enacted by the State of Florida over the past 30 years has required the District to place greater emphasis on regional ecosystem management. This portion of the *District Water Management Plan* describes the activities of the District in meeting the requirements of natural systems management. It is comprised of two core natural systems objectives:

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

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

Table 4. The Fiscal Year 2003 Status of the *District Water Management Plan* Natural Systems Management Activities

Activity	Status	Comments
Objective NS 1: Maintain the integrity and functions of water resources and related natural systems		
Planning		
Lower East Coast Minimum Flows and Levels District Contact: Joel Van Arman	Completed	Minimum Flows and Levels have been established for Everglades National Park, the Water Conservation Areas, Lake Okeechobee and the Northern Biscayne aquifer (except that portion of the aquifer located in southern Miami-Dade County). Minimum Flows and Levels also have been established for the Caloosahatchee River, St. Lucie River and Estuary and the Northwest Fork of the Loxahatchee River. This effort was required by Chapter 373, Florida Statute.
Rain-Driven Schedules for the Everglades District Contact: Alaa Ali	On schedule	The objective of this project is to implement the Lower East Coast Regional Water Supply Plan 2005 rainfall driven operations in real time by 2005. To achieve this objective, a statistical prediction tool (e.g., rainfall formula) is first developed to predict "Natural System" stage targets given current and recent rainfall. If a "Go/No-Go" clause is in favor of going with the second phase, an algorithm to demonstrate the system's operation to achieve these targets will be developed. The formula is expected to be completed by the end of 2003.
Indian River Lagoon Restoration Feasibility Study District Contact: David Unsell	Nearing Completion	The feasibility study will be converted into a Project Implementation Report in final form by the end of March 2004. The Project Implementation Report is anticipated to be ready for authorization through the Water Resources Development Act of 2004.
Florida Bay Minimum Flows and Levels District Contact: Dave Rudnick	On schedule	This activity is evaluating the hydrologic needs of Florida Bay, leading to the establishment of Minimum Flows and Levels for the Bay. This is being accomplished by determining the relationships between fresh water flow through the Everglades and salinity in the bay, and then the effects of high salinity on habitat (seagrass species, distribution, survival and production) and critical animal species. A review of existing information and development of models (for salinity, seagrass, shrimp and fish) is underway, with completion expected by 2005.
Southwest Florida Feasibility Study District Contact: Janet Starnes	On schedule	The feasibility study was initiated in August 2001. The Project Management Plan was completed and approved in August 2001. Hydrologic models are under development as are performance measures and targets for assessing proposed alternatives. The final feasibility report is scheduled for completion in March 2006.
Kissimmee Basin Minimum Flows and Levels Development District Contact: Nellie Morales	Ongoing	This activity is for the development of Minimum Flows and Levels for the Kissimmee Basin. By 2006, Minimum Flows and Levels will be developed for the Kissimmee River and Lakes Kissimmee, Tohopekaliga, East Tohopekaliga, Alligator, Jackson, Rosalie, Cypress, Hatchineha, Pierce, Marian and Fish. Minimum Flows and Levels will be developed by 2008 for the Lake Butler Chain of Lakes.

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Activity	Status	Comments
In-Lake Research on Water Level Impacts District Contact: Karl Havens	Ongoing	Research is being conducted to determine operations that will minimize harm to the natural ecosystem of Lake Okeechobee. This research involves controlled experiments, field observations and model development to identify how lake stage affects growth and survival of submerged aquatic vegetation.
Salinity Distribution and Flow Management Studies for Lake Worth Lagoon (formerly Minimum / Maximum Flow Targets) District Contact: Marion Hedgepeth	Completed	The salinity regime in the Lake Worth Lagoon is strongly influenced by freshwater flows from C-17, C-51 and C-16 through the canals' respective control structures. Other controlling factors include salt water intrusion from tidal inlets, precipitation and evaporation. In this project, the Environmental Fluid Dynamics Code Model was applied to predict saltwater transport and salinity regime within the Lagoon as a function of conditions prescribed by three distinct cases of flows from the <i>Water Preserver Areas Feasibility Study</i> . The model tests showed that the Lagoon can be divided into three zones, each characterized by a distinctive salinity regime. The study concluded that it is appropriate to establish salinity targets for each section of the Lagoon based on the observed dynamics, practical operating constraints and ecosystem function. The model is scheduled to be updated and utilized in the Northern Palm Beach County <i>Comprehensive Everglades Restoration Plan</i> project. Additional bathymetry data is available now to improve the grid structure and additional sediment transport data may be collected to input into the model.
Big Cypress Basin Watershed Management Plan District Contact: Ananta Nath	Ongoing	The Big Cypress Basin Watershed Management Plan provides a road map for development of capital projects for the construction and improvement of the facilities presently operated and maintained by the Big Cypress Board that incorporates the natural systems enhancement element in addition to other mission functions of flood control, water supply, water quality and protection.
Land Acquisition		
Wetlands Mitigation – K-Mart District Contact: Rob Robbins	Ongoing	In lieu of on-site wetland mitigation, the K-Mart mitigation funds are being used to restore freshwater inflows to Pond Apple Slough. Pond Apple Slough is a tidally-influenced, remnant wetland in Broward County with significant habitat value. The project is currently under final design, with construction of the freshwater conveyance system anticipated in 2004.
General Land Acquisition District Contact: Fred Davis	Ongoing	This activity will monitor District non-specific land acquisition and disposal projects for other programs throughout the District and for external entities.
Stewardship Save Our Rivers Lands District Contact: Fred Davis	Ongoing	Save Our Rivers stewardship will ensure that Save Our Rivers lands are managed in a manner that is conducive to the maintenance of the integrity and functions of water resources and related natural systems. The activity includes operations and maintenance, development of public use facilities and some mitigation.
Wetland Mitigation – Corkscrew Regional Ecosystem Watershed District Contact: Marjorie Moore	Ongoing	The 60,000-acre Corkscrew Regional Ecosystem Watershed project spans Lee and Collier Counties and is the largest undisturbed watershed in southwestern Florida. Corkscrew Regional Ecosystem Watershed wetlands will be acquired and restored through payments from permit applicants who contribute funds to the District in lieu of performing mitigation themselves or purchasing credits from a mitigation bank.
Wetlands Mitigation – DuPuis Reserve District Contact: Marjorie Moore	Ongoing	The DuPuis Reserve is a 21,875-acre Save Our Rivers partnership project located between the J.W. Corbett Water Management Area and Lake Okeechobee. The reserve is actively managed by the District and the Florida Fish and Wildlife Conservation Commission. The DuPuis wetlands will be restored through payments from permit applicants who contributed funds to the District in lieu of performing mitigation themselves.
Wetlands Mitigation – Pennsuco District Contact: Marjorie Moore	Ongoing	The 13,000 acre Pennsuco Wetlands are being acquired and restored through payments from permit applicants who contributed funds to the District in lieu of performing mitigation themselves or purchasing credits from a mitigation bank.
Wetlands Mitigation – Shingle Creek District Contact: Marjorie Moore	Ongoing	The Shingle Creek wetlands in southern Orange and northern Osceola Counties are being acquired and restored as mitigation for the Orlando Beltway Southern Connector, its extension and the Western Beltway Part C. To date, 1,600 acres of the 7,655-acre project have been acquired.
Wetlands Mitigation – Upper Lakes Basin District Contact: Marjorie Moore	Ongoing	The Upper Lakes Basin wetlands are being managed through payments from permit applicants who contributed funds to the District in lieu of performing mitigation.

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Regulation		
Environmental Resource Permitting District Contact: Terrie Bates	Ongoing	This ongoing activity involves the review of environmental resource permit applications. It includes the following: <ul style="list-style-type: none"> • Technical engineering and environmental review and evaluation of construction and conceptual plans for proposed development activities • Recommendations for project design changes to ensure proposed activities meet District criteria for flood, water quality, and environmental protection • Negotiations with permit applicants • Field inspections of project sites requesting permits or wetland determinations • Review of wetland mitigation plans • Preparation of requests for additional information • Preparation of technical staff reports • Compliance review of permitted sites • Compliance review of submitted documents required by permit special conditions • Administrative and automation support critical to the Environmental Resource Permitting Program
Wetland Criteria Development And Support District Contact: Deborah Goss	Completed	This activity supported the Regulation Program in developing a scientific basis for wetland protection criteria used in water use permitting. The District adopted a new rule based on the work completed for this project. The rule was adopted by the Governing Board in June and became effective in September 2003.
Regulation Model Technology Development/Application District Contact: Jason Yan	Ongoing	This activity supports the Regulation Program in developing computer applications and technology for use in the water use permitting process. Regulation modeling continued during Fiscal Year 2003.
Environmental Operations Protocol District Contact: Peter Doering	Ongoing	Rules for low-level releases of water from Lake Okeechobee to the St. Lucie and Caloosahatchee Estuaries are being developed through this activity. Recently developed hydrodynamic models are being used to predict outcomes of different rule scenarios. During Fiscal Year 2003, the hydrodynamic model for the Caloosahatchee was updated.
Lake Okeechobee Research And Data Collection District Contact: Karl Havens	Ongoing	This element includes the research- and monitoring-related activities being conducted in Lake Okeechobee and its watershed. This information is then used when projects are planned and implemented to ensure the District's restoration-related activities are based on sound and defensible science. The key activities include in-lake research on the impacts of water level, nutrients, and invasive plants; watershed research on the fate and transport of phosphorus; modeling activities associated with the impacts of phosphorus in the watershed and the lake; Best Management Practices associated with beef cattle operations; water management practices assessment; Lake Istokpoga and Upper Kissimmee Chain-of-Lakes phosphorus source identification; feasibility study and natural resources economic evaluation of alternative nutrient reduction technologies; reservoir Stormwater Treatment Area optimization; residuals and manure land application study; and monitoring activities to assess the effectiveness of restoration efforts.
Monitoring and Evaluation		
Indian River Lagoon Seagrass Monitoring District Contact: Becky Robbins	Ongoing	Seagrasses have been identified as a valued ecosystem component for the Indian River Lagoon. This effort will obtain a current inventory of seagrass resources, identify healthy areas that may deserve special protection efforts, and identify potential problem areas that require further investigation.
Objective NS 2: Restore degraded water resources and related natural systems to a naturally functioning condition		
Planning		
Lake Okeechobee Surface Water Improvement and Management Plan Implementation District Contact: Kim O'Dell	Ongoing	This activity includes work required to ensure that the 2002 <i>Surface Water Improvement and Management Plan – Update for Lake Okeechobee</i> is being implemented as intended. A plan update was completed in 2002,

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Rain-Driven Schedules for the Everglades District Contact: Alaa Ali	On schedule	The objective of this project is to implement the Lower East Coast Regional Water Supply Plan 2005 rainfall driven operations in real time by 2005. To achieve this objective, a statistical prediction tool (e.g., rainfall formula) is first developed to predict "Natural System" stage targets given current and recent rainfall. If a Go/No-Go clause is in favor of going with the second phase, an algorithm to demonstrate the system's operation to achieve these targets will be developed. The formula is expected to be completed by the end of 2003.
Establish Ecological and Hydrologic Needs for the Everglades Protection Area District Contact: Fred Sklar	On schedule	The effects of water level, flow, and water quality on key performance measures of sloughs and wet prairies will be determined through this activity. Plant community structure and productivity will be measured and recommendations for the restoration of these communities will be made. Restoration Coordination and Verification (RECOVER) conceptual models will be assessed through measurements of baseline status, history, and development of ridge and slough landscape.
South Miami-Dade County Integrated Water Resource Strategy	Discontinued	This activity was eliminated due to budget constraints.
Biscayne Bay Surface Water Improvement and Management Plan Update District Contact: Trisha Stone	Ongoing	The 2003 Florida Legislature passed Senate Bill 2260, which significantly revises the Surface Water Improvement and Management program. In general, the Surface Water Improvement and Management -related portions of this bill simplify the administrative requirements of the program and connect the Surface Water Improvement and Management program to other surface water management efforts. The District is relying on efforts other than Surface Water Improvement and Management to lead Biscayne Bay protection and restoration efforts and for identifying District priority projects for the Bay. These parallel efforts allow the District to coordinate and streamline available federal, state and local resources, and share the associated financial responsibilities among stakeholders. In accordance with the revised Surface Water Improvement and Management Act, Surface Water Improvement and Management plan updates are no longer fundamental or practical for meeting the goals of the Surface Water Improvement and Management Act.
Land Acquisition		
Kissimmee River Restoration Land Acquisition District Contact: Bob Schaeffer	Ongoing	This activity will enable the District to acquire the remaining approximately 15,000 acres of fee ownerships and flowage easements (as applicable) for the Kissimmee River Restoration Project by the specified deadline. This element includes costs for specified infrastructure relocations (e.g., highways).
Public Works Construction		
C-4 Water Control Structure Critical Project (formerly, Western C-4 Structure Critical Project) District Contact: Jorge Marban	Complete	Plans and specifications were completed in July 2000. Construction began in November 2000 and was completed in July 2003. The structure was turned over to the District and is now in operation.
Western Tamiami Trail Culverts Critical Project (formerly, Tamiami Trail Culverts (West) Critical Project) District Contact: Clarence Tears	On a revised schedule	Pre-final submittal of design plans and specifications are complete. Water quality certification and Right-of-Way permits are in process. Due to construction cost estimates escalating beyond the limit of federal funds available under the Water Resources Development Act of 1998, the federal participation is uncertain. The Phase 1 culverts (west of State Road 29) will be implemented in Fiscal Year 2004 with local sponsor funds.
Lake Trafford Restoration Critical Project (formerly, Lake Trafford Restoration) District Contact: Clarence Tears	Behind schedule / On Hold	The construction bid amounts were significantly higher than the estimated cost. Additional sediment testing and dredging methods are being completed in 2003 to explore the feasibility of achieving lake restoration benefits with a lesser volume of dredging. Federal participation is uncertain due to limited availability of Water Resources Development Act of 1996 funds. Local sponsor funds will be used to perform a reduced scale dredging.
C-111 Project Implementation District Contact: Paul Linton	Behind schedule	The Modified Water Deliveries Project is designed to restore the hydrologic balance between western Shark River Slough and northeastern Shark River Slough, to benefit Everglades National Park flora and fauna. This project has been delayed approximately six months due to litigation on the U.S. Army's Authority to implement the selected plan for the 8.5 Square Mile Area.

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Modified Water Deliveries to Everglades National Park Project District Contact: Paul Linton	On schedule	The C-111 Project consists of both structural and nonstructural modifications to the existing works within the C-111 Basin to promote more natural hydroperiods in Taylor Slough and the eastern panhandle ecosystems of Everglades National Park. Flood protection within the C-111 Basin east of the L-31N and C-111 canals will be maintained. In Fiscal Year 2001, 90 percent of the land acquisition was completed. The general reevaluation report supplement is under development. The project is on schedule for construction to be performed during the 2004-2005 dry season.
Florida Keys Tidal Restoration District Contact: Dewey Worth	Behind schedule	The Project Management Plan was completed, and the Project Implementation Report process was initiated in April 2002. Performance measures are being developed. A single restoration site is being recommended instead of the four sites identified in the <i>Comprehensive Everglades Restoration Plan</i> due to potentially high costs associated with traffic management, movement of utilities and other logistical considerations. The Project Implementation Report process is expected to be completed in September 2004.
S-356 Structures (Miami-Dade County) District Contact: Dewey Worth	On schedule - not yet started	This activity is part of the Everglades National Park Seepage Management Project. The project is scheduled to begin in Fiscal Year 2006; however project completion may be deferred until completion of the L-31N Pilot Study.
Additional S-345 Structures District Contact: Dewey Worth	Behind schedule - not yet started	This activity is part of the Water Conservation Area 3 Decompartmentalization and Sheetflow Enhancement - Part 2 Project. This activity was scheduled to begin in Fiscal Year 2006, however it was placed on hold pending resolution of the 8.5 Square Mile Area mitigation plan.
G-404 Pump Station Modifications District Contact: Dewey Worth	On Hold	This is part of the Flow to Northwest and Central Water Conservation Area-3A Project. It was scheduled to begin in Fiscal Year 2003; however the project has been placed on hold.
Southern Golden Gate Estates Hydrologic Restoration District Contact: Ananta Nath	Behind schedule	A conceptual restoration plan was developed in 1996 and submitted to the Governor's Office. The Project Management Plan was approved in March 2001. The Project Implementation Report is scheduled for completion in March 2004.
Lake Worth Lagoon Restoration District Contact: Michael Voich	On schedule (Revised schedule)	This is part of the North Palm Beach County - Part 1 Project. Work is in progress to complete the Project Management Plan in December 2003. Approval was granted to move forward with work on the Project Implementation Report prior to approval of the project management plan. The project schedule is being finalized.
Kissimmee River Restoration Design	Combined with the project below	
Kissimmee River Restoration Engineering Designs and Implementation District Contact: Cled Weldon	Ongoing	The Kissimmee River Restoration Project is a partnership effort with the U.S. Army Corps of Engineers. Phase II/III and IV canal backfilling in C-38 will occur after all flood mitigation, road and bridge retrofits and relocations are designed and constructed to maintain existing level of flood protection. Project completion is scheduled for 2012.
Operations and Maintenance		
Everglades Exotic Species Control District Contact: Dan Thayer	Ongoing	This activity provides for the elimination and monitoring of exotic plants within the Everglades. The biannual survey showed that melaleuca is decreasing, Australian pine and Brazilian pepper are stable, and lygodium is increasing.
Modify Holey Land Wildlife Management Area Operation Plan (formerly Holey Land WMA Regulation Schedule) District Contact: Lewis Hornung	On Hold	This project consists of a modification to the current operating plan for the Holey Land Water Management Area. The project was scheduled to begin in Fiscal Year 2004, but has been placed on hold.
Modify Rotenberger Wildlife Management Area Operation Plan (formerly Rotenberger Regulation Schedule) District Contact: Lewis Hornung	On Hold	This project consists of a modification to the current operating plan for the Rotenberger Water Management Area. This project was scheduled to begin in Fiscal Year 2004, but has been placed on hold.

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Lake Okeechobee Exotic Control District Contact: Dan Thayer	Ongoing	This activity is for control of exotics within Lake Okeechobee. Control of melaleuca and torpedograss, along with other exotic plants, is critical for the preservation and restoration of Lake Okeechobee. If not managed, plants like torpedo grass form dense monocultures, displacing all other plant communities.
Monitoring and Evaluation		
Stormwater Treatment Area / Everglades Nutrient Removal Project Optimization, Research, and Modeling District Contact: Jana Newman	On schedule	This activity includes: field collection and laboratory analysis of water quality, vegetation and sediment samples associated with research and monitoring efforts of the Stormwater Treatment Areas; analysis of nutrient removal performance data from other South Florida wetlands; and optimization experiments that will be conducted in the STA-1W test cells. This work is a part of the District's Stormwater Treatment Area Optimization Research Program. The District is mandated by the Everglades Forever Act to conduct research on optimizing performance of the Stormwater Treatment Areas.
Florida Bay Research – Sea Grass Mortality and Algal Blooms District Contact: Dave Rudnick	On schedule	This activity is measuring the effects of changing freshwater flow on Florida Bay water quality and seagrass habit in order to improve operations and restoration designs. This includes monitoring ecological status near sources of freshwater flow, assessing causes of algal blooms and seagrass mortality, and using these data to develop a seagrass habitat model. This activity will quantify the extent to which the occurrence of algal blooms is related to water management via nutrient outputs from the Everglades and how seagrass mortality is related to these blooms and other environmental variables.
Florida Bay – Ecological Response to Restoration Activities District Contact: Dave Rudnick	On schedule	This activity is assessing the hydrologic needs and the ecological status of northern boundary of Florida Bay and the southeastern Everglades, including the mangrove dominated salinity transition zone. It is also measuring the ecological response of this region to changing freshwater flow, as caused by projects such as the C-111 Project and CSOP. Hydrologic, water quality and ecological parameters are measured and trends and relationships are derived. From these results, water and nutrient budgets are calculated and ecological indicators (especially wetland periphyton and plant communities) are quantified and used to assess the downstream effects of upstream projects.
Kissimmee Basin Restoration and Assessment District Contact: Cled Weldon	Ongoing	Research and evaluation data will be used to evaluate the success of the Kissimmee River Restoration Project, fine tune reconstruction phases, and provide for adaptive management of the restored ecosystem. Outputs include publications, technical reports, and presentations. Preconstruction baseline monitoring and evaluation has been completed and post Phase I reconstruction monitoring has been initiated. An independent scientific advisory panel has met to review the baseline information and has provided a peer review. The panel was generally complimentary on the progress to date. The Kissimmee River Restoration Evaluation Program Expectations Compendium will be published in December 2003.
Everglades Food Web/Wading Birds Hydrologic Effect District Contact: Gaea Crozier	Ongoing	This effort will generate a series of scientific publications including: analysis of systematic reconnaissance flight wading bird surveys from former contracts and other agencies to determine wading bird distributions and identify depth thresholds that preclude wading birds from feeding successfully; scientific publication examining the amount of movement various species of wading birds exhibit as an indication of how likely they are to be affected by local restoration projects; reports and scientific publications that define fish and aquatic macro invertebrate populations in the Water Conservation Areas; scientific publications containing recommendations for water depths and durations that promote the existence of healthy tree islands and associated wildlife; annual reports on the numbers of nesting wading birds in South Florida (South Florida Wading Bird Report); and scientific publications of test cell experiments to identify the optimum and minimum water depths necessary for successful foraging.
Hydrologic Monitoring District Contact: Robb Startzman	Ongoing	This effort includes long-term hydrometeorologic data collection and database management. Functions performed include routine data reporting and data evaluation. Features of these activities include supporting the installation of new sites, maintenance of existing sites and data collection. Data are subsequently processed and archived to the environmental corporate database. Maintenance of the database for the purposes of data storage and access is a key function of this effort. These data document the operation of the Central and Southern Florida Project, provide data for the implementation of the <i>Comprehensive Everglades Restoration Plan</i> , for Kissimmee River, Everglades, Florida Bay and Lake Okeechobee restorations, for modeling and for water supply planning and implementation.

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<p>Monitoring and Evaluation (RECOVER)</p> <p>District Contact: John Ogden</p>	<p>Ongoing</p>	<p>The revised program management plan for RECOVER will be completed in the first quarter of Fiscal Year 2004. A final draft of the Comprehensive Everglades Restoration Plan Systemwide Monitoring and Assessment Plan was completed in November 2003. A technical report on a recommended set of indicators with predictions towards progress at five-year intervals for Comprehensive Everglades Restoration Plan interim goals and interim targets will be completed by June 2004. Documentation of systemwide performance measures will be available for review in December 2003. RECOVER has hosted two workshops to develop an Adaptive Assessment Protocol and the Adaptive Management Program (to be documented in a Guidance Memorandum mandated by the Programmatic Regulations) by June 2004. The Initial Comprehensive Everglades Restoration Plan Update will be completed in February 2004, with Aquifer Storage and Recovery Contingency Planning to follow in late spring/early summer 2004.</p>
<p>Lake Okeechobee Research And Data Collection</p> <p>District Contact: Karl Havens</p>	<p>Ongoing</p>	<p>This element includes the research- and monitoring-related activities being conducted in Lake Okeechobee and its watershed. This information is then used when projects are planned and implemented to ensure the District's restoration-related activities are based on sound and defensible science. The key activities include in-lake research on the impacts of water level, nutrients, and invasive plants; watershed research on the fate and transport of phosphorus; modeling activities associated with the impacts of phosphorus in the watershed and the lake; Best Management Practices associated with beef cattle operations; water management practices assessment; Lake Istokpoga and Upper Kissimmee Chain-of-Lakes phosphorus source identification; feasibility study and natural resources economic evaluation of alternative nutrient reduction technologies; reservoir Stormwater Treatment Area optimization; residuals and manure land application study; and monitoring activities to assess the effectiveness of restoration efforts.</p>

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CHAPTER II

SOUTH FLORIDA WATER MANAGEMENT DISTRICT PERFORMANCE MEASURE VALUES

At least once every five years, the District must conduct an evaluation of its success in realizing the desired goals established in the *District Water Management Plan*. Such an evaluation requires a performance-based assessment of the effectiveness of the various efforts undertaken by the District toward meeting long-term goals.

To assist in the development of this annual report, each water management district committed to incorporate a series of performance measures that will provide an indication of its success in achieving the goals described in its respective *District Water Management Plan*. In an effort to facilitate comparison of the five districts throughout the state, all of the districts have committed to using similar performance measures.

Different measures have been agreed upon to assess the impact of activities within each of the areas of responsibility identified in the *District Water Management Plan*: water supply, flood protection and floodplain management, water quality, and natural systems management. In some cases, however, a single performance measure may provide information in more than one area of responsibility. Some performance measures are common to all areas of responsibility. These are discussed separately. This chapter is organized into the following sections:

- A. Performance Measures Common to All Areas of Responsibility
- B. Performance Measures for Water Supply
- C. Performance Measures for Flood Protection and Floodplain Management
- D. Performance Measures for Water Quality
- E. Performance Measures of Natural Systems Management

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Part A. Performance Measures Common to All Areas of Responsibility

Core CM(a): Acres in managed conservation areas acquired by the District

The District acquired 11,495 acres of conservation lands in Fiscal Year 2003, bringing the total conservation lands controlled by the District to 346,425 acres. This includes only natural areas. Lands purchased for water resource projects, such as stormwater treatment areas, the East Coast Buffer and other projects are not included. This figure notes a reduction of 32,534 acres from what was reported for Fiscal Year 2002. During preparation of the *2003 Florida Forever Report*, acquisition totals within all conservation lands projects were recalculated.

Core CM(b): For District-owned lands: 1) number of management plans required; 2) number of management plans completed; and 3) percentage of management plans completed on schedule

Nearly half the District-owned Save Our Rivers lands are managed by other agencies and preparation of management plans are those agencies' responsibilities. The District directly manages 176,000 acres in eleven different projects. Each project requires a management plan with an update every five years. Seven management plans have been completed.

Most Save Our Rivers projects contain multiple parcels that may be acquired over a period of years before enough contiguous tracts are put together to warrant a management plan. The District does not, therefore, develop specific timelines for management plan preparation. Further, some projects are being considered as wildlife and environmental areas and will be under Florida Fish and Wildlife Conservation Commission management. Prior to opening these areas to hunting, wildlife inventories must be prepared. The preparation of these inventories can further delay the development of management plans.

Core CM(c): Number and percent of land management plan activities being implemented according to plan schedules

In Fiscal Year 2003, the District was the lead manager on twelve land management projects. This includes Allapattah Flats, which is a 20,500 acre project acquired in Fiscal Year 2003. Management plan development is currently underway.

Five-year management plans must be developed for each project. At the end of a five-year period, these plans are updated. Projects needing management plans are: Allapattah Flats; Biscayne Coastal Wetlands; Model Lands (highly discontinuous ownership); and Cypress Creek/Loxahatchee (2003 purchase).

Management activities that must be implemented for all projects include prescribed burning, exotic plant treatment, resource protection (security), public use and resource inventories. The five-year management plans do not contain schedules for these management activities. Instead, annual work plans specify what activities will be undertaken on each management area during each fiscal year. Burning, exotic plant control, resource protection and public use are ongoing actions that are repeated annually. Inventories are prepared after sizable tracts have been acquired and are updated only to document a restoration activity or significant disturbance. **Table 5** indicates management activities that were implemented for each project during Fiscal Year 2003.

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Table 5. Land Management Activities Implemented During Fiscal Year 2003

Project Name	Prescribed Burning	Exotic Plant Treatment	Resource Protection (security)	Public Use	Resource Inventories (natural and cultural)
Allapattah Flats	✓	✓	✓		✓
Corkscrew Regional Ecosystem Watershed	✓	✓	✓	✓	✓
Cypress Creek/Loxahatchee	✓	✓	✓		
DuPuis	✓	✓	✓	✓	✓
Kissimmee Chain of Lakes	✓	✓	✓	✓	✓
Kissimmee River	✓	✓	✓	✓	✓
Lake Marion Creek	✓	✓	✓	✓	✓
Loxahatchee Slough	✓	✓	✓		
Model Lands		✓	✓		
Reedy Creek	✓	✓	✓	✓	✓
Shingle Creek	✓	✓	✓	✓	✓

Core CM(d): Acres of land acquired through less-than-fee ownership, on an annual and cumulative basis

The District has acquired 14,953 acres in less-than-fee ownership since implementation of the Save Our Rivers Program in 1981. **Table 6** reveals the acreage acquired by year.

Table 6. Less-than-Fee Acreage Acquired Each Year

Year	Acreage
Pre-1990	7,428
1990	1,253
1991	1,214
1992	0
1993	1,868
1994	415
1995	99
1996	1,655
1997	649
1998	144
1999	33
2000	98
2001	97
2002	0
2003	0
Total	14,953

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Core CM(e): Percentage of Environmental Resource Permitting for which compliance inspections were conducted, and of those inspected, percentage found to be in compliance

The number of Environmental Resource Permit compliance inspections conducted during Fiscal Year 2003 and the percentage of these in compliance are as follows:

Total engineering and environmental application inspections	2,833	
Total number of engineering and environmental compliance inspections	8,681	
Total engineering and environmental applications in compliance	2,028	
Percentage found to be in compliance		71.5 percent
Total environmental application inspections	1,104	
Total number of environmental compliance inspections	2,320	
Total environmental applications in compliance	615	
Percentage environmental inspections found to be in compliance		55.7 percent
Total engineering application inspections	1,729	
Total number of engineering compliance inspections	6,361	
Total engineering applications in compliance	1,413	
Percentage engineering inspections found to be in compliance		81.7 percent

Some new measures collected for Fiscal Year 2003 are Water Management System Completion Certifications, of which 600 current certifications were received; 734 backlog certifications were received; and 728 backlog certifications were accepted. Further, there were 342 Above-ground Impoundment Certifications with 2336 Above-ground Impoundments in compliance.

The data source for all of the above was the South Florida Water Management District Environmental Resource Compliance Oracle Database, Environmental Resource Compliance Access Database and Paper Form Checklists

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Part B. Performance Measures for Water Supply

The South Florida Water Management District is divided into four water supply planning areas: Lower East Coast, Lower West Coast, Kissimmee Basin and Upper East Coast. Figure 1 shows the boundaries of these planning areas. The performance measures utilized to evaluate the effectiveness of water supply provide indications of changes in water demand rates, changes in reused water quantities, as well as activities designed to protect water sources, such as potable water wellfields.

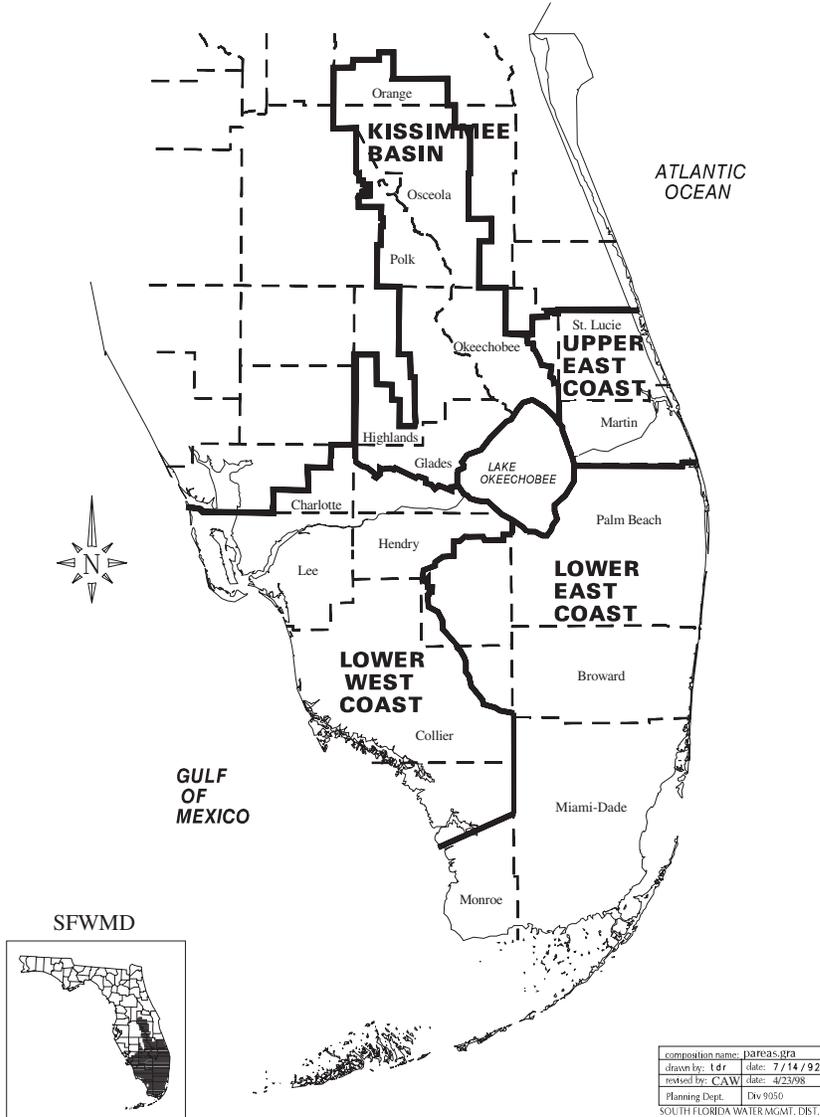


Figure 1. Water Supply Planning Areas within the SFWMD

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

Core WS 1(a): Percentage of domestic reuse

The percentages of water reuse for Fiscal Years 1999 through 2002 for the South Florida Water Management District in total and by planning area are presented in **Table 7** and **Table 8**. These data are from the *1999 Reuse Inventory*, *2001 Reuse Inventory* and *2002 Reuse Inventory* published by the Florida Department of Environmental Protection.

Table 7. Percentage of Water Reuse

	1999	2000	2001	2002
Number of treatment plants	122	116	117	115
Number of reuse systems	118	111	111	110
Wastewater Treatment Facility Capacity (million gallons per day)	1,014	1,012	1,013	1,018
Wastewater Treatment Facility Flow – Actual (million gallons per day)	762	761	769	788
Reuse Capacity (million gallons per day)	326	317	335	372
Reuse Flow – Actual (million gallons per day)	180	190	197	201
Percent Reuse – South Florida Water Management District	24%	25%	26%	26%
Percent Reuse – Lower East Coast Planning Area ¹	8%	9%	9%	10%
Percent Reuse – Lower West Coast Planning Area ¹	84%	93%	89%	89%
Percent Reuse – Kissimmee Basin Planning Area ¹	99%	99%	100%	100%
Percent Reuse – Upper East Coast Planning Area ¹	44%	40%	48%	52%
¹ Reuse Flow/ Wastewater Treatment Facility Flow				

Table 8. Capacity and Reuse Ratios by Planning Area for 2002

Planning Area	Wastewater Treatment Facility		Reuse		Capacity Ratio ^a	Flow Ratio ^b
	Capacity (million gallons per day)	Flow (million gallons per day)	Capacity (million gallons per day)	Flow (million gallons per day)		
Lower East Coast	775	631	107	61	0.14	0.10
Lower West Coast	105	70	89	62	0.85	0.89
Kissimmee Basin	107	69	157	69	1.47	1.00
Upper East Coast	31	18	19	9	0.61	0.50
SFWMD	1,018	788	372	201	0.33	0.26

^a Capacity Ratio = Reuse Capacity / WWTF Capacity

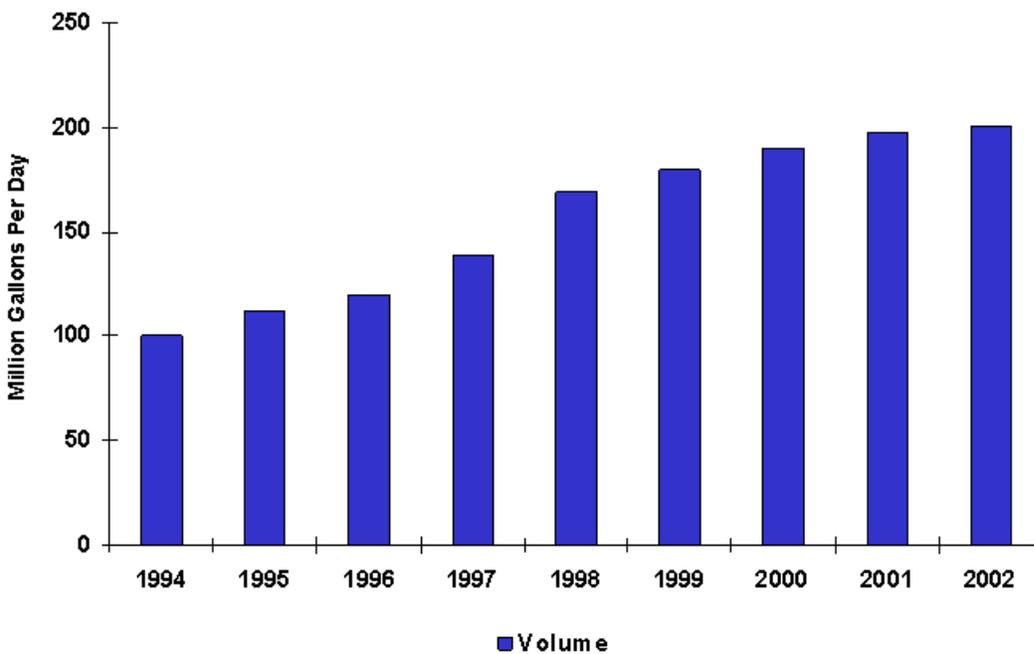
^b Flow Ratio = Reuse Flow / WWTF Flow

The Wastewater Treatment Facility Capacity is the combined Florida Department of Environmental Protection permitted treatment capacity for all facilities with a capacity of 0.10 million gallons per day or greater. The combined volume of wastewater treated by these facilities is indicated under the Wastewater Treatment Facility Flow heading. The Reuse Capacity is the combined permitted reuse capacity of these facilities, while the Reuse Flow is the combined volume of reclaimed water that was reused.

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Figure 2. The Reuse History for the South Florida Water Management District for 1994 to 2002.

SFWMD's Reuse History



In 2002, only 26 percent of the wastewater treated was reused, compared to a capacity for reuse in the District of 33 percent. **Figure 2** presents the South Florida Water Management's reuse history. Most of the reuse in the District is for irrigation of golf courses, residential lots and other green space, and ground water recharge. Using reclaimed water for irrigation requires higher levels of treatment than historically used disposal methods such as deep well injection and ocean outfall. Water disposed comprises the difference between the Wastewater Treatment Facility Flow and Reuse Flow.

Core WS 1(b): Gross per capita water use (public supply) by District and water supply planning area

An estimate of public water supply per capita used in the District during 2002 is presented in **Table 9**. Based on 476,847 million gallons per year (1,306 million gallons per day) of water withdrawn for public supply, and a population served of 6.585 million people, the total public water supply per capita for the South District is 198 gallons per day. For some systems, monthly pumpage and population served were not available, but the resulting difference in the total per capita usage is minor and the omission of this data from the calculation does not affect the total usage.

The 20 million gallons per day of water used by the Reedy Creek Improvement District is not included in the Kissimmee Basin or South Florida Water Management District totals, as the U.S. Geological Survey classified this water as commercial.

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Table 9. Gross per Capita Public Water Supply for 2002

Planning Area/County	Per Capita	Population Served	Raw Water Pumpage (million gallons per year)
Lower East Coast			
Broward County	209	1,602,882	122,458
Dade County	173	2,157,544	136,535
Monroe County	214	79,589	6,212
Palm Beach County	228	1,010,149	84,143
Lower East Coast Total	197	850,164	349,348
Lower West Coast			
Lee County	139	625,860	31,857
Collier County	245	474,042	42,365
Hendry County	231	35,955	3,025
Glades County	221	5,389	434
Charlotte County	0	0	0
Lower West Coast Total	186	1,141,246	77,681
Kissimmee Basin			
Highlands County	132	2,492	120
Okeechobee County	181	12,197	806
Polk County	351	4,639	595
Osceola County	190	152,564	10,585
Orange County *	339	201,949	25,003
Kissimmee Total	272	373,841	37,109
Upper East Coast			
Martin County	180	96,142	6,333
St. Lucie County	141	124,267	6,376
Upper East Coast Total	158	220,409	12,709
District Total	198	6,585,660	476,847

Core WS 1(c): Within each water supply planning region: 1) the estimated amount of water supply to be made available through the water resource development component of the regional water supply plan; 2) percent of estimated amount under development; and 3) percent of estimated amount of water actually made available

Table 10 presents the amount of water that was estimated to be made available through the water resource development components of the regional water supply plans, which were published in 1998 and 2000, and the *South Florida Water Management District Proposed Five Year Water Resource Development Work Program*, dated November 7, 2002, and the percent of this estimated water that has been made available, and the estimated amount that was under development as of September 30, 2003.

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Table 10. Amount of Estimated Water Made Available and Under Development

Water Supply Planning Region	Water to Be Made Available (million gallons per day)	Percent of Estimated Water Under Development as of September 30, 2003	Percent of Estimated Water Actually Made Available as of September 30, 2003
Lower East Coast	1,145	100%	3%
Lower West Coast	422	60%	16%
Upper East Coast	85	46%	40%
Kissimmee Basin	390	81%	1%
Total Quantity Made Available	2,042		

Core WS 1(d): Within each water supply planning region, the estimated additional quantities of water supply made available through District water supply development assistance

Table 11 presents the estimated additional quantities of water supply that was made available through District water supply development assistance from 2000 through 2003. These data were obtained from Alternative Water Supply Applications filed in 2000, 2001, 2002 and 2003; and from applications proposed for 2004.

Table 11. Amount of Additional Water Made Available and Estimated to be Made Available through District Water Supply Development Assistance

Planning Area	Water Made Available (million gallons per day)				Water Estimated to be Made Available (million gallons per day)
	2000	2001	2002	2003	2004
Lower East Coast	17.96	10.35	26.38	35.76	54.17
Lower West Coast	23.80	38.74	19.00	8.20	31.59
Upper East Coast	9.11	0.00	2.17	1.00	8.33
Kissimmee Basin	0.00	0.00	0.00	0.00	7.7
Total	50.87	49.09	49.09	44.96	101.79

The Kissimmee Basin was not eligible for the Water Supply Grant funding program prior to Fiscal Year 2004. In 2001, the Florida Legislature changed the legislation governing the Alternative Water Supply funding to allow all areas within the water management districts to participate in the Alternative Water Supply funding program. Prior to that change, only projects within Water Resource Caution Areas were eligible. This change was incorporated into the Alternative Water Supply Application in Fiscal Year 2003.

Core Objective WS 2: Prevent contamination of water supplies

Core WS 2(a): Percentage of surface water supply sources for which water quality attains the designated use

There are 83 total surface water supply sources located within the South Florida Water Management District. According to the *2002 305(b) Report* published by the Florida

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Department of Environmental Protection in 2001, 45 percent of these sources have good water quality ratings, 48 percent have fair water quality ratings, and 1 percent have poor water quality ratings. Five of the sources, the Marco Lakes, are not in the Florida Department of Environmental Protection database and, therefore, were not taken into consideration.

Table 12. Water Quality Ratios for Surface Water Supply Sources

Water Quality Rating	Number of Sources	Percentage of Total
Good	37	45%
Fair	40	48%
Poor	1	1%
Not in FDEP database (Marco Lakes)	5	6%
Total	83	100%

SFWMD WS 2(b): Percentage of public water supply wellheads subject to wellhead protection ordinances

Table 13 indicates which counties had wellhead protection ordinances and the number of public water supply wells within each county during fiscal years 2000 through 2003. The number of public water supply wells in each county was obtained from District service centers and the District's permit database. The percentage of public water supply wellheads subject to wellhead protection ordinances was calculated from this information.

In 2000, the District had 2,752 public water supply wells within its boundaries. Of these 90 percent (2,464) were within counties that had wellhead protection ordinances, and 10 percent (288) were in counties that did not have wellhead protection ordinances.

In 2001, the District had 2,885 public water supply wells within its boundaries. Of these 89 percent (2,576) were within counties that had wellhead protection ordinances, and 11 percent (309) were in counties that did not have wellhead protection ordinances.

In 2002, the District had 2,433 public water supply wells within its boundaries. Of these, 92 percent were within counties that had wellhead protection ordinances, and 8 percent (186) were in counties that did not have wellhead protection ordinances.

In 2003, the District had 2,595 public water supply wells within its boundaries. Of these, 93 percent (2,408) were within counties that had wellhead protection ordinances, and 7 percent (187) were in counties that did not have wellhead protection ordinances.

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Table 13. Number of Public Water Supply Wellheads Subject to Wellhead Protection Ordinances

County	2000		2001		2002		2003	
	Wellhead Protection Ordinances	Number of Public Water Supply Wells	Wellhead Protection Ordinances	Number of Public Water Supply Wells	Wellhead Protection Ordinances	Number of Public Water Supply Wells	Wellhead Protection Ordinances	Number of Public Water Supply Wells
Palm Beach	Yes	605	Yes	626	Yes	588	Yes	586
Broward	Yes	394	Yes	424	Yes	440	Yes	449
Miami-Dade	Yes	255	Yes	281	Yes	177	Yes	201
Monroe	No	0	No	0	No	0	No	0
Glades	No	20	No	20	No	12	No	14
Hendry	No	40	No	41	No	34	No	41
Lee	Yes	393	Yes	362	Yes	414	Yes	426
Collier	Yes	165	Yes	201	Yes	176	Yes	229
Charlotte	No	24	No	24	No	18	No	18
St. Lucie	Yes	234	Yes	210	Yes	157	Yes	162
Martin	Yes	246	Yes	297	Yes	162	Yes	223
Orange	Yes	131	Yes	129	Yes	116	Yes	113
Osceola	No	136	No	156	No	105	No	97
Polk	Yes	19	Yes	23	Yes	10	Yes	11
Highlands	Yes	22	Yes	23	Yes	7	Yes	8
Okeechobee	No	68	No	68	No	17	No	17
TOTAL		2,752		2,885		2,433		2,595

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Part C. Performance Measures for Flood Protection and Floodplain Management

Flood protection within the District is provided through the facilities of the Central and Southern Florida Project and by limiting land uses within identified flood prone areas. Floodplain management is achieved by protecting and restoring natural features of floodplains.

Core Objective FP 1: Minimize damage from flooding

Core FP 1(a): Percentage of District works maintained on schedule

According to the District's Water Resources Operations Industrial Engineering Unit quarterly reports, 95,357 District work order tasks were planned for Fiscal Year 2003, and 68,791 tasks were completed. The percentage of District works that were maintained on schedule is 72.1 percent. This information was found in the District's Computerized Maintenance Management System.

SFWMD FP 1(b): Number and cost of stormwater retrofit projects carried out by the District

Table 14 presents the number and cost of stormwater retrofit projects carried out by the District in Fiscal Year 2003. This information was obtained from the District's service centers.

Table 14. Number and cost of South Florida Water Management District Stormwater Retrofit Projects in Fiscal Year 2003

Service Center	Ad Valorem Funds		Pass Through Funds	
	Number of Projects	Cost	Number of Projects	Cost
Broward	-	-	-	-
Keys	3	\$ 250,000	0	\$ 0
Fort Myers	1	\$ 200,000	1	\$ 71,400
Martin/St. Lucie	2	\$ 950,000	0	\$ 0
Miami	1	\$ 225,000	19	\$ 21,120,000
Okeechobee	-	-	-	-
Orlando (Osceola County)	2	\$ 250,000	1	\$ 100,000
Palm Beach	-	-	-	-
Total Reported	9	\$ 1,875,000	21	\$ 21,291,400

SFWMD FP 1(c): Average number of days to complete Environmental Resource Permit review and issue a permit once the application is complete

The average number of days to complete an Environmental Resource Permit review and issue a permit in Fiscal Year 2003, once the application was complete, was 60.7 days for an Individual Permit and 40.7 days for a General Permit. These numbers do not include projects on extended waiver by the applicants. The source of this information is the Permit Application Tracking System.

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SFWMD FP 1(d): Number of permit applications received

For Fiscal Year 2003, 2,353 Environmental Resource Permit/Surface Water permit applications were received. This includes Individual Permits, General Permits and all others. The data source is the South Florida Water Management District Permit Application Tracking System

SFWMD FP 1(e): Number of pre-application inspections

There were 162 Environmental Resource Permit pre-application reviews in Fiscal Year 2003. The data source is the South Florida Water Management District Permit Application Tracking System.

SFWMD FP 1(f): Number of permits issued

There were 2,293 Environmental Resource Permit/Surface Water permits issued in Fiscal Year 2003. This number includes Individual Permits, General Permits and all others. The data source is the South Florida Water Management District Permit Application Tracking System.

Core Objective FP 2: Promote nonstructural approaches to achieve flood protection, and to protect and restore the natural features and functions of the 100-year floodplain

Core FP 2(a): Number of acres identified for acquisition to minimize damage from flooding and the percentage of those acres acquired

Table 15 presents the Save Our Rivers projects that have been identified by the District to minimize flooding. The total project size is presented along with the number and percentage of total acres acquired by the end of Fiscal Year 2002. This data was obtained from the *Save Our Rivers Land Acquisition and Management Plan* and the ATLAS database.

Table 15. Save Our River Projects Identified to Minimize Flooding

Project	Project Size (acres)	Total Acres Acquired	Percent Acquired
Corkscrew Regional Ecosystem Watershed (CREW)	58,528	24,965	43 %
East Coast Buffer	66,809	28,923	43 %
Kissimmee Chain of Lakes	33,919	27,844	82 %
Lake Marion Creek	17,300	10,500	60 %
Loxahatchee Slough	1,425	1,425	100 %
Nicodemus Slough	2,219	2,219	100 %
Reedy Creek	30,000	5,900	20 %
Shingle Creek	7,655	1,500	20 %
Water Conservation Area	855,680	789,394	92 % ^a
Total	1,073,535	892,670	83 %

a. 100% of the flowage easements has been acquired for the Water Conservation Areas

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Part D. Performance Measures for Water Quality

The District has many programs that monitor and improve surface and ground water quality within its boundaries. Several of these are coordinated with other agencies.

Core Objective WQ 1: Protect and improve surface water quality

Core WQ 1(a): Percentage of water segments that fully meet, partially meet, and do not meet their designated uses

Table 16 presents the percentage of water segments within the South Florida Water Management District boundaries that fully meet, partially meet, or do not meet their designated uses. These percentages were obtained from the **2000 305b Report**.

Table 16. Percentage of Water Segments in the South Florida Water Management District that Fully Meet, Partially Meet and Do Not Meet Their Designated Uses

Status	Estuary	Lake	Stream
Meets	80%	3%	43%
Partially meets	15%	97%	52%
Does not meet	5%	0%	5%

Core WQ 1(b): Number of and percentage of Surface Water Improvement and Management and South Florida Water Management District priority water bodies for which Pollutant Load Reduction Goals have been established (Surface Water Improvement and Management water bodies must have an approved Surface Water Improvement and Management plan)

Pursuant to Section 373.453, Florida Statutes and Section 62-43.030, Florida Administrative Code, District staff reviewed the approved Surface Water Improvement and Management Priority List for South Florida to determine whether it needed to be updated. It became clear that the adopted list was no longer reflective of current funding and policy conditions as demonstrated by the following facts:

- Surface Water Improvement and Management Plans have been approved and adopted for Lake Okeechobee, Biscayne Bay and the Indian River Lagoon.
- The Everglades Forever Act and the Comprehensive Everglades Restoration Plan will address the Everglades and associated regions.
- The Lake Okeechobee Protection Bill identifies the Kissimmee Upper Chain of Lakes as an area for surface water improvements.
- Sufficient resources are not available to develop new Surface Water Improvement and Management plans.
- Little funding is being provided for Surface Water Improvement and Management projects.
- The current legislative specific appropriation process does not require an approved Surface Water Improvement and Management plan to allocate funds for surface water restoration projects.

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An update of the prioritization effort was needed to incorporate three additional important aspects of the status of a water body: the readiness of local governments to participate financially in implementing restoration projects; the emergence of significant restoration and preservation programs (i.e., Comprehensive Everglades Restoration Plan, Preservation 2000 and Florida Forever); and the presence of non-governmental organizations which have developed a broad public support for restoration of a particular water body.

District staff developed a ranking process that used the original Surface Water Improvement and Management criteria and three additional criteria to address the factors above. The process resulted in a new "South Florida Water Management District Water Body List" that is presented in **Table 17**.

In 2003, the Governing Board approved combining Pine Island Sound, Matlacha Pass, Ding Darling, Estero Bay and Caloosahatchee Estuary to form one project called the Lower Charlotte Harbor. The combined Lower Charlotte Harbor project was subjected to criteria weighing as per the process instituted during the last Priority Water Body list update in November 2001. That process resulted in the Lower Charlotte Harbor project being included in Tier 1 of the Priority Water Body List. The list will be used to guide District endorsement of locally-sponsored restoration projects seeking a legislative appropriation and District projects funded with *ad valorem* dollars. Within each tier, each water body is considered of equal priority.

Table 17. SFWMD Priority Water Body List as of February 2003

<p>Tier 1</p> <ul style="list-style-type: none"> • Biscayne Bay • Florida Keys • Lake Istokpoga • Lake Okeechobee • Lower Charlotte Harbor • Loxahatchee River • St. Lucie Estuary
<p>Tier 2</p> <ul style="list-style-type: none"> • Florida Bay • Indian River Lagoon • Lake Worth Lagoon • Naples Bay / Gordon River • Rookery Bay / Marco
<p>Tier 3</p> <ul style="list-style-type: none"> • Lake Arbuckle • Lake Butler • Lake Weohyakapka • Upper Kissimmee Chain of Lakes

Core WQ 1(c): Percentage of total stream miles and lake and estuary area in the District assessed for ambient water quality

Table 18 presents the total stream miles and the total lake and estuary area within the District boundaries, along with the miles or square miles and percentage assessed. This information was obtained from the *2000 305b Report*.

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Table 18. Total Stream Miles and Lake and Estuary Area in the District Accessed for Ambient Water Quality

System Type	SFWM Miles	SFWM Square Miles	Assessed Miles	Assessed Square Miles	Percentage Assessed
Estuary	929.3		928.2		99.9%
Lake		677.3		676.3	99.9%
Stream		1,724.3		1,590.6	92.2%

SFWM WQ 1(d): Number of Surface Water Improvement and Management plans being implemented according to Surface Water Improvement and Management plan schedules

Three Surface Water Improvement and Management Plans have been approved:

- Indian River Lagoon
- Lake Okeechobee
- Biscayne Bay.

According to the District's Surface Water Improvement and Management plan project managers, all three Surface Water Improvement and Management Plans are being implemented on schedule. Due to the addition of the Lower Charlotte Harbor project to the Priority Water Body list, District staff working in the Lower West Coast area is coordinating the completion of a Surface Water Improvement and Management Plan for that region.

SFWM WQ 1(e): Number and percentage of permitted systems inspected through the Environmental Resource Permitting Program, and percentage of those inspected found in compliance with permit conditions

The number and percentage of permitted systems inspected through the Environmental Resource Permitting Program, and the percentage of those inspected found in compliance with permit conditions is discussed in Part A of this chapter, under the performance measure Core CM(e).

Core Objective WQ 2: Protect and improve ground water quality

Core WQ 2(a): Improving, degrading, and stable trends in ground water quality

The Florida Department of Environmental Protection did not include data on improving, degrading and stable trends in ground water quality in the *2001 305(b) Report* (FDEP 2001b).

Core WQ 2(b): Improving, degrading, and stable trends in nitrate concentrations in springs

The South Florida Water Management District has no springs within its boundaries.

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Part E: Performance Measures for Natural Systems Management

The South Florida Water Management District is preserving, enhancing, and restoring the water resource-related natural systems within its boundaries. Native ecosystems, along with their water resource-related functions, are being preserved. Altered ecosystems are being restored, where appropriate, along with their resource-related functions.

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

Core NS 1(a): Number and percentage of established Minimum Flows and Levels being maintained, consistent with established recovery or prevention strategies

The District established Minimum Flows and Levels for the Everglades, Lake Okeechobee, the Biscayne Aquifer, Lower West Coast aquifer systems and the Caloosahatchee Estuary in September 2001. The St. Lucie Estuary Minimum Flows and Levels were established in September 2002; and the Northwest Fork of the Loxahatchee River Minimum Flows and Levels were established in December 2002. This makes a total of seven Minimum Flows and Levels established. Data to determine how well these Minimum Flows and Levels are being met are being compiled and analyzed. In most cases, five to ten years worth of data will be needed to determine how well the Minimum Flows and Levels are being maintained.

Core NS 1(b): Number of Minimum Flows and Levels, by water body type, established annually and cumulatively

The South Florida Water Management District established five Minimum Flows and Levels in September 2001. These included one wetland (the Everglades), one lake (Lake Okeechobee), one estuary (the Caloosahatchee Estuary) and two aquifers (the Biscayne Aquifer and the Lower West Coast Aquifer System). In September 2002, Minimum Flows and Levels were established for the St. Lucie Estuary. The Minimum Flows and Levels for the Northwest Fork of the Loxahatchee River were completed in December 2002.

Core NS 1(c): Percentage of Minimum Flows and Levels established in accordance with the previous year's schedule

The schedule for establishing Minimum Flows and Levels is presented in **Table 19**. This list is published pursuant to Section 373.042(2), Florida Statutes. "Establishment" of a minimum flow or level, as provided in this list, is the publication of the notice of intended rule adoption in the Florida Administrative Weekly pursuant to Section 120.54(3)(a), Florida Statutes. The District will voluntarily conduct independent scientific peer reviews of Minimum Flows and Levels criteria for all water bodies on the list, pursuant to Section 373.042(4), Florida Statutes. Several new water bodies from 2001 are included in the list: the Southern Coastal Biscayne Aquifer, Estero Bay, the Water Table Aquifer and the Lake Butler Chain of Lakes.

Table 19 also indicates whether the Minimum Flows and Levels were completed on schedule and what year they were established. The Minimum Flows and Levels criteria for five water bodies were scheduled for establishment in 2000. These water bodies were Lake Okeechobee, the Everglades, the Caloosahatchee River and Estuary, the Biscayne Aquifer, and the Lower West Coast Aquifer System. None were established by the scheduled

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completion date. The establishment of Minimum Flows and Levels was delayed until September 2001 to provide adequate consideration for other ongoing management planning activities in these systems, and to address concerns expressed by the Governing Board, other agencies and affected parties.

Table 19. Schedule for the Establishment of Minimum Flows and Levels

Priority Water Bodies	Year Scheduled for Establishment	Year Scheduled for Establishment
Lake Okeechobee	2000	2001
Everglades	2000	2001
St. Lucie River and Estuary	2001	2002
Biscayne Bay	2004	
Biscayne Aquifer	2000	2001
Florida Bay	2005	
Loxahatchee River Tributaries	2007	
Loxahatchee River and Estuary	2001	2002
Southern Coastal Biscayne Aquifer	2004	
Caloosahatchee River and Estuary	2000	2001
Estero Bay	2006	
Water Table Aquifer	2004	
Lower West Coast Aquifer	2000	2001
Kissimmee River	2006	
Lake Kissimmee	2006	
Lake Tohopekaliga	2006	
East Lake Tohopekaliga	2006	
Alligator Lake	2006	
Lake Jackson	2006	
Lake Rosalie	2006	
Cypress Lake	2006	
Lake Hatchineha	2006	
Lake Pierce	2006	
Lake Marian	2006	
Fish Lake	2006	
Lake Istokpoga	2004	
Lake Butler Chain of Lakes	2008	
Floridan Aquifer	2004	

In accordance with the 2001 schedule, Minimum Flows and Levels were to be established for the Northwest Fork of the Loxahatchee River and Estuary and the St. Lucie River and Estuary during 2001. Technical documentation to support these Minimum Flows and Levels was developed and rule development was initiated during 2001. The final rule for the St. Lucie Estuary Minimum Flows and Levels was completed in September 2002; and the rule for the Northwest Fork of the Loxahatchee River and Estuary was completed in December 2002. No

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Minimum Flows and Levels were scheduled for adoption during 2003. Minimum Flows and Levels for Florida Bay, based on the 2002 update to the Minimum Flows and Levels priority list, are scheduled for 2005.

Lake Istokpoga currently operates on a regulation schedule based on minimum levels. The District will revisit these existing minimum levels upon completion of the U.S. Army Corps of Engineers regulation schedule study due in 2004.

Core NS 1(d): Total acres of wetlands or other surface water authorized by Environmental Resource Permit to be impacted and acres required to be created, enhanced, restored, and preserved

For Fiscal Year 2003, there were 10,760 Existing and 1,964 Impacted total wetland acres. There were 7,573 acres Preserved/Enhanced; this number does not reflect the number of "undisturbed" wetland acres. There were: 940 Created/Restored acres; 1,634 Upland Compensation acres; and 10,147 Total Preserved/Created/Uplands acres. The source of this information is the South Florida Water Management District Permit Application Tracking System.

SFWMD NS 1(e): Acres of wetlands preserved as a percent of wetland acres reviewed through Environmental Resource Permit applications; acres of wetlands reviewed; acres of wetlands impacted; acres of wetlands preserved; and acres of wetlands mitigated (may include wetlands preserved on-site)

The following percentages were calculated for Fiscal Year 2003 using the numbers presented in NS 1(d) above.

Preserved/Created as a percentage of wetland acres reviewed (7,573 + 940 ÷ 10,760 acres)	79.12 percent
Impacted as a percentage of wetland acres reviewed (1,964 ÷ 10,760 acres)	18.25 percent
Total acres of mitigation for each acre of wetland impacted (10,147 ÷ 1,964 acres)	5.17 percent

The data source for the numbers used in these calculations is the South Florida Water Management District Permit Application Tracking System.

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

Core NS 2(a): Acres of invasive nonnative aquatic plants in inventoried public

The Florida Department of Environmental Protection regional aquatic biologists inventoried acres of invasive non-native aquatic plants in public waters in Fiscal Year 2001. It was found that these plants covered a total of 25,082 acres within the District's boundaries. The survey data is collected every other year, so the following, as previously reported, is the most recent data available regarding acreage covered by each species:

- Hydrilla: 24,442 acres
- Water Hyacinths: 303 acres

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- Water Lettuce: 132 acres
- Hygrophila: 205 acres

Core NS 2(b): Acres of District managed lands infested with invasive nonnative upland plants by degree of land coverage

Table 20 presents the status of exotic plant control on Save Our Rivers lands managed by the District as of April 2002. There were 21,300 acres of lands managed by the District that were infested with invasive nonnative upland plants. The District manages 80,184 acres which require low maintenance to control exotics; 23,500 acres which require medium maintenance for control; and 19,300 acres which require high maintenance to control exotic plant species.

Table 20. Status of Exotic Plant Control as of April 2002

Area	Total Acres	Infested Acres	Low Maintenance	Medium Maintenance	High Maintenance
West Coast Region					
CREW	25,000	500	20,000	3,500	1,000
East Coast Region ^a					
DuPuis	21,875	0	12,975	8,500	400
Everglades					
Model Lands	13,000	800	6,150	4,150	1,900
Kissimmee/Okeechobee Region					
Kissimmee River	43,000	20,000	3,000	5,000	15,000
Upper Lakes Region					
Lake Marion Creek	10,223	0	10,223	0	0
Lower Reedy Creek	5,500	0	4,500	1,000	0
Upper Reedy Creek	5,000	0	4,950	50	0
Shingle Creek	1,600	0	1,300	300	0
Upper Chain	19,086	0	17,086	1,000	1,000
TOTAL	144,284	21,300	80,184	23,500	19,300

a. West Jupiter Wetlands and South Fork are now managed by other agencies.

Core NS 2(c): Acres of District-owned lands identified in land management plans as needing restoration, acres undergoing restoration, and acres with restoration activities completed

Table 21 presents the status of Save Our Rivers restoration projects as of the end of 2003.

Table 21. Save Our Rivers Restoration Projects

Needing Restoration		Undergoing Restoration		Restoration Complete	
Area	Acres	Area	Acres	Area	Acres
East Coast Buffer	77,259	Indian River Lagoon	397	DuPuis Reserve	21,875
New Palm Dairy	1,900	Kissimmee River	17,000	Rattlesnake Hammock	500
Shingle Creek	950	East Coast Buffer	5,000	Kissimmee River	10,000
Catfish Creek	200	Loxahatchee River	515	Sandhill (Loxahatchee Slough)	1,425
Rough Island	900	CREW	4,670	Johnson Island	1,735
Lightsey	600	Starvation Slough	60	Southern Glades	120
Gardner-Cobb Marsh	1,000	River Runt	10	Loxahatchee Mitigation Bank	1,256
Pool A – Kissimmee River	1,000				
Corkscrew Mitigation Bank	632				

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Southern Glades North	80			
Model Lands	80			
TOTAL	84,601		27,652	36,911

SFWMD NS 2(d): Acres of land infested with invasive nonnative upland plants, by species inventoried

The most recently reported survey of land infested with invasive nonnative upland plants was conducted in 1999. The results were as follows:

- Melaleuca: 359,000 acres
- Brazilian Pepper: 1,024,000 acres
- Australian Pine: 385,000 acres
- Old World Climbing Fern: 107,000 acres
- Lather Leaf: 6,500 acres
- Burma Reed: 15,000 acres

SFWMD NS 2(e): Acres of cattail coverage relative to District 1995 aerial photo maps

This performance measure addresses the acres of cattail coverage in 2003 relative to District 1991 and 1995 aerial photo derived cattail maps. The rate of cattail expansion in Water Conservation Area 2A has decreased from 2,375 acres per year during the period 1991 through 1995, to 785 acres per year during the period 1995 through 2003. A small portion in the northern tip of Water Conservation Area 2A showed a marked decrease in cattail coverage due to a combination of upstream phosphorus reduction activities, the redistribution of inflow patterns and natural fires.

Indications of the condition and dynamics of the ecosystem were derived from color infrared aerial photographs. The results were compared with ones taken in 1991 and 1995, which were taken prior to implementation of the phosphorus-reduction measures, to determine the changes in cattail coverage. The results for 1991, 1995 and 2003 aerial photographs are presented in **Table 22**.

Table 22. Cattail coverage in Water Conservation Area 2A

Year	Cattail (acres)	Cattail Dominant Mix (acres)	Cattail Sparse Mix (acres)
1991	1,042	5,652	6,822
1995	4,068	9,746	9,196
2003	4,899	9,093	15,299

While the spread of cattail continues in the Everglades water conservation area, the rate of expansion is slowing. Cattail growth may continue even as the long-term water quality improvements are implemented due to phosphorus releases from the soil and until full hydrologic restoration is achieved.

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SFWMD NS 2(f): Percent increase in wading bird populations as measured by systematic reconnaissance flights

Table 23 presents the number of nesting birds documented in the Everglades during systematic reconnaissance flights for five characteristic species. These species are the Great Egret, the Snowy Egret, the Tricolored Heron, the White Ibis and the Wood Stork. A seven percent decrease in the three-year running average of nesting pairs was documented in 2003 over the three-year running average for 2002. The targets listed below are being revised. The White Ibis average for 2001 – 2003 is estimated.

Table 23. Number of Nesting Birds in the Everglades Basin for Five Characteristic Species

Species	1997 to 1999	1998 to 2000	1999 to 2001	2000 to 2002	2001 to 2003	Target
Great Egret	5,084	5,544	5,996	7,276	8,460	4,000
Snowy Egret and Tricolored Heron	1,862	2,788	4,270	8,614	8,088	10,000 – 20,000
White Ibis *	5,100	11,270	16,555	23,983	20,758	10,000 – 25,000
Wood Stork	279	863	1,538	1,868	1,596	1,500 – 2,500
* White Ibis average is estimated for 2001 – 2003						

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RELATED DOCUMENTS

Air Photo interpretation and Satellite Imagery Analysis Techniques for Mapping Cattail Coverage in a Northern Everglades Impoundment. Rutchey and Vilchek, South Florida Water Management District

Biscayne Bay Surface Water Improvement and Management Plan. South Florida Water Management District

Caloosahatchee Water Management Plan (2000). South Florida Water Management District

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District wide Water Supply Assessment (1998). South Florida Water Management District

Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (1999). South Florida Water Management District and U.S. Army Corps of Engineers.

Florida Forever Work Plan (2002). South Florida Water Management District

Indian River Lagoon Surface Water Improvement and Management Plan. South Florida Water Management District and St. John's River Water Management District

Kissimmee Basin Water Supply Plan (2000). South Florida Water Management District

Lower East Coast Regional Water Supply Plan (2000). South Florida Water Management District

Lower West Coast Water Supply Plan (2000). South Florida Water Management District

Northern Palm Beach County Comprehensive Water Resources Management Plan. South Florida Water Management District

Proposed Water Resource Development Work Program, Fiscal Years 2001-2005. South Florida Water Management District

Save Our Rivers Land Acquisition and Management Plan. South Florida Water Management District

Proposed Five Year Water Resource Development Work Program, Fiscal Years 2001 – 2005 (2001). South Florida Water Management District

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