# Chapter 5A: Five-Year Water Resource Development Work Program

Linda Hoppes

## INTRODUCTION

This chapter presents the Five-Year Water Resource Development Work Program, as mandated by state law. Section 373.536(6)(a)4, Florida Statutes (F.S.), requires each water management district to prepare an annual Five-Year Water Resource Development Work Program describing the agency's implementation strategy for the water resource development component of each approved regional water supply plan developed or revised under Section 373.0361, F.S. In addition, Section 373.1961(2), F.S., requires each water management district to submit an annual report to the Florida legislature and governor on Alternative Water Supply (AWS) funding (see Chapter 5B of this volume). Further information is available on the District's web site at www.sfwmd.gov under the *What We Do, Water Supply* tab.

Florida water law identifies two types of projects to meet water needs: Water Resource Development projects and Water Supply Development projects. Water Resource Development projects are regional in nature and are primarily the responsibility of the South Florida Water Management District (SFWMD or District). They support water supply development at the local level and are intended to assure the availability of adequate water supplies for all competing uses deemed reasonable and beneficial, and to maintain the functions of natural systems. These projects could include data collection and evaluation; water resource management and protection programs; regional water resource implementation programs; major public works facilities projects to provide for flood control, water storage, and groundwater recharge augmentation; and related technical assistance to local governments and water utilities. Water Supply Development projects are local in nature and are generally the responsibility of local water users, such as utilities, to implement. These projects generally involve public or private facilities for water collection, treatment, and transmission.

The Five-Year Water Resource Development Work Program provides an implementation update of the water resource development component of the District's regional water supply plans. Pursuant to Chapter 373, F.S., regional water supply plans encompass a 20-year planning horizon and are updated every five years. Water resource development is defined in Section 373.019(22), F.S., as the formulation and implementation of regional water resource management strategies, including the collection and evaluation of surface water and groundwater data; structural and nonstructural programs to protect and manage water resources; the development of regional water resource implementation programs; the construction, operation, and maintenance of major public works facilities to provide for flood, surface and underground water storage, and groundwater recharge augmentation; and related technical assistance to local governments and to government-owned and privately owned water utilities.

## PLANNING REGION OVERVIEW

The SFWMD comprises four planning areas: the Upper East Coast (UEC), the Kissimmee Basin (KB), the Lower West Coast (LWC), and the Lower East Coast (LEC). Regional water supply plans for these planning areas were completed in 2000, and the five-year updates to these plans have also been completed. The UEC Water Supply Plan was updated in 2004 (2004 UEC Plan Update) and amended in 2006 (2006 UEC Plan Amendment). The 2000 LWC Water Supply Plan and 2000 KB Water Supply Plan were updated in 2006 (2005–2006 LWC Plan Update and 2005–2006 KB Plan Update), and the 2005–2006 update to the 2000 LEC Water Supply Plan was completed in early 2007. The 2005–2006 Water Supply Plan Updates and 2006 UEC Plan Amendment identify Water Resource Development and Water Supply Development projects expected to meet the needs of all reasonable-beneficial uses for the year 2025 during a 1-in-10 year drought event while sustaining the region's water resources and related natural systems. District-wide, the population is projected to total approximately 10.6 million by 2025. This represents a population increase from 2005 through 2025 of approximately 91 percent in the KB Planning Area, 53 percent in the UEC Planning Area, 74 percent in the LWC Planning Area, and 31 percent in the LEC Planning Area. Accordingly, utility raw water demand is anticipated to increase District-wide from 3.4 billion gallons per day (gpd) in 2005 to 4.3 billion gpd in 2025. Future water source needs of the planning areas will be met primarily through development and funding of AWS projects, which use nontraditional sources.

## WATER RESOURCE DEVELOPMENT PROJECTS

The Water Resource Development projects described in this report — drilling and testing, groundwater and wetland monitoring, groundwater and evapotranspiration assessments, District-wide feasibility studies, modeling, comprehensive water conservation, Minimum Flows and Levels (MFLs), and water reservations — are primarily District-wide projects. In addition, this report describes regional water resource development projects that are specific to each planning area. Implementation schedules and costs are provided and summarized in **Tables 5A-1** and **5A-2**.

Most Water Resource Development projects support and enhance Water Supply Development projects, but do not by themselves yield specific quantities of water. For example, projects such as hydrologic investigations and groundwater monitoring and modeling all provide important information about aquifer characteristics (such as hydraulic properties and water quality), but do not provide water. Information derived from these Water Resource Development projects is used in support of Water Supply Development projects (e.g., in developing an appropriate facility design, identifying safe aquifer yields, evaluating the economic viability of projects, etc.).

District-wide and region-specific Water Resource Development projects are identified in Chapter 6 (Water Resource Development Projects) of the 2005–2006 Plan Updates. Water Resource Development projects specific to the UEC Planning Area are discussed in the 2004 UEC Plan Update and 2006 UEC Plan Amendment.

Projects that provide water supply primarily for the environment are excluded from this report and Chapter 6 of the 2005–2006 Plan Updates and the 2006 UEC Plan Amendment.

**Table 5A-1.** Implementation schedule and costs for District-wide Water Resource Development projects.

| District-wide Water Resource Development Projects | Plan Implementation Schedule and Costs ($ in thousands) | | | | | |
|---|---|---|---|---|---|---|
| | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
| | $ | $ | $ | $ | $ | $ |
| **Drilling and Testing**<br>Est. start date: 1990<br>Est. finish date: ongoing | 334 | 250 | 250 | 100 | 100 | 1,034 |
| **Groundwater and ET Assessments**<br>Est. start date: 1954 and 2002, respectively<br>Est. finish date: ongoing | 103 | 115 | 0 | 0 | 0 | 218 |
| **Groundwater and Wetland Monitoring**<br>Est. start date: 2002<br>Est. finish date: ongoing | 769 | 762 | 799 | 838 | 881 | 4,049 |
| **District-wide Feasibility Studies**<br>Est. start date: 2001<br>Est. finish date: ongoing | 874 | 0 | 0 | 0 | 0 | 874 |
| **Modeling**<br>Est. start date: 1998<br>Est. finish date: ongoing | 202 | 150 | 150 | 150 | 150 | 802 |
| **Comprehensive Water Conservation Program**<br>Est. start date: 1977<br>Est. finish date: ongoing | 2,507 | 1,464 | 1,464 | 1,464 | 1,464 | 8,363 |
| **MFL and Water Reservation Activities**<br>Est. start date: 1995<br>Est. finish date: ongoing | 410 | 220 | 220 | 220 | 220 | 1,290 |
| **Total** | **5,199** | **2,961** | **2,883** | **2,772** | **2,815** | **16,630** |

FY – Fiscal Year (for the District, October 1 through September 30)

**Table 5A-2.** Implementation schedule and costs for regional Water Resource Development projects.

| Regional Water Resource Development Projects | Plan Implementation Schedule and Costs ($ in thousands) | | | | | |
|---|---|---|---|---|---|---|
| | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
| | $ | $ | $ | $ | $ | $ |
| **Central Florida Water Supply Planning (KB)** | 500 | 0 | 0 | 0 | 0 | 500 |
| **Central Florida Coordination Area Memorandum of Understanding Facilitation (KB)** | 25 | 0 | 0 | 0 | 0 | 25 |
| **Central Florida Aquifer Recharge Feasibility Study (KB)**<br>Est. start date: 2008<br>Est. finish date: 2011 | Staff Time | Staff Time | 0 | 0 | 0 | 0 |
| **Kissimmee Chain of Lakes Long-Term Management Plan/KB Modeling & Operations Study (KB)**<br>Est. start date: 2004<br>Est. finish date: 2009 | Staff Time | Staff Time | 0 | 0 | 0 | 0 |
| **Central Florida Water Supply Coordination (KB)**<br>Est. start date: 2006<br>Est. finish date: 2009 | Staff Time | Staff Time | Staff Time | Staff Time | Staff Time | 0 |
| **Total** | **525** | **0** | **0** | **0** | **0** | **525** |

## WATER CONSERVATION PROGRAM

The Comprehensive Water Conservation Program, which includes the Water Savings Incentive Program (WaterSIP) and the Mobile Irrigation Laboratory (MIL) Program, encourages water users to make efficient use of water resources through conservation and reuse. In effect, water savings achieved through conservation measures are the most cost-efficient way to expand current water supplies. Implementation of the WaterSIP and MIL programs are included in this report. For more detailed information about the Water Conservation Program, see the *Conservation (DD)* section of this chapter.

## WATER MADE AVAILABLE

The Water Resource Development projects described in this report do not directly provide additional water for consumptive use. The District's Comprehensive Water Conservation Program is estimated to result in 3.5 million gallons per day (mgd) of additional available water in Fiscal Year 2009 (FY2009) (October 1, 2008 – September 30, 2009) and 3.5 mgd of additional available water in FY2010. During FY2009–FY2013, the estimated additional water made available through this program is 17.5 mgd **(Table 5A-3)**. Funding levels for the WaterSip Program have hovered between $400,000 and $500,000 per year for the last several years. The FY2009 allocated funding level for WaterSip is over $1 million. Projected water savings in **Table 5A-3** for the WaterSip Program assume future funding remains at this level.

**Table 5A-3.** Estimated additional water made available during FY2009–FY2013 through the Comprehensive Water Conservation Program.

| Conservation Program | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| WaterSIP | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 7.5 |
| Mobile Irrigation Laboratories | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 10.0 |
| **Total (mgd)** | **3.5** | **3.5** | **3.5** | **3.5** | **3.5** | **17.5** |

## FUNDING

The SFWMD has allocated $5.7 million in FY2009 for Water Resource Development projects. During the FY2009–FY2013 time frame, the SFWMD anticipates spending $17.2 million on Water Resource Development projects **(**the total amount of **Tables 5A-1** and **5A-2**). These allocations include $2.5 million in funding for the Comprehensive Water Conservation Program during FY2009 and $8.4 million for FY2009–FY2013.

The funding described in this report does not include projects associated with the Comprehensive Everglades Restoration Plan (CERP) or Everglades expedited projects (see *Volume I, Chapter 7A)* or costs associated with staff time.

The funding allocation for FY2009 is greater than the funding allocation for FY2008, and the funding projected for FY2009-FY2013 is slightly less that what was projected for FY2008–FY2012. Funding for primarily environmental projects, such as capital improvement projects in the Big Cypress Basin, Aquifer Storage and Recovery (ASR), and projects not identified in Chapter 6 of the 2005–2006 Plan Updates and 2006 UEC Plan Amendment are not included in this report.

The District's Water Supply Program, for budget purposes, is divided into seven elements. In order to better match up the budgeted projects within this chapter to the actual budget spreadsheets, this report is organized to follow the Water Supply Program's elements with associated projects for each element. Crosswalk tables that correspond to Water Supply Plans, Water Resource Development projects, and funding with internal order numbers, program elements, and report sections are found in **Tables 5A-4** and **5A-5,** respectively. The Water Supply Program's elements are as follows:

- **Planning (Da)** [includes Regional Coordination (Da01) and Local Coordination (Da02)]
- **Implementation Projects (Db)** [Implementation (Db01)]
- **Rulemaking (Dc)** [includes Minimum Flows and Levels (Dc01), Initial Water Reservations (Dc02), Project Reservations (Dc03), and Lake Okeechobee Water Shortage Management (Dc04)]
- **Conservation (Dd)** [includes Conservation (Dd01), Water Savings Incentive Program (Dd02), and Mobile Irrigation Labs (Dd03)]
- **Alternative Water Supply (De)** [includes Pre-2006 Alternative Water Supply (De00), Alternative Water Supply (SB444) (De01), Alternative Water Supply (non-SB444) (De02), and Alternative Water Supply (non-SB444) (De03)]
- **Resource Evaluation (Df)** [includes Hydrogeology (Df01) and Modeling (Df02)]
- **Program Support (Dz)** [Program Support (Dz00)]

**Table 5A-4** identifies all the Water Resource Development projects contained in the regional water supply plans, and **Table 5A-5** identifies specific projects funded by the District during the current fiscal year to implement the water resource development components of the regional water supply plans.

## MEETING WATER SUPPLY NEEDS FOR A 1-IN-10 YEAR DROUGHT EVENT

The goal of the regional water supply plans is to ensure an adequate supply of water to meet the needs of all existing and future reasonable-beneficial uses, and to protect natural systems from harm during a 1-in-10 year drought event. Through the SFWMD's Water Shortage Plan, the District implements its water shortage authority by restricting consumptive uses based on the concept of shared adversity between users and water resources [(Chapter 40E-21, Florida Administrative Code (F.A.C.)]. Under this plan, different levels or phases of water shortage restrictions with varying levels of severity are imposed relative to the severity of drought conditions. These phases are based on progressively increasing resource impacts, leading up to serious harm. Under the District's plan, water demand is reduced through conservation measures and minor use restrictions, such as restrictions on or temporary elimination of car washing and lawn watering. Severe shortages, however, require the use of cutbacks associated with some level of economic impact to the users, such as the potential for crop damage due to agricultural irrigation restrictions. On October 9, 2008, the SFWMD Governing Board voted to adopt proposed new Rules 40E-2.061 and 40E-24.501, F.A.C., to (1) implement District-wide mandatory year-round landscape irrigation measures, (2) create a general permit by rule for outdoor residential consumptive use of water, and (3) amend water conservation requirements for public water supply permits. These measures are intended to help stretch and protect regional water resources and minimize the impact of future drought events.

**Table 5A-4.** Crosswalk for Water Supply plans, Water Resource Development projects, and report sections.

| Supply Plan | Recommended Projects | Status | Report Section | Coverage Area |
|---|---|---|---|---|
| 2004 UEC | Aquifer Storage and Recovery | Ongoing | N/A (CERP Project) | District-wide |
| 2004 UEC | Mobile Irrigation Labs | Ongoing | Water Conservation Program | District-wide |
| 2004 UEC | Water Conservation Rulemaking | Ongoing | Water Conservation Program | District-wide |
| 2004 UEC | Water Savings Incentive Program | Ongoing | Water Conservation Program | District-wide |
| 2004 UEC | Water Conservation Outreach and Education | Ongoing | Water Conservation Program | District-wide |
| 2004 UEC | Comprehensive Regional Floridan Aquifer Monitoring Well Network | Ongoing | Groundwater and Wetland Monitoring | District-wide |
| 2004 UEC | Floridan Aquifer Density-Dependent Flow Model | Ongoing | Modeling | District-wide |
| 2004 UEC | Floridan Aquifer Exploratory Well Program | Ongoing | Drilling and Testing Program | District-wide |
| 2004 UEC | Floridan Aquifer Tracer Test | On hold | Drilling and Testing Program (currently unfunded) | District-wide |
| 2004 UEC | Floridan Aquifer Well Inventory | Ongoing | Groundwater and Wetland Monitoring | District-wide |
| 2004 UEC | Reclaimed Water Interconnects | Ongoing | N/A (no current projects) | District-wide |
| 2004 UEC | Efficient Use of Reclaimed Water | Ongoing | N/A (no current projects) | District-wide |
| 2004 UEC | Mandatory Reuse Zones | Ongoing | N/A (no current projects) | District-wide |
| 2004 UEC | Northern Palm Beach County Comprehensive Water Management Plan | Ongoing | N/A (CERP Project) | Regional |
| 2004 UEC | CERP North Palm Beach County Project Part 1 | Ongoing | N/A (CERP Project) | Regional |
| 2004 UEC | Loxahatchee River Restoration Plan | Ongoing | N/A (CERP Project) | Regional |
| 2004 UEC | Initial Reservation for Northwest Fork of Loxahatchee River | On hold | MFL and Reservation Activities (currently unfunded) | Regional |
| 2004 UEC | Review MFL for Northwest Fork of Loxahatchee River | Ongoing | MFL and Reservation Activities | Regional |
| 2004 UEC | Establish MFLs for Northwest Fork of Loxahatchee River Tributaries | On hold | MFL and Reservation Activities (currently unfunded) | Regional |

**Table 5A-4.** Continued.

| Supply Plan | Recommended Projects | Status | Report Section | Coverage Area |
|---|---|---|---|---|
| 2004 UEC | Ten Mile Creek | Complete | N/A (CERP Project) | Basin-specific |
| 2004 UEC | CERP Indian River Lagoon - South | Ongoing | N/A (CERP Project) | Basin-specific |
| 2004 UEC | C-25 to C-52 Basin Connectivity Study | Ongoing | District-wide Feasibility Studies | District-wide |
| 2004 UEC | Surficial Aquifer Modeling | On hold | Modeling (currently unfunded) | District-wide |
| 2004 UEC | Coordinate UEC Water Supply Plan with Other Efforts | Ongoing | N/A (no current projects) | Basin-specific |
| 2004 UEC | Coordinate Land Use and Water Supply Planning | Ongoing | N/A (no current projects) | District-wide |
| 2004 UEC | Alternative Water Supply Program | Ongoing | Alternative Water Supply | District-wide |
| 2006 UEC | Sub-Regional Feasibility Study of Water Supply Integration for St. Lucie County | Complete | Regional Water Resource Development Project (completed in FY2007) | Regional |
| 2006 KB | Floridan Aquifer Exploratory Well Program | Ongoing | Drilling and Testing Program | District-wide |
| 2006 KB | Surficial Aquifer Well Pairing Network | Ongoing | Groundwater and Wetlands Monitoring | Regional |
| 2006 KB | Wetlands Monitoring Network | Ongoing | Groundwater and Wetlands Monitoring | District-wide |
| 2006 KB | USGS Water Quality Module | Ongoing | Groundwater and ET Assessments | District-wide |
| 2006 KB | ET Measurement Project | Ongoing | Groundwater and ET Assessments | District-wide |
| 2006 KB | Comprehensive Water Conservation Program | Ongoing | Water Conservation Program | District-wide |
| 2006 KB | Water Savings Incentive Program | Ongoing | Water Conservation Program | District-wide |
| 2006 KB | Mobile Irrigation Labs | On hold | Water Conservation Program (curretnly unfunded) | District-wide |
| 2006 KB | Water User and Supply Cost Relationship Study | Complete | District-wide Feasibility Studies (completed in FY2007-FY2008) | District-wide |
| 2006 KB | Lower Kissimmee Basin Model Upgrade | On hold | Modeling (currently unfunded | Regional |
| 2006 KB | Upper Kissimmee Basin Transient Groundwater Model | Ongoing | Modeling | Regional |
| 2006 KB | Floridan Aquifer System Groundwater Model and Database Development | Ongoing | Modeling | District-wide |

**Table 5A-4.** Continued.

| Supply Plan | Recommended Projects | Status | Report Section | Coverage Area |
|---|---|---|---|---|
| 2006 KB | MFL Activities | Ongoing | MFL and Reservation Activities | District-wide |
| 2006 KB | Reservation Activities | Ongoing | MFL and Reservation Activities | District-wide |
| 2006 KB | Central Florida Aquifer Recharge Feasibility Study | On hold | Regional Water Resource Development Project (currently unfunded) | Basin-specific |
| 2006 KB | Modeling for Kissimmee Chain of Lakes Management Plan | Ongoing | Regional Water Resource Development Project | Basin-specific |
| 2006 KB | Central Florida Coordination Area Action Plan | Ongoing | Regional Water Resource Development Project | Basin-specific |
| 2006 LWC | Floridan Aquifer Exploratory Well Program | Ongoing | Drilling and Testing Program | District-wide |
| 2006 LWC | Groundwater Monitoring | Ongoing | Groundwater and Wetlands Monitoring | District-wide |
| 2006 LWC | Wetlands Monitoring Network | Ongoing | Groundwater and Wetlands Monitoring | District-wide |
| 2006 LWC | USGS Water Quality Module | Ongoing | Groundwater and ET Assessments | District-wide |
| 2006 LWC | ET Measurement Project | Ongoing | Groundwater and ET Assessments | District-wide |
| 2006 LWC | Comprehensive Water Conservation Program | Ongoing | Water Conservation Program | District-wide |
| 2006 LWC | Water Savings Incentive Program | Ongoing | Water Conservation Program | District-wide |
| 2006 LWC | Mobile Irrigation Labs | Ongoing | Water Conservation Program | District-wide |
| 2006 LWC | Water User and Supply Cost Relationships | Complete | District-wide Feasibility Studies (completed in FY2007-FY2008) | District-wide |
| 2006 LWC | Co-Located Desalination Feasibility Study | Complete | District-wide Feasibility Studies (completed in FY2007) | District-wide |
| 2006 LWC | Modeling for Minimum Flows and Levels (MFLs) | Complete | N/A (completed in FY2006) | District-wide |
| 2006 LWC | Modeling for Regional Irrigation Distribution System | On hold | N/A (currently unfunded) | District-wide |
| 2006 LWC | Surficial, Intermediate, and Floridan Aquifer Model Development | Ongoing | Modeling | District-wide |
| 2006 LWC | MFL Activities | Ongoing | MFL and Reservation Activities | District-wide |
| 2006 LWC | Reservation Activities | Ongoing | MFL and Reservation Activities | District-wide |

**Table 5A-4.** Continued.

| Supply Plan | Recommended Projects | Status | Report Section | Coverage Area |
|---|---|---|---|---|
| 2006 LEC | Floridan Aquifer Exploratory Well Program | Ongoing | Drilling and Testing Program | District-wide |
| 2006 LEC | Groundwater Monitoring | Ongoing | Groundwater and Wetlands Monitoring | District-wide |
| 2006 LEC | Wetlands Monitoring Network | Ongoing | Groundwater and Wetlands Monitoring | District-wide |
| 2006 LEC | USGS Water Quality Module | Ongoing | Groundwater and ET Assessments | District-wide |
| 2006 LEC | ET Measurement Project | Ongoing | Groundwater and ET Assessments | District-wide |
| 2006 LEC | Comprehensive Water Conservation Program | Ongoing | Water Conservation Program | District-wide |
| 2006 LEC | Water Savings Incentive Program | Ongoing | Water Conservation Program | District-wide |
| 2006 LEC | Mobile Irrigation Labs | Ongoing | Water Conservation Program | District-wide |
| 2006 LEC | Water User and Supply Cost Relationships | Complete | District-wide Feasibility Studies (completed in FY2007-FY2008) | District-wide |
| 2006 LEC | Reuse Feasibility Study | Complete | District-wide Feasibility Studies (completed in FY2008) | District-wide |
| 2006 LEC | Groundwater Replenishment via Canal Recharge Augmentation Study | Complete | District-wide Feasibility Studies (completed in FY2007) | District-wide |
| 2006 LEC | Modeling for Minimum Flows and Levels (MFLs) | Ongoing | Modeling | District-wide |
| 2006 LEC | Floridan Aquifer System Model and Database Development | Ongoing | Modeling | District-wide |
| 2006 LEC | MFL Activities | Ongoing | MFL and Reservation Activities | District-wide |
| 2006 LEC | Reservation Activities | Ongoing | MFL and Reservation Activities | District-wide |

CERP – Comprehensive Everglades Restoration Plan
ET – Evapotranspiration
MFL – Minimum Flow and Level
N/A – Not Applicable
UEC – Upper East Coast
USGS – U.S. Geological Survey

**Table 5A-5.** Crosswalk for Fiscal Year 2009 (FY2009) budget, Water Resource Development projects, and report sections.

| Budget Line Item | Internal Order | Program Element | Sub-program Element | Amount | Project | Report Section |
|---|---|---|---|---|---|---|
| 23215* | Da030000 | Planning | Planning | $25,000 | CFCA MOU Facilitation | Regional Water Resource Development Project |
| 23195* | Db020000 | Implementation | Implementation | $24,000 | Project Culvert-15 Operations Protocol Development | District-wide Feasibility Studies |
| 23210 | Db030000 | Implementation | Implementation | $400,000 | Upper Kissimmee Basin Water Study - Phase 2 | District-wide Feasibility Studies |
| 24082 | Db040000 | Implementation | Implementation | $150,000 | C-25 Basin Water Availability | District-wide Feasibility Studies |
| 24084* | Db050000 | Implementation | Implementation | $300,000 | Concentrate Mgmt - DESAL | District-wide Feasibility Studies |
| 23347 | Dc010003 | Rulemaking | MFLs | $50,000 | Peer Review MFLs/Reservations KCOL | MFL and Water Reservation Activities |
| 23346 | Dc020000 | Rulemaking | MFLs | $150,000 | Peer Reviews Water Reservation Projects | MFL and Water Reservation Activities |
| 23348 | Dc030001 | Rulemaking | MFLs | $35,000 | Vegetation Surveys Lox River Floodplain | MFL and Water Reservation Activities |
| 23845 | Dc030002 | Rulemaking | MFLs | $25,259 | USGS Loxahatchee MFL | MFL and Water Reservation Activities |
| 23213 | Dc040001 | Rulemaking | MFLs | $150,000 | Central Florida Wetlands Baseline Condition | MFL and Water Reservation Activities |
| 23146 | Dd010003 | Conservation | Conservation | $150,000 | Conserve Florida Clearinghouse | Comprehensive Water Conservation |
| 23150 | Dd029000 | Conservation | WaterSIP | $1,030,000 | Water Savings Incentive Program | Comprehensive Water Conservation |
| 24374 | Dd010005 | Conservation | WaterSIP | $376,921 | Water Savings Incentive Program MR | Comprehensive Water Conservation |
| 18098 | Dd039013 | Conservation | MIL | $55,000 | Mobile Irrigation Lab - BCB | Comprehensive Water Conservation |

**Table 5A-5.** Continued.

| Budget Line Item | Internal Order | Program Element | Sub-program Element | Amount | Project | Report Section |
|---|---|---|---|---|---|---|
| 23129 | Dd030001 | Conservation | MIL | $116,800 | Lower West Coast Ag MIL | Comprehensive Water Conservation |
| 23132 | Dd030002 | Conservation | MIL | $58,400 | Miami-Dade Ag MIL | Comprehensive Water Conservation |
| 23136 | Dd039003 | Conservation | MIL | $58,400 | Palm Beach/Broward Ag MIL | Comprehensive Water Conservation |
| 23138 | Dd0300013 | Conservation | MIL | $58,400 | St. Lucie Ag MIL | Comprehensive Water Conservation |
| 23173 | Dd040001 | Conservation | Conservation | $100,000 | Florida Automated Weather Network (FAWN) | Comprehensive Water Conservation |
| 23168 | Dd050001 | Conservation | Conservation | $50,000 | Water Audit Leading by Example | Comprehensive Water Conservation |
| 17206 | Dd070000 | Conservation | Conservation | $20,000 | Coop. Agricultural - FGCU Wings of Hope - BCB | Comprehensive Water Conservation |
| 17464 | Dd080003 | Conservation | Conservation | $30,000 | Water Conservation Products | Comprehensive Water Conservation |
| 18570 | Dd080001 | Conservation | Conservation | $37,331 | Media Buys - Public Information | Comprehensive Water Conservation |
| 18897 | Dd080000 | Conservation | Conservation | $2,000 | Awareness of the District - BCB | Comprehensive Water Conservation |
| 21892 | Dd080000 | Conservation | Conservation | $7,800 | Display/Meetings - BCB | Comprehensive Water Conservation |
| 21885 | Dd080000 | Conservation | Conservation | $4,320 | Water Symposium - BCB | Comprehensive Water Conservation |
| 22114 | Dd080007 | Conservation | Conservation | $10,500 | Community Events | Comprehensive Water Conservation |

**Table 5A-5.** Continued.

| Budget Line Item | Internal Order | Program Element | Sub-program Element | Amount | Project | Report Section |
|---|---|---|---|---|---|---|
| 22230 | Dd080002 | Conservation | Conservation | $180,000 | Media Buys - Social Marketing | Comprehensive Water Conservation |
| 23535 | Dd080006 | Conservation | Conservation | $12,500 | Watershed Action Volunteer Program | Comprehensive Water Conservation |
| 24051 | Dd080004 | Conservation | Conservation | $110,000 | Water Matters - Water Conservation Edition | Comprehensive Water Conservation |
| 24052 | Dd080005 | Conservation | Conservation | $38,900 | Print Materials - Water Conservation | Comprehensive Water Conservation |
| 20211 | Df010001 | Resource Evaluation | Hydrogeology | $33,497 | E - Q3-4 Regional Floridan Groundwater | Groundwater and Wetland Monitoring |
| 21156 | Df010002 | Resource Evaluation | Hydrogeology | $37,966 | USGS Kissimmee Basin Floridan Aquifer - Orlando | Groundwater and Wetland Monitoring[GM] |
| 21158 | Df010002 | Resource Evaluation | Hydrogeology | $16,058 | USGS Regional GW Recorder Maintenance | Groundwater and Wetland Monitoring[GM] |
| 21160 | Df010001 | Resource Evaluation | Hydrogeology | $65,520 | Regional GW Recorder Maintenance | Groundwater and Wetland Monitoring[GM] |
| 21161 | Df010001 | Resource Evaluation | Hydrogeology | $109,740 | Isolated Wetlands Monitoring Regulation | Groundwater and Wetland Monitoring[GM] |
| 22236 | Df010001 | Resource Evaluation | Hydrogeology | $1,750 | N - Lab P/S CERP ASR Regional | Groundwater and Wetland Monitoring[WQ] |
| 22308 | Df010001 | Resource Evaluation | Hydrogeology | $350 | E - Q2-4 Data Validation Support | Groundwater and Wetland Monitoring[WQ] |
| 22587 | Df010002 | Resource Evaluation | Hydrogeology | $369,440 | USGS GW Monitoring - FTL | Groundwater and Wetland Monitoring[GM] |

**Table 5A-5.** Continued.

| Budget Line Item | Internal Order | Program Element | Sub-program Element | Amount | Project | Report Section |
|---|---|---|---|---|---|---|
| 23200 | Df010001 | Resource Evaluation | Hydrogeology | $750 | E - Lab P/S Hydrogeology | Groundwater and Wetland Monitoring[WQ] |
| 23212 | Df010004 | Resource Evaluation | Hydrogeology | $250,000 | SE Polk County Well Construction | Drilling and Testing |
| 23214 | Df010002 | Resource Evaluation | Hydrogeology | $100,000 | USGS Central FL ECFT Model Verification | Modeling |
| 23226 | Df010001 | Resource Evaluation | Hydrogeology | $5,115 | Water Quality Analysis, Validation & Loading | Groundwater and Wetland Monitoring[WQ] |
| 23229 | Df010001 | Resource Evaluation | Hydrogeology | $52,000 | Database Archival/QC Support | Groundwater and Wetland Monitoring[GM] |
| 23230 | Df010001 | Resource Evaluation | Hydrogeology | $15,000 | Lithologic/Stratigraphic Description Manual | Drilling and Testing |
| 23231 | Df010002 | Resource Evaluation | Hydrogeology | $103,245 | USGS Evapotranspiration Study | Groundwater and ET Assessments |
| 23232 | Df010001 | Resource Evaluation | Hydrogeology | $49,800 | Monthly GW Measurement | Groundwater and Wetland Monitoring[GM] |
| 23234 | Df010001 | Resource Evaluation | Hydrogeology | $25,000 | Groundwater Project Inventory Data Stewardship | Groundwater and Wetland Monitoring[GM] |
| 23236 | Df010001 | Resource Evaluation | Hydrogeology | $20,000 | Geophysical Log Analysis | Drilling and Testing |
| 23242 | Df010001 | Resource Evaluation | Hydrogeology | $48,500 | APT Support | Drilling and Testing |
| 23243 | Df010001 | Resource Evaluation | Hydrogeology | $30,000 | CFCA/ECFT Model Runs Peer Review | Modeling |

**Table 5A-5.** Continued.

| Budget Line Item | Internal Order | Program Element | Sub-program Element | Amount | Project | Report Section |
|---|---|---|---|---|---|---|
| 23389 | Df010001 | Resource Evaluation | Hydrogeology | $1,500 | N - Lab P/S RFGW | Groundwater and Wetland Monitoring[WQ] |
| 24075 | Df010002 | Resource Evaluation | Hydrogeology | $50,000 | USGS Central FL ECFT Model Verification | Modeling |
| 24231 | Df010005 | Resource Evaluation | Hydrogeology | $500,000 | Central Florida Water Supply Planning | Regional Water Resource Development Project |
| 23219 | Df020001 | Resource Evaluation | Modeling | $22,000 | ECFT Model Lake Stages | Modeling |

* – Project Funded for First Time
APT – Aquifer Performance Test
ASR – Aquifer Storage & Recovery
BCB – Big Cypress Basin
CERP – Comprehensive Everglades Restoration Plan
CFCA – Central Florida Coordination Area
ECFT – East Central Florida Transient
DESAL – Desalination
FAS – Floridan Aquifer System
FGCU – Florida Gulf Coast University
FTL – Fort Lauderdale
GM – Groundwater Monitoring
GW – Groundwater
KCOL – Kissimmee Chain of Lakes
MIL – Mobile Irrigation Laboratory
MOU – Memorandum of Understanding
P/S – Parts/Supplies
QC – Quality Control
SAS – Surficial Aquifer System
USGS – United States Geological Survey
WQ – Water Quality Monitoring

# DISTRICT-WIDE WATER RESOURCE DEVELOPMENT PROJECTS

The following section provides project descriptions of the District-wide Water Resource Development efforts funded by the District's Water Supply Program, by element, for FY2009. Additional information, including the implementing entities, activities proposed for FY2009, estimated completion dates, and funding sources, is presented in each project summary.

## PLANNING (DA)

There are no District-wide Water Resource Development projects currently planned or budgeted for the Water Supply Program's planning element.

## IMPLEMENTATION PROJECTS (DB)

### District-Wide Feasibility Studies (Db01 and Db02)

The SFWMD is performing feasibility studies to determine the viability of water resource development options in order to increase water supply through water resource alternatives. This effort involves collecting and analyzing data and modeling.

Implementing entity: SFWMD in partnership with local water utilities.

Estimate of quantity of water produced by project: Projects are not designed to make water available.

Completed implementation activities:

- *Water Supply Cost Estimation Study Phase II.* Phase I of this project developed engineering cost estimation relationships for evaluating water supply alternatives for the District's four planning areas and was completed in FY2007. Phase II was an addendum to the Cost Estimation Study Phase I completed in FY2007. The addendum addressed the cost estimates of alternative water treatment technologies at low flows (1-3 mgd) on the same basis of $/1000 gallons for wastewater and water treatment modules. Phase II was completed and no additional water supply budget is required at this time.
- *Advanced Wastewater Pilot Projects in Broward* County (LEC Planning Area). Two pilot studies were conducted in Broward County, one each in Sunrise and Plantation. The Plantation pilot study investigated the different physical-chemical and biological advanced wastewater treatment technologies to augment water resources in central Broward County by reusing highly treated reclaimed water for surface water recharge. This study was completed in FY2008. The Sunrise pilot study evaluated the technical and economic feasibility of treating raw sewage water from the city with commercially available advanced wastewater treatment technologies to meet the required water quality standards for groundwater recharge, including the high-level removal of nutrients. This study demonstrated the ability of commercially available

advanced wastewater treatment technology to treat raw sewage to water quality standards and was completed in FY2008.

- *C-25 St. Johns Marsh Connectivity Study* (UEC Planning Area). This study was delayed in FY2008 and is scheduled to start in FY2009.
- *L-40 Conveyance Study* (LEC Planning Area). The L-40 Conveyance Study is ongoing and continues to investigate possible water delivery from Lake Okeechobee to the Lake Worth Drainage District (LWDD) and Hillsboro Canal while protecting Water Conservation Area 1 (WCA-1), which overlaps the Arthur R. Marshall Loxahatchee Wildlife Refuge (Refuge). Criteria were used to evaluate alternatives whereby untreated water could potentially be conveyed to users (e.g., LWDD) to meet water supply demands without simultaneously causing negative water quality effects on the treated water present in WCA-1. The study documented the evaluation process undertaken to determine the conveyance opportunities and to narrow down the various conveyance methods and project options to four conceptual alternatives. Work completed in FY2008 included draft Conceptual Layout Technical Memorandum 2 and project deliverable 2.4.2, delineating the four conceptual alternatives.
- *Upper Kissimmee Basin Regional Water Supply Feasibility Study Phase I* (KB Planning Area). Phase I of the project was a feasibility study on the "water of opportunity" to assist in developing a new surface water source to serve customers in the Central Florida region. The study evaluated technical, environmental, regulatory, and economic issues associated with using surface water from the Upper Kissimmee Basin as a possible water supply to serve interested customers in Central Florida. Initial results from the study concluded that surface water availability may be limited and, therefore, the study evaluated an integrated water supply source. The integrated approach evaluated how surface water and groundwater may be used in conjunction to meet water demands in the study area. The feasibility study was completed in FY2008.
- *Lake Worth Drainage District) C-51 Pump Replacement* (LEC Planning Area). This was a cooperative project between the District and LWDD. The overall project objective was to test the alternative use of the C-51 canal to deliver Lake Okeechobee water to the LWDD's secondary system using pumps. These pumps will reduce the need to treat additional water in Stormwater Treatment Areas (STAs) before delivery through WCA-1. Both agencies agreed on implementing the project recommendations to install permanent pumps that will provide a more flexible water delivery system and save water that would otherwise be lost to tide. The District paid for the purchase of the pumps, and the LWDD was responsible for the installation and operation of the pumps as its cost-share. This project was completed in FY2008.

**Activities proposed for FY2009:**

- *Project Culvert-15 Operations Protocol Development* (LEC Planning Area). The goal of this project is to develop an operational protocol to aid District staff in the operation of PC-15 culvert in northern Palm Beach County as part of the regional water management system to better maintain the hydoperiod of the Loxahatchee Slough and to provide additional regulated delivery to the C-18 canal for flow augmentation to the Northwest Fork of the Loxahatchee River. (Db020000, $24,000)
- *Upper Kissimmee Basin Regional Water Supply Effort – Phase II* (KB Planning Area). The next phase of this study will further refine the availability of alternative

water supply sources, including surface water and groundwater. The SFWMD will be working closely with the regional water providers as a water supply master plan is prepared. The Water Supply Department will support ongoing modeling conducted by the Kissimmee Division in an effort to estimate surface water availability. In addition, the SFWMD will support field and modeling efforts to estimate groundwater availability. (Db030000, $400,000)

- *C-25 Basin Water Availability Study – AKA C-25 St. Johns Marsh Connectivity Study* (UEC Planning Area). The C-25 Basin Water Availability Study was delayed in FY2008 and is scheduled to start in FY2009. The purpose of this study is to address excess surface water in St. Lucie and Indian River counties. This study will include water resource investigation, planning, and identification of Water Resource Development projects to capture, convey, store, and beneficially use excess surface water currently being discharged to the Indian River Lagoon, where such cooperation is prudent and efficient. This study will be 50-50 cost-shared with St. Johns River Water Management District (SJRWMD). (Db040000, $150,000)
- *Concentrate Management – Desalination.* This is a bench-scale project to identify practices for minimizing concentrates generated from brackish water treatment by reverse osmosis while improving water recovery. The study will provide cost-effective alternatives to traditional deep-well injection and ocean outfall concentrate disposal methods for specific utilities in the SFWMD. (Db050000, $300,000)
- *Desalination Initiatives*. Continue to work with consultants and utilities to encourage the implementation of desalination facilities.

Estimated completion dates:

- *Project Culvert-15 Operations Protocol Development:* FY2009.
- *Upper Kissimmee Basin Regional Water Supply Effort – Phase II:* FY2009.
- *C-25 Basin Water Availability Study:* FY2009–FY2010.
- *Concentrate Management – Desalination:* FY2009.
- *Desalination Initiatives:* Ongoing.

Funding sources: SFWMD cost-share with local water utilities.

Cost per thousand gallons: Feasibility study projects are not designed to make water available.

Total money to date:

- LWDD C-51 Pump Replacement: FY2008 — $300,000.
- C-25 Reconnection Feasibility Study: FY2006–FY2007 — $25,000.
- Upper Kissimmee Basin Regional Studies: FY2007–FY2008 — $600,000.
- L-40 Funding – FY2007-FY2008 — $200,000.
- Water Supply Cost Estimation Study – FY2007–FY2008 — $200,000.
- Advanced Wastewater studies and Pilot Projects: FY2007–FY2008 — $775,000.
- Desalination Initiatives: FY2002–FY2007 — $435,000.

Total project cost: FY2006–FY2008 — $2,535,000.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | 874 | 0 | 0 | 0 | 0 | 874 |

# RULEMAKING (DC)

## MFL and Water Reservation Activities (Dc01–Dc04)

Minimum Flows and Levels (MFLs) are being developed pursuant to the requirements contained within the Water Resources Development Act (WRDA) and Sections 373.042 and 373.0421, F.S., as part of a comprehensive water resources management approach to assure the sustainability of South Florida's water resources. As part of the process of establishing and maintaining MFLs, the SFWMD is developing and implementing an electronic tracking system to determine whether MFL criteria are being met. Other efforts include producing documents and conducting scientific and peer reviews. Additional information about MFLs is presented in Chapter 3 of this volume.

The Governing Board has also authorized rule development to establish water reservations in accordance with Section 373.223(4), F.S. Establishment of a water reservation is required in order for the District and the U.S. Army Corps of Engineers (USACE) to enter into a Project Cooperation Agreement (PCA). This agreement is to construct several CERP project components, such as reservoirs, STAs, and water diversion structures, as outlined in Project Implementation Reports (PIRs). The District has selected its water reservation authority to quantify both existing water and future project water needed to protect fish and wildlife resources.

Implementing entity: SFWMD.

Estimate of quantity of water produced by project:

- Water Reservation projects will reserve quantities of water consistent with the PIR.
- MFLs define the flow or level below which significant harm would occur to the water body, which helps in determining the amount of water that may be available to meet other reasonable-beneficial needs. MFL projects are not designed to make water available.

Completed implementation activities:

- To date, MFLs have been adopted for 12 water bodies within the District boundaries, including Florida Bay, the Everglades (including Water Conservation Areas 1, 2, and 3, and Everglades National Park), the northern portion of the Biscayne Aquifer, Lake Okeechobee, Caloosahatchee River and Estuary, Lower West Coast (LWC) aquifers, St. Lucie River and Estuary, Northwest Fork of the Loxahatchee River, and Lake Istokpoga.
- A draft report for the Indian River Lagoon (IRL) – South Water Reservation (St. Lucie Estuary) was completed. Due to shifting priorities, peer review will be addressed in FY2009.

- The Biscayne Bay peer review is substantially complete and will be finished in FY2009.
- The Rookery Bay project was delayed due to changes in staffing. This project has been postponed to FY2011. However, in support of CERP the funds were redirected to support an unscheduled peer review of the Picayune Strand water reservation, which was completed in FY2008.
- The initial investigation of MFL criteria applicable to the Kissimmee River and Upper Kissimmee Basin, including lakes and wetlands, was redirected to a water reservation. This work is being done in collaboration with the District's Kissimmee Division and is expected to be completed in FY2009.
- The baseline wetland monitoring in the Central Florida Coordination Area was completed.
- USGS monitoring of the Loxahatchee MFL station was funded and completed.
- Continued monitoring previously established MFLs.

Activities proposed for FY2009:

- Continue monitoring previously established MFLs.
- Publish Picayune Strand (CERP) water reservation rule.
- Complete Kissimmee River and Kissimmee Chain of Lakes (KCOL) water reservation science compilation. Investigation will include lakes within the Central and Southern Florida Project system. Specific lakes to be included in reservation will be selected based on sound technical information and analysis. Develop and complete peer review of Kissimmee River and KCOL water reservation (Dc010000, $50,000).
- Complete peer reviews for the following water reservation projects:
    - Peer review of the IRL – South (CERP) water reservation. (Dc020000, $50,000)
    - The District is prepared to hold peer reviews supporting the establishment of water reservations for up to two additional water bodies related to CERP projects. Due to uncertainties of federal authorization and funding, and restoration opportunities that may be provided by the potential River of Grass acquisition, specific projects cannot be identified at this time, and water reservations may be deferred to future years, as needed. (Dc020000, $100,000)
- Complete the vegetation surveys of the Loxahatchee River floodplain. (Dc030000, $35,000)
- Complete USGS monitoring for Loxahatchee MFL. (Dc030002, $25,259)
- Continue baseline wetland monitoring in the Central Florida Coordination Area in anticipation of MFL and reservation activities. (Dc040000, $150,000).

Estimated completion date:

- Complete technical report, peer review, and adopt KCOL water reservation in FY2009.

- Complete peer review of water reservations for IRL – South and two additional water bodies related to CERP projects in FY2009.
- Complete vegetation surveys in FY2009.
- Complete the USGS Loxahatchee MFL in FY2009.
- Complete Central Florida Coordination Area baseline wetland monitoring.

Funding sources: SFWMD.

Cost per thousand gallons: Cannot be estimated prior to completion of projects.

Total money spent to date: FY2008 — $390,000.

Total project cost: Ongoing.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | 410 | 220 | 220 | 220 | 220 | 1,290 |

## CONSERVATION (DD)

### Comprehensive Water Conservation Program

The SFWMD's overall water conservation goal is to prevent and reduce wasteful, uneconomical, impractical, or unreasonable uses of water resources. In addition to improving efficiency of water use, the state-wide Water Conservation Program, known as "Conserve Florida," provides information and tools to improve water conservation through the development of utility-specific, goal-based water conservation programs. To better promote the conservation goal, the SFWMD funds grants and cost-share programs. These programs encourage water users to make more efficient use of water resources through conservation and reuse. Further information is available at Conserve Florida's web site at www.conservefloridawater.org.

Representatives of stakeholder water-user groups assisted the District in developing a Comprehensive Water Conservation Program for South Florida. The District convened a public water conservation summit and conducted five stakeholder meetings to help develop a new comprehensive program designed to reduce South Florida's current water use consumption. This program was adopted by the District's Governing Board in September 2008. This program includes recommendations and implementation strategies designed to reduce water use. The program is organized into initiatives for the following: (1) regulatory, (2) voluntary and incentive-based, and (3) education and marketing. The goals of this program are to eliminate wasteful water use, promote efficient water use, establish a year-round culture of conservation, establish partnerships to maximize the program's effectiveness, and to achieve a measurable reduction in water use. Further information is available from the District's web site at www.sfwmd.gov under the *Water Conservation* tab.

Through the Water Savings Incentive Program (WaterSIP), the SFWMD provides matching funds of up to $50,000 to water providers and users, such as cities, utilities, industrial groups, and schools, hospitals, and homeowners associations for water-saving technologies. These technologies include low-flow plumbing fixtures, rain sensors, fire hydrant flushing devices, and other hardware. The Mobile Irrigation Laboratory (MIL) Program consists of specialized equipment in vans designed to conduct efficiency audits of agricultural and urban irrigation systems. The MILs are operated by the Soil and Water Conservation Districts, a subdivision of the state of Florida created under Chapter 582, F.S., and provides recommendations to water users who implement the water-saving recommendations. The Conserve Florida Clearinghouse — funded by the Florida Department of Environmental Protection (FDEP) and the state's three largest water management districts — supports the ongoing operations of the University of Florida and serves as a centralized information repository equipped with tools to facilitate the efforts of utilities and other stakeholders to achieve their water conservation goals. The University of Florida/Institute of Food and Agricultural Sciences (UF/IFAS) operates the Florida Automated Weather Network (FAWN), which is a state-wide research and data project with operations aimed at reducing agricultural irrigation during droughts and freezes. The Water Conservation Program is a comprehensive demand management effort aimed at reducing water use in each sector to the lowest level feasible.

Implementing entity:

- WaterSIP Program: SFWMD.
- MIL Program: SFWMD, Florida Department of Agriculture and Consumer Services (FDACS), and the Soil and Water Conservation Districts.
- Water Conservation Program: SFWMD.
- Conserve Florida Clearinghouse: SFWMD, FDEP, two other water management districts, and UF/IFAS.
- Florida Automated Weather Network: SFWMD, UF/IFAS, FDACS, and other water management districts.
- Water Audit Leading by Example: SFWMD, Water Supply Implementation Division.
- Cooperative Agricultural FGCU Wings of Hope: SFWMD, Big Cypress Basin through Florida Gulf Coast University (FGCU).
- Water Conservation Outreach: SFWMD, Government and Public Affairs Department, Water Supply Implementation Division.
- Big Cypress Basin Conservation Outreach: SFWMD, Big Cypress Basin Service Center.

Estimate of quantity of water produced by project:

- WaterSIP Program. During FY2002–FY2008, 72 projects cumulatively saved 4.26 mgd of water; and in FY2008, 0.85 mgd of water was saved. For FY2009, 44 proposed projects are anticipated to save 1.5 mgd of water, and 7.5 mgd is expected to be conserved for FY2009–FY2013.
- MIL Program. From the MIL Program's inception in FY1989 through FY2008, an estimated 109 mgd has been saved. In FY2008, an estimated 1.7 mgd was saved, and for FY2009, an estimated 2.0 mgd will be saved. The estimated quantity of water to be saved by the MIL Program during FY2009–FY2013 is 10 mgd.

- Water Conservation Program. This was a new initiative for FY2008 and, therefore, no water has been saved or produced.
- Florida Automated Weather Network. The university calculates all estimates of water savings on a state-wide basis.

Completed implementation activities:

- *WaterSIP Program*. Funded 72 projects District-wide for FY2002–FY2008.
- *MIL Program*. There are 13 operational MILs District-wide, all cost-shared by the District.
- *Water Conservation Program*. Held initial conservation summit, devised conservation plan, and developed partnership with all water-user organizations and industries. Submitted final plan to Governing Board for adoption.
- *Conserve Florida Clearinghouse*. Funded from FY2004–FY2008.
- *Florida Automated Weather Network*. Continue the expansion of the FAWN database access to urban irrigation systems and funded research for FY2004–FY2008.

Activities proposed for FY2009:

- *Conserve Florida Clearinghouse.* This program collects, analyzes, and provides research information and technical assistance to public water supply utilities and water managers for use in developing effective and efficient water conservation programs. (Dd010003 $150,000)
- *WaterSIP Program*. 44 projects will receive funding in FY2009. (Dd029000, $1,030,000 and Dd010005, $376,921)
- *MIL Program*. Four agricultural MILs and one urban MIL will continue to be funded. (Dd039013, Dd030001, 2, 3, and 13, $347,000)
- *Florida Automated Weather Network (FAWN).* Weather data are stored in searchable databases, and the database search functions provide for immediate access to weather data. (Dd040001 $100,000)
- *Water Audit Leading by Example.* This is part of the conservation plan. (Dd050001, $50,000)
- *Cooperative Agricultural – Florida Gulf Coast University (FGCU) Wings of Hope.* The Wings of Hope Program is an integral part of the Environmental Humanities curriculum and service learning at FGCU. University students are introduced to native Southwest Florida wildlife species, their habitats, water conservation, and the "green" ways people can help the environment. These students then share this knowledge with younger students in $1^{st}$ – $5^{th}$ grades at public and private schools in Collier and Lee counties through science-based environmental education programs. Elementary school students are either transported to FGCU to participate in the programs or participate in the programs at their respective schools. (Dd070000, $20,000)
- *Water Conservation Outreach, Education, and Social Marketing.* The District's Government and Public Affairs Department staff is preparing information for water conservation products, public information, community events, social marketing, a

watershed action volunteer program, a water conservation publication, and the printing of the document. (Dd080001-7, $419,231)

- *Big Cypress Basin Conservation Outreach.* The service center staff are preparing for water symposiums, displays, awareness of the District, etc. (Dd080000, $14,120)

Estimated completion date: Ongoing.

Funding sources:

- WaterSIP Program: SFWMD, utilities, homeowners associations, and other project partners.
- MIL Program: SFWMD, Big Cypress Basin Board, and FDACS.
- Florida Automated Weather Network: SFWMD, UF/IFAS, FDACS, and other water management districts.
- Water Audit Leading by Example: SFWMD.
- Cooperative Agricultural – FGCU Wings of Hope: SFWMD.
- Water Conservation Program. SFWMD.
- Big Cypress Basin Outreach: SFWMD.

Cost per thousand gallons amortized at 8 percent over expected product life:

- Showerhead retrofit, $0.46 – 0.69/1,000 gallons; toilet retrofit, $0.72 – 1.18/1,000 gallons; rain sensor installation, $0.44/1,000 gallons.
- Low-volume spray valves in restaurants, $0.21 – 1.14/1,000 gallons.
- Showerhead and faucet retrofit in hotels/motels, $0.23 – 0.26/1,000 gallons.
- MILs programmatic cost for agriculture, $0.38/1,000 gallons; programmatic cost for urban, $2.38/1,000 gallons.

Total money spent to date: FY2002–FY2008 — $9,306,204 (includes the Conservation Program, $2,068,351; WaterSIP Program, $3,338,965; and MIL Program, $3,898,888).

Total project cost: Ongoing.

Proposed expenditures: Comprehensive Water Conservation Program including WaterSIP, MIL, FAWN, Leading by Example, Wings of Hope, Water Conservation Program, and Big Cypress Basin Outreach.

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | 2,507 | 1,464 | 1,464 | 1,464 | 1,464 | 8,363 |

## ALTERNATIVE WATER SUPPLY (DE)

A full description of Alternative Water Supply-related projects and associated funding is contained in the District's Alternative Water Supply Annual Report, prepared pursuant to Section 373.1961(2), F.S. (see Chapter 5B of this volume).

## RESOURCE EVALUATION (DF)

### Drilling and Testing Program (Df01)

A District-wide Drilling and Testing Program is providing an improved understanding of the geology and hydrology of the aquifers in South Florida as new exploratory/test wells are constructed. This improved understanding has enabled more accurate results from groundwater models and better decisions regarding the issuance of new consumptive use permits. Full documentation of each well site (including location, well construction details, geophysical logging, and aquifer testing data) is provided in the SFWMD technical publications and has been loaded into the District's hydrometeorological database DBHYDRO.

Implementing entity: SFWMD.

Estimate of quantity of water produced by project: Project is not designed to make water available.

Completed implementation activities:

- *Groundwater Project Inventory.* This project involved well construction, survey information, and water levels for three sites (Crooks Ranch/Golden Ox, Loxahatchee Mitigation Bank, and the E1/E2 Canal Study). This project is complete.
- *Biscayne Bay.* Seepage data were collected from the Burger King site (located near the northernmost boundary of Biscayne National Park) through April 2008 in Biscayne Bay.
- *Geophysical Log Analysis.* Funds were used for the analysis of existing geophysical logs. This additional analysis allowed the District to further delineate changes within the aquifer. Analysis is ongoing based on available funding.
    - Alligator Alley Test Well. The statement of work was completed, and the contract was issued, which included limited oversight of well construction.
    - The statement of work was developed to complete wells OKF-105 and OKF-42. The contract was issued, and drilling began in September 2008. Work is under way and expected to be completed by November 2008.
    - Write-ups were completed for Floridan well MF-40, which is a dual-zone well located in St. Lucie County, and tri-zone well PBF-15, which was completed in Palm Beach County. Both reports have been peer-reviewed.
- *Aquifer Performance Testing (APT) Support.* Completed two, full-scale 72-hour pump tests on wells POF-26 (River Ranch) and OSF-70 (St. Cloud). Both wells were completed in the upper Floridan aquifer. Both investigations were in support of the

modeling efforts under way for the Kissimmee River Basin East Central Florida Transient (ECFT) Model. An additional 22 slug tests were conducted throughout the Kissimmee River Basin in support of the ECFT Model Surficial aquifer parameters.

Activities proposed for FY2009:

- *SE Polk County Well Construction.* This is a cooperative agreement with Polk County to install a Floridan aquifer test well. The District will be receiving all field data, water quality data, lithologic data, aquifer performance test data, the analyzed aquifer characteristics, and all final reports. The data will then be entered into the District's DBHYDRO database. (Df010004, $250,000)

- *APT Support.* These funds will be used to conduct full-scale APTs at one to two sites within the EFCT modeling domain. At this time, no locations have been selected. (Df010001, $48,500)

- *Geophysical Log Analysis.* These funds will be used for the analysis of existing geophysical logs. This additional analysis will allow the District further delineation of changes in the aquifer. (Df010001, $20,000)

- *Lithologic/Stratigraphic Description Manual.* This effort is a cross-jurisdictional project headed up by the Florida Geological Survey (FGS), in cooperation with the state's five water management districts. The object is to establish one lithological manual used by all five water management districts. (Df010001, $15,000)

Estimated completion date: Ongoing.

Funding sources: SFWMD.

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: FY2000–FY2008 — $12,577,000.

Total project cost: Ongoing.

Proposed expenditures

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | 334 | 250 | 250 | 100 | 100 | 1,034 |

## Groundwater and Evapotranspiration Assessments (Df01)

A number of specialized hydrogeologic studies were completed by the U.S. Geological Survey (USGS) in cooperation with the SFWMD. The information learned from these studies is needed to enhance the understanding of aquifers and evapotranspiration (ET) rates across the District. Typically, each project requires several years of focused effort by USGS professionals, giving a continuity and focus unique to the USGS. Some projects have the cooperation of other water management districts or other governmental agencies. The USGS reports, maps, and data are peer-reviewed and highly respected in the industry, making them valuable references for groundwater modeling and environmental assessments, as well as policy and decision making.

Implementing entity: SFWMD and USGS.

Estimate of quantity of water produced by project: Project is not designed to make water available.

Completed implementation activities:

- *USGS Highlands County Hydrologic and Water Quality.* This project is in year two of three. The statistical analysis is complete, and data synthesis has begun.
- *USGS Hydro SAS Palm Beach County.* The final report has been completed, peer-reviewed, and is in the process of final approval and printing.
- *USGS Measurement ET in South Florida.* The second year of data collection is complete. Raw data were incorporated into spreadsheets, QA/QC calculations were performed, relations between ET and climatic variables were refined, and relations were used to "gap-fill" missing ET records. Upon completion of the review, approved data will be uploaded into the USGS ADAPS database.

Activities proposed for FY2009:

- *USGS Evapotranspiration Study*. Continue with monthly site visits. Perform tasks during site visits that include data downloading, tower climbing to clean instrumentation, measuring depth-to-water, and troubleshooting instrumentation. Incorporate raw data into spreadsheets, perform QA/QC calculations, develop relations between ET and climatic variables, and use relations to "gap-fill" missing ET records. Approved data will be uploaded into the USGS ADAPS database upon completion of review. The USGS staff will present a summary of the project status and data to the SFWMD. Journal papers examining the impact of controlled errors in ET on a simple wetland hydrologic model in *Wetlands* will be published. Writing will begin for the USGS Scientific Investigations Report. (Df011890, $103,245)

Estimated completion date: Ongoing.

Funding sources: SFWMD and USGS.

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: FY2000–FY2008 — $2,501,000.

Total project cost: Ongoing.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | 103 | 115 | 0 | 0 | 0 | 218 |

## Groundwater and Wetland Monitoring (Df01)

Well construction and monitoring efforts provide information about geology, aquifer characteristics, and water-level conditions to aid the SFWMD in the development of groundwater models, assessing groundwater conditions, and management of this resource. The District maintains extensive groundwater monitoring networks and partners with the USGS to provide additional support and funding for ongoing monitoring. To better understand the hydrologic

systems that support wetlands, the District maintains its network of groundwater and wetland monitoring sites. Data are archived in the District's DBHYDRO database. Data from sites monitored by the USGS are published annually by the USGS.

Implementing entity: SFWMD and USGS.

Estimate of quantity of water produced by project: Project is not designed to make water available.

Completed implementation activities:

- The same level of groundwater monitoring continued as in the previous year (including the Kissimmee Basin). Data were collected, quality analyzed and quality controlled, and archived in the District's hydrologic database. All data are available to internal and external users through the District's web site.
- One lake stage recorder was installed (Lake Buck, located near the City of Harmony), and water quality monitoring was completed within the Kissimmee Basin. Data are currently being processed and will be uploaded into the database.
- Completed data validation efforts.
- Density stratification effects in Floridan wells were evaluated. Floridan wells of interest were selected: one well in the LEC (BF-1), and one well in the LWC (LaBelle). Preliminary testing was conducted on BF-1; early data indicate that density stratification with the well bore has the potential to influence water levels with wells that are partially saline in nature. Two purchase orders were issued for the installation of data loggers, temperature, and water quality, and water level sensors were set at various depths of the wells to determine the effects of stratification over time within the well bore. This will be an ongoing activity until formal conclusions are determined from this investigation.

Activities proposed for FY2009:

- Continue the same level of groundwater monitoring as in the previous year (including the Surficial aquifer, Kissimmee Basin Floridan aquifer, and isolated wetlands), and recorder maintenance. (Df010001-2, $725,524).
- Continue water quality collection and monitoring at select sites, including collection, analysis, data validation, and archiving of data in the database. (Df010000, $42,962)

Estimated completion date: These eight projects, which monitor water levels and stages, are an ongoing effort in cooperation with the USGS.

Funding sources: SFWMD and USGS.

Total cost: Ongoing.

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: FY2000–FY2008 — $6,189,000.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | 769 | 762 | 799 | 838 | 881 | 4,049 |

[Note: Two model verification projects and one model peer-review project (Df010001-2, $150,000) are addressed in the *Resource Evaluation – Modeling (Df02)* section of this chapter. The Central Florida Water Supply Planning Effort – Phase II is addressed in the *District-wide Feasibility Studies (Implementation Projects Db)* section of this chapter (Df010005, $500,000).]

## MODELING (DF02)

The Water Supply Program is currently undertaking three modeling efforts, which are described below.

### East Central Florida Transient Model (ECFT) Lake Stages

The peer-review panel recommended that more lake stage data be incorporated into future versions of the East Central Florida Transient (ECFT) Model. This FY2009 item will fund the installation of a surface water recorder at one lake in the northern portion of the Kissimmee Basin to be completed in FY2009. (Df020001, $22,000)

Completed implementation activities:

- Lower East Coast Subregional Groundwater Model and Database Development: During FY2008, recently acquired data (water levels, aquifer tests, etc.) were entered into the District's database DBHYDRO for use in calibration and refinement of the Lower East Coast Subregional (LECsR) Model. Recalibration of the model to measured canal flows — a recommendation of the peer review-panel (June 2006) — continued in FY2008, particularly in Miami-Dade and southern Broward counties. In addition, a source-code upgrade from MODFLOW-96 to SEAWAT-2005 was completed for all District subregional groundwater models. This assures consistency in source-code functionality and allows for future simulation of variable-density fluids for saltwater intrusion evaluation.
- East Coast Floridan Aquifer Groundwater Model and Database Development: During FY2008, recently acquired and compiled data (water use, water levels, aquifer tests, etc.) were entered into DBHYDRO for use in calibration and refinement of the East Coast Floridan Aquifer Model using the SEAWAT-2005 code. This effort included expansion of the model domain from the District's Lower East Coast Planning Area to include the Upper East Coast Planning Area.
- Lower West Coast Floridan Model Peer Review: During FY2008, the District retained three independent groundwater modeling experts to conduct a technical review of its draft Lower West Coast Floridan Aquifer Model using the SEAWAT-2005 code. Independent peer reviews are conducted per policy direction to ensure that models are developed under established groundwater modeling procedures and meet industry standards. The peer-review panel completed its report in August 2008,

and the District began the process of incorporating the panel's recommendations, which will extend into FY2009.

Implementing entity: SFWMD.

Estimate of quantity of water produced by project: Project is not designed to make water available, but to evaluate potential future sources of water.

Completed implementation activities:

- The peer review of the ECFT Model was completed in February 2007. The panel identified more lake-stage data as a goal for a future version of the model.

Activities proposed for FY2009:

- Purchase and obtain agency approvals (rights-of-way, etc.) to install a stage recorder at one lake in the northern portion of the Kissimmee Basin. (Df021890, $22,000)

Estimated completion date: FY2009.

Funding sources: SFWMD.

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: $0.

Total project cost: $22,000.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | $22 | 0 | 0 | 0 | 0 | $22 |

## USGS Central Florida East Central Florida Transient (ECFT) Model Verification

Additional refinements to the ECFT Model are desirable based in part from the peer review panel's recommendations. This FY2009 activity is designed to investigate incorporation of newer MODFLOW modules (e.g., lake package), and add additional model layers corresponding to confining units. In addition, it will verify the model by making it compatible with commercially available modeling platforms and allow users to use the model to support permit applications. The ECFT Model will be used to conduct predictive simulations and evaluate effects of proposed water withdrawals on springs, lakes, and wetlands in the Central Florida Coordination Area (CFCA). It is expected that these changes will be incorporated into FY2009, assuming they do not result in unwieldy computer run times. (Df010002, $150,000)

Implementing entity: SFWMD and USGS.

Estimate of quantity of water produced by project: Project is not designed to make water available, but to evaluate potential future sources of water.

Completed implementation activities:

- Calibrated ECFT Model based on key peer-review recommendations and updated datasets.

Activities proposed for FY2009:

- Investigate the potential for incorporation of newer MODFLOW modules (e.g., lake package), and add additional model layers corresponding to confining units. (Df010002, $100,000)
- Verify the model by making it compatible with commercially available modeling platforms and allow users to use the model to support permit applications. (Df010002, $50,000)

Estimated completion date: FY2009.

Funding sources: SFWMD and USGS.

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: FY2006 — $170,000; FY2007 — $150,000; FY2008 — $100,000 for model development and peer review.

Total project cost: $420,000.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | $150 | 0 | 0 | 0 | 0 | $150 |

## Central Florida Coordination Area (CFCA)/East Central Florida Transient (ECFT) Model Runs Peer Review

Predictive simulations will be conducted in FY2009 that estimate water demands and effects of these water withdrawals on wetlands, springs, lakes, and existing legal users of water. Peer review will be conducted on the results of the predictive simulations given the implications of the results of these model runs. Peer review will be conducted in the fourth quarter of FY2009. (Df010001, $30,000)

Implementing entity: SFWMD.

Estimate of quantity of water produced by project: Project is not designed to make water available, but to evaluate potential future sources of water.

Completed implementation activities: Version 1.0 of the calibrated ECFT Model.

Activities proposed for FY2009: Complete peer review of the CFCA/ECFT Model Runs Peer Review. (Df011890, $30,000)

Estimated completion date: FY2009.

Funding sources: SFWMD.

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: FY2006 — $170,000; FY2007 —$150,000; FY2009 — $100,000 for model development and peer review.

Total project cost: $420,000.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | $30 | ~~0~~ | 0 | 0 | 0 | $30 |

## PROGRAM SUPPORT (DZ)

There is no District-wide water resource development efforts currently planned for the program support element.

# REGIONAL WATER RESOURCE DEVELOPMENT PROJECTS

The following are project descriptions of region-specific water resource development efforts funded by the District's Water Supply Program for FY2009. Additional information, such as the implementing entities, activities proposed for FY2009, estimated completion dates, and funding sources, is included in each project summary.

## CENTRAL FLORIDA WATER SUPPLY PLANNING (KB PLANNING AREA)

This study is intended to complete a comprehensive water supply plan for those portions of Central Florida within the SFWMD. The plan should identify short- and long-term water supply projects and an incremental strategy for developing and permitting these projects such that the needs of Orange County are timely met. (Df010005, $500,000)

Implementing entity: SFWMD.

Estimate of quantity of water produced by project: Project is not designed to produce water.

Completed implementation activities: None.

Activities proposed for FY2009: Identification of short- and long-term water supply projects.

Estimated completion date: FY2009.

Funding sources: SFWMD and cost-share with local utilities.

Cost per thousand gallons: Project is not designed to make water directly available.

Total money spent to date: $0.

Total project cost: $500,000.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | 500 | 0 | 0 | 0 | 0 | 500 |

## CENTRAL FLORIDA COORDINATION AREA (CFCA) MEMORANDUM OF UNDERSTANDING (MOA) FACILITATION (KB PLANNING AREA)

The purpose of this Memorandum of Understanding (MOU) is to provide a facilitator to coordinate with the three water management districts [SFWMD, SJRWMD, and Southwest Florida Water Management Department (SWFWMD)] and the FDEP to develop a regional water strategy that crosses all three water management district lines. The facilitator will provide the following services: scheduling of meetings, documentation of meetings, and development of presentations, etc. (Da030000, $25,000)

Implementing entity: SFWMD, SWFWMD, SJRWMD.

Estimate of quantity of water produced by project: Project is not designed to make water directly available.

Completed implementation activities: None.

Activities proposed for FY2009: Coordination of meetings between three water management districts and the FDEP.

Estimated completion date: FY2012.

Funding sources: SFWMD.

Cost per thousand gallons: Project is not designed to make water directly available.

Total money spent to date: $0.

Total project cost: $25,000.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | 25 | 25 | 25 | 5 | 0 | 80 |

## SUBREGIONAL FEASIBILITY STUDY OF WATER SUPPLY INTEGRATION FOR ST. LUCIE COUNTY AREA (UEC PLANNING AREA)

Two studies have been completed for this region. Phase I summarized the existing and planned water resources projects within St. Lucie County. Phase I was completed in FY2006. Phase II consisted of the development of a conceptual master plan for water systems integration and development of an institutional framework for merging utility systems in northern St. Lucie County as a continuation of the previous Phase I study. Phase II was completed in FY2007. St. Lucie County is in the process of developing its own utility system for water and wastewater. There will no longer be a need for merging utility systems with the Fort Pierce Utilities Authority and, therefore, no continued facilitation is requested or needed for a Phase III study.

Implementing entity: SFWMD.

Estimate of quantity of water produced by project: Project is not designed to make water available.

Completed implementation activities:

- *Phase I – Feasibility Study of Water Supply Integration St. Lucie County Report.* Completed in July 2006.
- *Phase II – Conceptual Master Plan of Water and Wastewater Utility Integration St. Lucie County Report.* Completed in February 2007.

Activities proposed for FY2009: None.

Estimated completion date: Not applicable (N/A).

Funding sources: SFWMD.

Cost per thousand gallons: N/A.

Total money spent to date: $98,900.

Total project cost: $98,900.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | 0 | 0 | 0 | 0 | 0 | 0 |

## CENTRAL FLORIDA AQUIFER RECHARGE FEASIBILITY STUDY

Part of the effort in studying the Kissimmee Chain of Lakes supply availability is a feasibility assessment of how best to use the available water from the system. The availability of supply from the KCOL and Shingle, Boggy, and Reedy creeks is projected to be highly variable. As such, surface water from these systems may, in part, be a product of opportunity rather than a consistent daily alternative source. While this makes direct use more difficult, it offers opportunities to use surface water for aquifer recharge to offset some of the projected groundwater withdrawal impacts during periods of high availability. Because the western portions

of Central Florida are high recharge areas to the Floridan aquifer, rapid infiltration basins may be a feasible means of using surface water from these sources for implementing aquifer recharge. Similar studies have been completed in Orange County for the use of reclaimed water for aquifer recharge. An effort is proposed to expand this study into parts of Osceola, Polk, and Lake counties to determine opportunities for aquifer recharge.

Implementing entity: SFWMD.

Estimate of quantity of water produced by project: Project is not designed to make water directly available.

Completed implementation activities: N/A.

Activities proposed for FY2009:

The priority of work tasks in the project plan for the Central Florida Recharge Project have been reorganized to allow for the determination of surface water availability in the KCOL and Kissimmee River to be performed first. This determination of water availability is directly related to efforts of the Kissimmee Chain of Lakes Long-Term Management Plan (KCOL LTMP) and the Northern Everglades and Estuaries Program. The KCOL LTMP is currently under development and is expected to be completed by mid-2009. The District is poised to enter into a cooperative agreement with the regional utilities that were specified as part of a legal settlement. As part of this agreement, the viability of the Central Florida recharge project is expected to be addressed. Also, the SFWMD and SWFWMD have joined in assisting Polk County to develop an AWS master plan. Part of this plan is expected to evaluate the benefits of reclaimed recharge along Lake Wales Ridge.

Estimated completion date: FY2011.

Funding sources: SFWMD, Tohopekaliga Water Authority, Orange County Utilities, Reedy Creek Improvement District, City of St. Cloud, and Polk County Utilities.

Cost per thousand gallons: Project is not designed to make water directly available.

Total money spent to date: $0.

Total project cost: $100,000.

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | Staff Time | Staff Time | 0 | 0 | 0 | Staff Time |

## KISSIMMEE CHAIN OF LAKES LONG-TERM MANAGEMENT PLAN/KISSIMMEE BASIN MODELING AND OPERATIONS STUDY

A resolution in the 2000 Kissimmee Basin Water Supply Plan (2000 KB Plan) directed the District to work with other agencies to develop a plan for improving the health and stability of the Kissimmee Chain of Lakes. Development of the KCOL LTMP requires an extensive modeling effort to estimate the performance of the many competing uses for the Chain of Lakes and the

Kissimmee River. This project supports and has a direct linkage to the Upper Kissimmee Basin Regional Water Supply Efforts – Phase II. (Db0323210, $400,000)

Activities proposed for FY2009:

The Kissimmee Basin Hydrologic, Modeling and Operations Study is an initiative to construct an advanced hydrologic/hydraulic model to be used to simulate alternative structure operation criteria to meet identified objectives. Efforts to complete the model construction are expected to be completed in spring 2009. The study is constrained to evaluating modifications of the existing control infrastructure limitations in an effort to improve operations; however, the tools developed for this purpose are proposed to be used to look at the options for increasing water supply availability for consumptive uses. The purpose of the study is to find a means of operating the Kissimmee Basin system to achieve a more acceptable balance among flood control, water supply, aquatic plant management, navigation, water quality, and natural resource management, while continuing to address impacts to downstream systems, including Lake Okeechobee and the Caloosahatchee and St. Lucie estuary discharges. Another aspect of this effort involves evaluating the lakes and their tributaries to better understand superior alternatives of available water use in the system.

Implementing entity: SFWMD, with state and local government support.

Estimate of quantity of water produced by project: Project is not designed to make water available, but will address potential availability of supply for consumptive uses.

Completed implementation activities:

- Completed year 2000 baseline conditions for the Okeechobee-Kissimmee model construction/calibration in FY2008.
- Public participation in the development of performance measures was completed in FY2007.

Activities proposed for FY2009:

- Complete development of an integrated surface water/groundwater model using MIKE SHE/11 software; continue public outreach, and begin screening of operational guidelines on lakes in the KCOL and Kissimmee River.
- Complete a water reservation for the Kissimmee River and several of the Upper Chain of Lakes.

Estimated completion date: FY2009.

Funding sources: SFWMD and other state governmental agencies.

Cost per thousand gallons: Project is not designed to make water directly available.

Total money spent to date: FY2003–FY2008 — $1,815,257.

Total project cost: $0 (linked to Implementation Project Db0323210, $400,000).

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | Staff Time | 0 | 0 | 0 | 0 | 0 |

## CENTRAL FLORIDA WATER SUPPLY COORDINATION

Hydrologic groundwater basins do not follow water management district boundaries; therefore, coordination among the SFWMD, SJRWMD, and SWFWMD is critical to the water supply planning process. This is particularly true in the region of Orange, Osceola, Polk, southern Lake, and eastern Brevard counties. Efforts to continue and improve this coordination in the areas of planning, permitting, and assessment tool development are important to the uniform implementation of water resource projects across the three districts. These districts have reached agreement on a set of guiding principles to help direct these coordination efforts in the future, and have committed to developing a work plan of tasks that will address inconsistencies in the areas of water supply planning, permitting, and assessment tool development. The effort includes coordination and joint funding of water supply alternatives needed for the region. This project supports and links to other FY2009 water resource projects, such as planning (Da030000), rulemaking (Dc040001), hydrogeology (Df010004 and Df010002), and modeling (Df020001).

Implementing entity: SFWMD, SJRWMD, and SWFWMD.

Estimate of quantity of water produced by project: Project is not designed to make water directly available.

Completed implementation activities:

- Completed development of a revised Memorandum of Understanding/Memorandum of Agreement between the three districts, outlining planning and regulatory activities.
- Rules 40E-2and 40E-20 amendments completed.
- Completed Central Florida Alternative Water Supply project list and estimates of total supply demands.

Activities proposed for FY2009:

- Continue to hold coordination meetings.
- Hire an independent project facilitator.

Estimated completion date: FY2012.

Funding sources: SFWMD.

Cost per thousand gallons: Project is not designed to make water directly available.

Total money spent to date: $0.

Total project cost: Staff time only (linkage to FY2009 planning, implementation, MFL, hydrogeology, and modeling projects).

Proposed expenditures:

| Cost | FY2009 | FY2010 | FY2011 | FY2011 | FY2013 | Total |
|---|---|---|---|---|---|---|
| Dollars ($1,000) | Staff Time | Staff Time | Staff Time | Staff Time | Staff Time | Staff Time |