

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

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INTRODUCTION

Section 373.536(6)(a)4 of the Florida Statutes (F.S.) requires each water management district to prepare an annual Five-Year Water Resource Development Work Program. Accordingly, this chapter presents the Five-Year Water Resource Development Work Program for Fiscal Year 2013–2017 (FY2013–FY2017) (October 1, 2012–September 30, 2017). This document describes the agency’s implementation strategy for the water resource development component of each approved regional water supply plan developed or revised under Section 373.709, F.S. In addition, Section 373.707, F.S., requires each water management district to submit an annual report to the Florida legislature and governor on Alternative Water Supply (AWS) funding, which is provided in Chapter 5B of this volume. Further information on the South Florida Water Management District’s (SFWMD or District) role in managing the region’s water resources is available at www.sfwmd.gov/watersupply.

Florida water law identifies two types of projects to meet water needs: water supply development projects and water resource development projects. Water supply development projects generally involve public or private facilities for water collection, treatment, and transmission and are the responsibility of local water users. 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; development of regional water resource implementation programs; 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. These types of projects are regional in nature and are primarily the SFWMD’s responsibility. These projects 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. 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.

PLANNING REGION OVERVIEW

The SFWMD consists of four planning areas: the Upper East Coast (UEC), the Kissimmee Basin (KB), the Lower West Coast (LWC), and the Lower East Coast (LEC). 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. For FY2012–2013 planning purposes, the Kissimmee Basin region has been divided into two basins—the Lower and Upper Kissimmee Basins—which are addressed in two separate water supply plans. The Lower Kissimmee Basin includes Glades, Highlands, and Okeechobee counties. The Upper Kissimmee Basin is a part of the Central Florida Water Initiative (CFWI), with its planning region covering southern Lake, Orange, Osceola, Seminole and Polk counties. A key component of the CFWI’s mission is to implement a long-term approach to water resource management in Central Florida. The 2013 CFWI Regional Water Supply Plan is currently being developed.

Current water supply plan updates identify the water resource development and water supply development projects expected to meet the needs of all reasonable-beneficial uses for the year 2030 during a 1-in-10 year drought event while sustaining water resources and related natural systems. The most recent Upper East Coast Water Supply Plan and Lower West Coast Water Supply Plan updates were approved by the District’s Governing Board in March 2011 and November 2012, respectively. Looking ahead, it is anticipated that the Lower East Coast and Kissimmee Basin Water Supply Plan updates will be approved in 2013.

According to the 2010 Census, the current District-wide population is approximately 7.6 million and the 2030 population is expected to be approximately 9 million people as noted in the most recent water supply plan updates. The associated raw water demand in 2010 was 3.5 billion gallons per day (bgd), a slight increase from the 3.4 bgd in 2005. Demand in 2030 is projected to be approximately 4 bgd. As the four regional water supply plans are being updated, results have shown that the rate of population growth and associated water supply demands have slowed significantly from previous plan projections.

WATER SUPPLY DEVELOPMENT PROJECTS

To meet future increases in public water supply demand, regional water supply plans include both traditional and alternative water supply projects that utilities are proposing to meet their future needs. The water supply plans noted above indicate public water supply demands are projected to increase by 354 million gallons per day (mgd) over the next 20 years. In addition to the existing water supply and treatment facilities and capacities, collectively the regional water supply plans incorporate 180 future water supply projects, having an estimated cost of \$5.4 billion, to meet the public water supply projected needs. The capacity of these proposed projects exceeds the projected needs.

The evaluation of individual utilities increases projected demand from 2010 to 2030, compared to current allocations, and water treatment capacity indicates that allocations and treatment facilities are currently in place to meet 79 percent of the increase in demand. Construction of these water supply development projects is primarily the responsibility of the utilities in the respective localities. The District assists and supports local utilities and other water users that construct alternative water supply projects through its AWS program. Further information on this program is presented in the *Alternative Water Supply (DE)* section of this chapter and Chapter 5B of this volume.

WATER RESOURCE DEVELOPMENT PROJECTS

The water resource development projects described in this report—drilling and testing, groundwater and wetland monitoring, modeling, comprehensive water conservation, and regional water resource development projects—are primarily District-wide projects. For more detailed information about these projects, see the *District-wide Water Resource Development Projects (DB, DC, DD, DE, DF)* and *Regional Water Resource Development Projects (DA)* sections of this chapter. This report also describes regional water resource development projects that are

specific to each planning area. Implementation schedules and projected costs for FY2013–FY2017 are summarized in **Table 5A-1**.

Most water resource development projects support and enhance water supply development projects but do not themselves yield specific quantities of water. For example, project-related hydrologic investigations, groundwater monitoring, and modeling provide important information about aquifer characteristics (e.g., hydraulic properties and water quality) but do not provide details on water quantities. Information derived from these water resource development projects supports water supply development projects (i.e., developing appropriate facility design, identifying safe aquifer yields, and evaluating the economic viability of projects).

District-wide and region-specific water resource development projects are identified in Chapter 6 (Water Resource Development Projects) of the 2005–2006 Plan updates for the KB and LEC planning regions. Water resource development projects are discussed in Chapter 5 in the 2011 UEC and 2012 LWC Plan updates and in the 2013 Lower KB and LEC Plan updates. Water resource development projects will be presented in Chapter 8 of the CFWI regional water supply plan. It should be noted that projects that provide water supply primarily for the environment are provided in the South Florida Environmental Report Consolidated Project Report Database, which is accessible at www.sfwmd.gov/sfer.

With respect to District-wide water resource development projects, it is important to understand the SFWMD's history and functions, which are closely linked to water resource development activities such as hydrologic investigations, groundwater monitoring, and modeling. In 1948, the U.S. Congress authorized the Central and Southern Florida Project (C&SF) followed by the creation of the Central & Southern Florida Flood Control District by the Florida legislature in 1949 to act as the C&SF local sponsor. In 1972, the SFWMD was established by the Florida legislature to succeed the C&SF Flood Control District and assume responsibility for operation and maintenance of the C&SF Project. The authorized purposes of the C&SF project are flood control, water supply, navigation and protection and enhancement of ecosystems.

The SFWMD is responsible for managing and protecting the water resources of South Florida by balancing and improving water quality, flood control, natural systems, and water supply. Currently, region-wide water management is accomplished by the SFWMD's operation and maintenance of more than 2,600 miles of canals and levees, about 1,200 water control structures, and 60 pump stations. As an essential part of the agency's core mission, providing water supply for agriculture, urban uses, and natural resources needs and preventing saltwater intrusion are a routine part of operation and maintenance. For example, normal water supply operations, such as delivering water from Lake Okeechobee for supplemental irrigation requirements to over 614,000 acres of agriculture in the Everglades Agricultural Area and Caloosahatchee and St. Lucie watersheds, are also considered water supply-related activities. When water levels in Lake Okeechobee are low, temporary portable pumps can be installed at the southern end of the lake to provide supplemental water supply deliveries to urban and agriculture areas; Water Conservation Areas are operated and maintained to provide recharge to the Biscayne and surficial aquifers in the Lower East Coast (Palm Beach, Broward, and Miami-Dade counties); major coastal salinity control structures are maintained and operated to prevent saltwater intrusion into drinking water aquifers; water from the regional system is delivered through a network of canals to maintain water levels in the coastal canal network to prevent salt water intrusion and recharge public potable water wellfields; regional water is delivered through the South Dade canal system to be used for supplemental water supply for South Dade agriculture, recharging public drinking water wellfields, preventing saltwater intrusion, and reducing seepage out of Everglades National Park. Importantly, dedicated funds for such projects are critical to assist the SFWMD satisfy the authorized water supply purpose of the C&SF Project while meeting water supply needs of the natural system, as a preference to more costly alternative water supply sources.

The District's FY2013 operation and maintenance budget is approximately \$192 million, of which approximately 50 percent (more than \$96 million) is allocated to providing water supply to the region. When combined with the \$9.6 million allocated in FY2013 to water resource development projects as provided in **Table 5A-1**, this equates to approximately \$106 million that is planned be spent in FY2013 on ensuring water supply for the region. .

Table 5A-1. Fiscal Years 2013–2017 (FY2013–FY2017)
(October 1, 2012–September 30, 2017) implementation schedule
and projected costs for regional water resource development projects.

District-wide Water Resource Development Projects	Plan Implementation Costs (\$ in thousands)					Total
	FY2013	FY2014	FY2015	FY2016	FY2017	
MFL, Water Reservation Activities and Restricted Allocation Areas (DC01, DC04, DC09) Est. start date: 1995 Est. finish date: ongoing (refer to Chapter 3 of this volume)	658	667	660	660	660	3,305
Comprehensive Water Conservation Program (DD01, DD08) Est. start date: 1977 Est. finish date: ongoing	903	867	850	850	850	4,320
Alternative Water Supply (DE01) Est. start date: 1997 Est. finish date: ongoing	2,900	1,590	1,840	1,840	1,840	10,010
Drilling and Testing (DF01, DF05) Est. start date: 1990 Est. finish date: ongoing	1,449	1,197	1,180	1,180	1,180	6,186
Groundwater and Wetland Monitoring (DB01, DF01, DF06) Est. start date: 2002 Est. finish date: ongoing	1,517	1,380	1,380	1,380	1,380	7,037
Modeling (DE01) Est. start date: 1997 Est. finish date: ongoing	402	406	406	406	406	2,026
Sub-Total	7,829	6,107	6,316	6,316	6,316	32,884

Table 5A-1. Continued.

Regional Water Resource Development Projects	Plan Implementation Costs (\$ in thousands)					Total
	FY2013	FY2014	FY2015	FY2016	FY2017	
STOPR/Orange County Settlement Agreement (DA03) Est. finish date: 2014	475	10	-	-	-	485
Central Florida Water Initiative Project Facilitator (DA03) Est. finish date: 2014	211	188	-	-	-	399
Central Florida Collaborative Water Supply Initiative (Modeling) (DA03) Est. finish date: 2014	280	77	-	-	-	357
Kissimmee Chain of Lakes Long-Term Management Plan/KB Modeling & Operations Study (KB)¹ Est. start date: 2004 Est. finish date: 2014	835	354	-	-	-	1,189
Estimated Portion of C&SF Operation and Maintenance Budget Allocated to Water Supply²	96,000	96,000	96,000	96,000	96,000	480,000
Sub-Total	97,801	96,629	96,000	96,000	96,000	482,430
Total	105,630	102,736	102,316	102,316	102,316	515,314

MFL – Minimum Flows and Levels

KB – Kissimmee Basin Planning Area

STOPR – St. Cloud, Toho, Orange County, Polk, Reedy Creek Study

¹ FY2013 expenditures and future proposed expenditures are reflected in the Kissimmee Watershed Program

² Approximated based on 50 percent of the FY2013 operation and maintenance budget

COMPREHENSIVE WATER CONSERVATION PROGRAM

Approved in 2008 and developed in conjunction with stakeholders through the District's Water Resources Advisory Commission, the Comprehensive Water Conservation Program is a series of implementation strategies designed to create an enduring conservation ethic and permanent reduction in water use. The program is organized into regulatory, voluntary and incentive-based, and educational and marketing initiatives. Water savings achieved through conservation measures are the most cost-efficient way to reduce demands on current water supplies. One of the primary financial incentives identified in the Comprehensive Water Conservation Program is the Water Savings Incentive Program (WaterSIP). This program provides funding for the implementation of technology-based water conservation projects. Big Cypress Basin (BCB) has also provided funding for the Florida Department of Agriculture and Consumer Services Mobile Irrigation Lab (MIL) Program. The program promotes water conservation through water efficiency audits on irrigation systems. Implementation of the WaterSIP and BCB MIL programs are included in this report. For more detailed information about the Comprehensive Water Conservation Program, see the *Conservation (DD)* section of this chapter.

WATER MADE AVAILABLE

As shown in **Table 5A-2**, the District's Comprehensive Water Conservation Program is estimated to result in 1.15 mgd of measurable additional available water in FY2013 and 1.13 mgd of measurable additional available water each year for FY2014–FY2017. From FY2013–FY2017, the estimated measurable additional water made available through this program is projected to be 5.67 mgd. The funding level for WaterSIP was \$250,000 for the past two years (FY2012 and FY2013), respectively. At this time, \$750,000 is budgeted to the AWS and WaterSIP programs in FY2014, and \$1 million is estimated to be budgeted annually to those programs in FY2015–FY2017. Of those amounts, \$250,000 is earmarked for WaterSIP each year, though funding levels for the programs are determined annually during the budget development process.

Table 5A-2. Estimated additional water made available (million gallons per day, or mgd) during FY2013–FY2017 through the Comprehensive Water Conservation Program.

Conservation Program	FY2013	FY2014	FY2015	FY2016	FY2017	Total
WaterSIP	0.15 ¹	0.13 ²	0.13 ²	0.13 ²	0.13 ²	0.67
Mobile Irrigation Labs	1.00	1.00	1.00	1.00	1.00	5.0
Total (mgd)	1.15	1.13	1.13	1.13	1.13	5.67

¹ Based on projected savings of FY2013 funded projects

² Based on estimated water savings identified in FY2012 and FY2013 as the funding level in both years was \$250,000, which is the anticipated funding level for FY2014–FY2017

FUNDING

The SFWMD has allocated \$106 million in FY2013 for water resource development projects, which includes 50 percent of operation and maintenance that is estimated to provide water supply. For FY2013–FY2017, the SFWMD anticipates spending \$515.3 million on water resource development projects (**Table 5A-1**). These allocations include \$903K for the Comprehensive Water Conservation Program during FY2013 and \$4.3 million from FY2013–FY2017. It should be noted that funding for environmental projects, capital improvement projects in the Big Cypress Basin, Aquifer Storage and Recovery and projects not identified in Chapter 6 of the 2005–2006 LEC and KB Plan updates and Chapter 5 of the 2011 UEC and 2012 LWC Water Supply Plan updates are not included in this report. Funding described in this report also does not include projects associated with the Comprehensive Everglades Restoration Plan (CERP). For the first time, this report includes full-time employee (FTE) costs including salaries, retirement contributions, taxes, and insurance for each element that received funding in FY2013. To provide a more comprehensive accounting of District-related expenditures for water resource development projects, estimated FTE costs are also included in each element for the projected budgets from FY2014–FY2017.

The District's Water Supply Program is currently divided into seven elements in the District's budget of which five were allocated funding in FY2013. The five Water Supply Program elements that are funded in the FY2013 budget are as follows:

- **Planning (DA)** [Central Florida Coordination (DA03)]
- **Implementation Projects (DB)** [Implementation (DB01)]
- **Conservation (DD)** [Conservation (DD01), WaterSIP (DD01) and Outreach, Education, and Marketing (DD08)]
- **Alternative Water Supply (DE)** [Alternative Water Supply (DE01) and BCB Alternative Water Supply (DE02)]
- **Resource Evaluation (DF)** [Hydrogeologic Data Gathering & Analysis (DF01), Inter-District Evaluation (DF05), and South Miami-Dade Hydrologic Analysis (DF06)]

To align 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. **Table 5A-3** provides a list of water resource development projects from the regional water supply plans, and **Table 5A-4** shows the water resource development projects funded in FY2013 and the related chapter sections with more detail. It should be noted that **Table 5A-4** does not include FTE costs, as the District's budget presents FTE costs by functional area, not by project.

Table 5A-3. Crosswalk for water supply plans, water resource development projects, and *2013 South Florida Environmental Report (SFER) – Volume II*.
[Note: All section references are for this chapter unless noted otherwise.]

Water Supply Plan	Recommended Projects	Status	SFER Section	Coverage Area
2011 UEC	Floridan Aquifer System Model & Database Development	Ongoing	Modeling (Completed peer review and recalibrated in FY2011)	District-wide
2011 UEC	Saltwater Intrusion Monitoring	Ongoing	Monitoring	District-wide
2011 UEC	MFL Activities	Ongoing	MFL and Reservation Activities	District-wide
2011 UEC	Comprehensive Water Conservation Program	Ongoing	Water Conservation Program	District-wide
2011 UEC	Water Savings Incentive Program	Ongoing	Water Conservation Program	District-wide
2011 UEC	Alternative Water Supply Program	Ongoing	Alternative Water Supply (see Volume II, Chapter 5B)	District-wide
2011 UEC	Floridan Aquifer Exploratory Well Program	Ongoing	Drilling and Testing Program	District-wide
2006 KB	Floridan Aquifer Exploratory Well Program	Ongoing	Drilling and Testing Program	District-wide
2006 KB	Surficial Aquifer Well Pairing Network	On Hold	Groundwater and Wetlands Monitoring (not funded in FY2012 and FY2013)	Regional
2006 KB	Wetlands Monitoring Network	Complete	Groundwater and Wetlands Monitoring	District-wide
2006 KB	USGS Water Quality Module	Complete	Groundwater and ET Assessments	District-wide
2006 KB	ET Measurement Project	Complete	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	Alternative Water Supply Program	Ongoing	Alternative Water Supply (see Volume II, Chapter 5B)	District-wide
2006 KB	Mobile Irrigation Labs	On Hold	Water Conservation Program (not funded in FY2013)	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	Ongoing	Modeling (continuing through FY2013)	Basin-specific

Water Supply Plan	Recommended Projects	Status	SFER Section	Coverage Area
2006 KB	Upper Kissimmee Basin Transient Groundwater Model	Ongoing	Modeling [aka Central Florida Water Initiative (CFWI)] PH1 to be completed in FY2013	Basin-specific
2006 KB	Floridan Aquifer System Groundwater Model and Database Development	Ongoing	Modeling (funded through CFWI in FY2013)	Basin-specific
2012 LWC	Surficial & Intermediate Aquifer System Model & Database Development	Ongoing	Modeling (incorporating Intermediate Aquifer System & peer review comments in FY2014)	Basin-specific
2012 LWC	Florida Aquifer System Model & Database Development	Ongoing	Modeling (peer reviewed and calibrated FY2011)	District-wide
2012 LWC	Saltwater Intrusion Monitoring	Ongoing	Monitoring	District-wide
2012 LWC	MFL Activities	Ongoing	MFL and Reservation Activities	District-wide
2012 LWC	Reservation Activities	Complete	MFL and Reservation Activities (Water Reservation for the Picayune Strand/ Fakahatchee Estuary, effective July 2, 2009)	Basin-specific
2012 LWC	Reservation Activities	Ongoing	MFL and Reservation Activities (CERP Water Reservation Rule FY2013) for the Caloosahatchee River (C-43) West Basin Storage Reservoir	District-wide
2012 LWC	Comprehensive Water Conservation Program	Ongoing	Water Conservation Program	District-wide
2012 LWC	Water Savings Incentive Program	Ongoing	Water Conservation Program	District-wide
2012 LWC	Alternative Water Supply Program	Ongoing	Alternative Water Supply (see Volume II, Chapter 5B)	District-wide
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	Complete	Groundwater and Wetlands Monitoring	District-wide
2006 LEC	USGS Water Quality Module	Complete	Groundwater and ET Assessments	District-wide
2006 LEC	ET Measurement Project	Complete	Groundwater and ET Assessments	District-wide

Water Supply Plan	Recommended Projects	Status	SFER Section	Coverage Area
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	Reservation Activities	Ongoing	MFL and Reservation Activities	District-wide
2006 LEC	MFL Activities	Complete	MFL and Reservation Activities (refer to Chapter 3 of this volume)	District-wide
2006 LEC	Florida Aquifer System Model and Database Development	Ongoing	Modeling (incorporating peer review comments - functioning version by 2013)	District-wide
2006 LEC	Alternative Water Supply Program	Ongoing	Alternative Water Supply (see Volume II, Chapter 5B)	District-wide
2006 LEC	Mobile Irrigation Labs	On Hold	Water Conservation Program (not funded in FY2013)	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 of Advanced Treatment Technologies	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 MFLs	Ongoing	Modeling (Biscayne Bay MFL: USACE preparing for RECOVER)	District-wide

USACE – Army Corp of Engineers

ET – Evapotranspiration

KB – Kissimmee Basin

LEC – Lower East Coast

LWC – Lower West Coast

MFL – Minimum Flows and Levels

RECOVER – Restoration Coordination and Verification

UEC – Upper East Coast

USGS – U.S. Geological Survey

Table 5A-4. Crosswalk for FY2013 budget, water resource development projects, and sections of this chapter.

Budget Line Item	Element (Functional Area)	Program Element	Sub-program Element	Amount ¹	Project	Chapter Section
20369	DA03	Planning	Planning	\$200,000	Central Florida Water Initiative Modeling	Regional Water Resource Development Project
21095	DA03	Implementation	Implementation	\$465,000	STOPR/Orange County Settlement Agreement	Regional Water Resource Development Project
20368	DA03	Implementation	Implementation	\$25,000	Central Florida Water Initiative Project Facilitator	Regional Water Resource Development Project
20372	DE01	Alternative Water Supply	Alternative Water Supply	\$1,600,000	Alternative Water Supply	Alternative Water Supply
21223	DE02	Alternative Water Supply-BCB	Alternative Water Supply	\$1,208,000	Alternative Water Supply	Alternative Water Supply
20373	DD01	Conservation	WaterSIP	\$250,000	Water Savings Incentive Program (WaterSIP)	Comprehensive Water Conservation
19498	DD01	Conservation	MIL	\$55,000	Mobile Irrigation Lab – BCB	Comprehensive Water Conservation
21080	DD01	Conservation	Conservation	\$50,000	Florida Automated Weather Network (FAWN)	Comprehensive Water Conservation
19504	DD08	Conservation	Conservation	\$5,000	Water Symposium	Comprehensive Water Conservation
21590	DD08	Conservation	Conservation	\$15,000	Great Water Odyssey	Comprehensive Water Conservation
19223	DF01	Resource Evaluation	Hydrogeology	\$3,000	Conferences/Fairs/Exhibits	Groundwater and Wetland Monitoring
20728	DB01	Resource Evaluation	Hydrogeology	\$3,000	Conferences/Fairs/Exhibits	Groundwater and Wetland Monitoring
19450	DF01	Resource Evaluation	Hydrogeology	\$313,002	FTL USGS GW Core Network Monitoring	Groundwater and Wetland Monitoring

Budget Line Item	Element (Functional Area)	Program Element	Sub-program Element	Amount ¹	Project	Chapter Section
19451	DF01	Resource Evaluation	Hydrogeology	\$95,380	ORL USGS GW Core Network Monitoring	Groundwater and Wetland Monitoring
21663	DF05	Resource Evaluation	Hydrogeology	\$261,048	Lower Floridan Aquifer Exploratory Well Site E (CFWI & LFA Investigation, Kissimmee)	Drilling and Testing
17849 ²	DF01 (s/b DF02)	Resource Evaluation	Hydrogeology	\$75,000	Groundwater Model Peer Reviews – LWC & LKB	Modeling
21083 ²	DF06	Resource Evaluation	Hydrogeology	\$150,000	3-D Hydrogeology Model	Groundwater and Wetland Monitoring
18089	DF01	Resource Evaluation	Hydrogeology	\$50,000	Emergency Wellhead Repairs	Groundwater and Wetland Monitoring
18090	DF01	Resource Evaluation	Hydrogeology	\$25,000	Parts & Supplies – Field Equipment	Groundwater and Wetland Monitoring
18091	DF01	Resource Evaluation	Hydrogeology	\$20,000	Geophysical Logging	Drilling and Testing
18092	DF01	Resource Evaluation	Hydrogeology	\$15,000	Hydrogeologic Database Improvements	Groundwater and Wetland Monitoring
18093	DF01	Resource Evaluation	Hydrogeology	\$19,800	Monthly Groundwater Level Measurements	Groundwater and Wetland Monitoring
19521	DF01	Resource Evaluation	Hydrogeology	\$34,090	Groundwater RTU Maintenance/Repair	Groundwater and Wetland Monitoring
19263	DF01	Resource Evaluation	Hydrogeology	\$50,000	Technical Review – FPL	Groundwater and Wetland Monitoring

¹ Does not include FTE costs

² Project funded for first time

BCB – Big Cypress Basin
 CFWI – Central Florida Water Initiative
 FTL – Fort Lauderdale
 FPL – Florida Power & Light
 GW – Groundwater
 KB – Kissimmee Basin
 LFA – Lower Floridan Aquifer

LKB – Lower Kissimmee Basin
 LWC – Lower West Coast
 MIL – Mobile Irrigation Laboratory
 ORL – Orlando
 RTU – Remote Terminal Units
 STOPR - St. Cloud, Toho, Orange County, Polk, Reedy Creek Study
 USGS – U.S. Geological Survey

DISTRICT-WIDE WATER RESOURCE DEVELOPMENT PROJECTS (DB, DC, DD, DE, DF)

This section provides project descriptions for the District-wide water resource development efforts funded through the District's Water Supply Program by budget element for FY2013. Additional information, including the implementing entities, FY2013 activities proposed, estimated completion dates, and funding sources, is presented in each project summary.

RULEMAKING (DC)

Minimum Flows and Levels, Water Reservation Activities and Restricted Allocation Areas

Chapter 3 of this volume summarizes current rules in effect as of 2012 and the priority water bodies list and schedule for developing new rules planned from 2013 through 2017.

Proposed expenditures:

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	658 ¹	667 ¹	660 ¹	660 ¹	660 ¹	3,305

¹ Includes FTE costs only

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 as stated in the District's 2008 Comprehensive Water Conservation Program. Programs have been implemented during FY2012 in all three initiative areas—regulatory, voluntary and incentive-based, and educational and marketing—with water saving benefits expected in the future. The program is a decade-long, comprehensive demand management effort aimed at reducing water use to the lowest level feasible and creating an enduring conservation ethic. From a regulatory perspective, an emphasis has been placed on water conservation requirements in the Consumptive Use Permitting process that require municipalities to adopt and enforce effective conservation measures. From local landscape ordinances to year-round irrigation conservation measures, these regulatory measures will advance water use efficiency, promote water conservation as the least-cost source of new water, and result in quantifiable water savings. Voluntary and incentive-based initiatives, including financial assistance, technical assistance, and recognition programs, will supplement regulations and build goodwill, leverage investments, bring wider environmental benefits, and improve the quality of life in the District's communities. Education, outreach, and social marketing will complement and sustain these efforts by instilling a lasting conservation ethic in South Florida businesses and communities. Further information is available at www.sfwmd.gov/watersupply, under the *Water Conservation* link.

Through WaterSIP, the SFWMD provides reimbursement up to 50 percent or up to \$50,000 to water providers and large users (i.e., cities, utilities, industrial groups, schools, hospitals, and homeowners/condominium associations) for installing water-saving hardware and technologies. These technologies include high efficiency plumbing fixtures, advanced irrigation controllers, automatic line flushing devices, and other hardware.

In addition to the District's Comprehensive Water Conservation Program, the statewide Conserve Florida Water Clearinghouse provides information and tools to improve water conservation through the development of utility-specific, goal-based water conservation programs. Further information is available at www.conservefloridawater.org. The Conserve Florida Water Clearinghouse is funded by the Florida Department of Environmental Protection (FDEP) and the state's largest water management districts. The clearinghouse is supported through the University of Florida (UF) and serves as a centralized information repository. It is equipped with tools to assist the efforts of utilities and other stakeholders to achieve their water conservation goals. The University of Florida also operates the Florida Automated Weather Network (FAWN), a statewide research and data program that provides accurate and timely weather data to a wide variety of users.

Implementing entity:

- WaterSIP: SFWMD
- MIL Program: BCB, Florida Department of Agriculture and Consumer Services (FDACS), and the Soil and Water Conservation Districts
- Conserve Florida Water Clearinghouse: SFWMD, FDEP, UF, and other water management districts
- FAWN: SFWMD, UF, FDACS, other water management districts, and other entities
- Florida Gulf Coast University (FGCU) Wings of Hope: SFWMD and BCB through FGCU
- Orange County Conservation Study: SFWMD, Orange County Utilities, St. John's River Water Management District (SJRWMD), and the Water Research Foundation
- The Great Water Odyssey: SFWMD
- Big Cypress Basin Conservation Outreach: SFWMD and BCB Service Center
- Water Symposium of Florida, Inc.: SFWMD and BCB Service Center
- Corkscrew Swamp Sanctuary/Naples Bay Restoration: SFWMD

Estimate of quantity of water saved by project:

- **WaterSIP.** During FY2003–FY2012, 151 funded projects cumulatively saved 7.16 mgd of water and, in FY2012, 0.12 mgd of water was saved. For FY2013, nine funded projects are anticipated to save 0.15 mgd of water (see **Table 5A-2**).
- **MIL Program.** The MIL Program was created in 1989. An estimated 4,196 million gallons (mg) of water have been accounted for as actual water savings between FY2003 and FY2012, or 1.28 mgd. In FY2012, approximately 365 mg of water was saved (1.0 mgd), and for FY2013, 1.0 mgd is estimated to be saved. The quantity of water anticipated to be saved during FY2013–FY2017 is 1,825 mg (5.0 mgd).
- **Comprehensive Water Conservation Program.** This program is organized into three initiatives: regulatory, voluntary and incentive-based, and educational and marketing. Strategies have been implemented in all three categories during FY2012, with water saving benefits expected in the future.
- **FAWN.** UF calculates all estimates of water savings on a statewide basis.

Completed implementation activities:

- **WaterSIP.** Funded 151 projects District-wide between FY2003 and FY2012.
- **MIL Program.** Six MILs are operating within the District; four agricultural and two urban. The four agricultural labs are located in Miami-Dade, Palm Beach, Broward, and Martin/St.

Lucie counties and the two urban MILs are located in Broward County and the BCB Service Area (District-funded).

- **FAWN.** Funded from FY2004–FY2012; activities included maintenance of weather stations, development of a mobile application, and continued enhancement of the FAWN.
- **Orange County Conservation Study.** Purchase and installation of equipment for residential properties was complete. Irrigation data has been collected to evaluate the water conservation potential of soil moisture sensors and evapotranspiration (ET) irrigation controllers on landscapes in Orange County compared to typical irrigation control methods. In FY2012, 167 residential participants and one commercial property in each of the residential clusters have been selected for the study. UF has completed surveys and site evaluations for these properties, and has determined that all commercial properties will have ET controllers installed on their irrigation systems.
- **The Great Water Odyssey (FY2012 Wal-Mart Online Teacher Training Program).** This web-based, interactive online water resource teacher training was provided to public elementary school teachers, home schoolers, private school elementary teachers and others teaching within the SFWMD. The curriculum was offered free of charge to teachers located in St. Lucie, Martin, Palm Beach, Broward, Miami-Dade, Monroe, Collier, Lee, Charlotte, Osceola, Orange, Highlands, Polk, Glades, Hendry, and Okeechobee counties. The training reached 168 teachers which resulted in the curriculum being taught to more than 3,900 third, fourth, and fifth grade students.
- **FGCU Wings of Hope – Big Cypress Basin.** FY2012 budgeted funds assisted in the support of the Florida Panther Posse and Corkscrew Regional Ecosystem Watershed (CREW) Hiking Adventure Environmental Education Program through Florida Gulf Coast University (FGCU). During the 2011/2012 school year, 450 FGCU environmental humanities students presented 95 environmental programs under the FGCU “Wings of Hope” Program to more than 4,000 elementary students. During fall 2011, students were educated about South Florida’s wildlife, habitats, water conservation, Florida panther and wildlife research, conservation concerns and future environmental careers. During the spring semester, students returned to participate in a hiking adventure at CREW Lands.
- **Big Cypress Basin Conservation Outreach.** During FY2012, the BCB solicited grant proposals from teachers to educate students about water conservation. Funds were provided through the Collier Education Foundation’s “Connect with a Classroom.” This is an online program that provides opportunities for teachers and community members to improve the quality of instruction in local schools. The foundation accepted a proposal, but the applicant could not complete the project. No funds were dispersed and the monies were returned to the general fund.
- **Water Symposium of Florida, Inc. – Big Cypress Basin.** During 2012, the Water Symposium of Florida, Inc. (WSF) created a demonstration project in partnership with a local homeowner’s association (HOA). The goal of the project was to educate residents to improve water quality in the HOA’s storm water pond by using Florida Friendly Landscaping (FFL) around the lake and planting a floating island. Monthly water quality tests were performed to track improvement in the lake’s water quality. A workshop was also held for 70 HOA and condominium associations on how to save water through FFL utilizing the local MIL to assess their irrigation systems. In addition, participants were taught the steps they can take to improve water quality in their stormwater ponds which ultimately drains into Naples Bay.

Activities proposed for FY2013:

- **Conserve Florida Water Clearinghouse.** This program, which started receiving funding in FY2004, 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. This work is part of a multiyear, \$150,000 contract and was included in the FY2010 budget and is expected to be completed in FY2013.
- **WaterSIP.** Nine projects will receive funding in FY2013 (DD01, \$250,000).
- **MIL Program (BCB).** One urban MIL in the BCB will continue to be funded (DD01, \$55,000)
- **FAWN.** Continued enhancement of the FAWN will include site field tests, a half-day irrigation school, incorporating additional sources of data within the District from existing data or a new site installation, mobile device and other management tool enhancements, and continued development of the cold protection scheduling toolkit (DD01, \$50,000).
- **Orange County Conservation Study.** Irrigation data will continue to be collected during FY2013 to evaluate the water conservation potential of soil moisture sensors and ET irrigation controllers on landscapes in Orange County compared to typical irrigation control methods. A final report on equipment installations and status will be submitted along with quarterly financial reports. The contract was extended until February 15, 2015, to allow more time to collect data during the study period. The District will not provide additional funds during FY2013.
- **The Great Water Odyssey (FY2013 Wal-Mart Online Teacher Training Program).** The web-based, interactive online water resource teacher training will be available to public elementary school teachers, home schoolers, private school elementary teachers and others teaching within the SFWMD. The program is planned to reach from 75-125 educators this year (DD08, \$15,000);
- **Water Symposium of Florida, Inc. – Big Cypress Basin (WSF).** Service center staff will partner with WSF to hold outreach seminars on water conservation and water quality for homeowners associations, civic groups and businesses. These seminars are among the BCB's and District's ongoing efforts to create a year-round water conservation ethic that can help protect the area's water supply from South Florida's weather extremes. In addition, the water conservation aspect supports the basin's efforts with the restoration of Naples Bay (see Naples Bay Restoration project summary below). WSF will continue their work with FFL and stormwater pond improvements by creating another demonstration project in FY2013 and will highlight their projects and findings at a workshop for homeowners (DD08, \$5,000).

Estimated completion date: Ongoing.

Funding sources:

- WaterSIP: SFWMD, utilities, homeowners associations, and other project partners
- MIL Program: SFWMD, BCB, and FDACS
- FAWN: SFWMD, UF, FDACS, and other water management districts
- Conserve Florida Water Clearinghouse: SFWMD, FDEP, UF, and other water management districts
- Orange County Conservation Study: SFWMD, Orange County Utilities, and other water management districts
- The Great Water Odyssey: SFWMD, Wal-Mart
- Water Symposium of Florida, Inc.: SFWMD

Total spent to date: FY2003–FY2012; \$10,797,403 (includes the Comprehensive Conservation Program, \$3,728,962; WaterSIP, \$2,851,668; and MIL Program, \$4,216,773)

Total project cost: Ongoing

Proposed expenditures: Comprehensive Water Conservation Program including WaterSIP, FAWN, FGCU Wings of Hope, and BCB Outreach

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	903 ¹	867 ²	850 ³	850 ³	850 ³	4,320

¹ Includes \$375K contractual costs and \$528K FTEs

² Includes \$325K contractual costs and \$542K FTEs

³ Includes \$325K contractual costs and \$525K FTEs

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 373.707(7), F.S. (see Chapter 5B of this volume).

Proposed expenditures:

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	2,900 ¹	1,590 ²	1,840 ³	1,840 ³	1,840 ³	10,010

¹ Includes \$1.2M for BCB and \$94K FTEs

² Includes \$1M for BCB and \$90K FTEs

³ Includes \$1M for BCB and \$90K FTEs

RESOURCE EVALUATION (DF)

Drilling and Testing Program (DF01)

The District's knowledge of South Florida hydrogeology is enhanced whenever exploratory/test wells are constructed, as occurred in FY2012 and proposed in FY2013. Such increased understanding has improved the accuracy of groundwater modeling and decision making regarding the approval of consumptive use permits. Full documentation of each well site (including location, well construction details, geophysical logging, and aquifer test data) is provided in SFWMD technical publications, and this information is included in the District's hydrometeorologic database, DBHYDRO (www.sfwmd.gov/dbhydro).

Implementing entity: SFWMD

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

Completed implementation activities:

- **Aquifer Performance Test (APT) Support.** Completed final documentation of the Hydrogeologic Investigation of the Floridan Aquifer System, R.D. Keene Site, Orange County, Florida.
- **Geophysical Log Analysis.** Caliper and gamma logging was conducted at 32 wells in the Kissimmee and Upper East Coast planning areas to identify screened intervals from wells where this information does not exist in the DBHYDRO database.

- **Lower Floridan Aquifer Evaluation in the Kissimmee Basin.** In FY2012, well construction and testing activities were completed at Site B and summarized in a draft document. In addition, well construction and testing activities were initiated at Site C, and water quality (isotope) evaluation was conducted at Site E.
- **Site B:** The third well at Site B (POF-29) was constructed in three stages as a production well for discrete APT of the uppermost Floridan aquifer system (FAS) producing zone (stage 1) and first (stage 2) and second (stage 3) producing zones of the Lower Floridan aquifer.
- **Site C:** Well drilling was initiated at the first well (OSF-109) to an approximate depth of 1,270 feet below land surface (ft bls) for use as a test production well for an APT of the Avon Park permeable zone (APPZ) of the FAS. The well was then drilled to an approximate depth of 2,000 ft bls, and geophysical logging, packer testing, and water quality sampling with depth were conducted.
- **Site D (proposed):** Located just east of the SFWMD/SJRWMD border in Indian River County where few wells have penetrated lower portions of the FAS, an Upper Floridan Aquifer (UFA) well would allow greater data collection for the available funding. Design was completed in FY2012, but the proposed exploratory well was not constructed as funding was not available.
- **Site E:** Located along the border between the SFWMD and Southwest Florida Water Management District (SWFWMD), Site E represents the recharge area of the FAS. The SFWMD conducted water quality sampling and analysis of geochemical tracers and isotopes from 21 new and existing FAS wells in and transecting out from Site E. The SFWMD also participated in a cooperative effort with the SWFWMD, contracting with the USGS to provide specialty geophysical logging data at a SWFWMD lower Floridan site in Site E.

Activities proposed for FY2013:

- **Lower Floridan Aquifer Evaluation in the Kissimmee Basin.** In FY2013, budgetary constraints have precluded well construction and testing work at Sites A and D. Site C wells will be completed in FY2013; water quality (isotope) evaluation will be conducted at Site E.
 - **Site C:** The second well (OSF-105R) will first be used to conduct an APT on the APPZ, followed by drilling to 1,700 ft bls and completing it as a dual-zone monitor well of the APPZ and LF1, followed by an APT of LF1.
 - **Site E:** The SFWMD plans to conduct water quality sampling and analysis of geochemical tracers and isotopes from 32 new and existing FAS wells in and transecting out from Site E, and conduct preliminary interpretation of the data (DF05, \$261,048).
- **Geophysical Logging.** Conduct geophysical logging on selected wells and boreholes throughout the District (DF01; \$20,000).
- **Aquifer Performance Test Support.** District staff time will be used to document and analyze one full-scale APT at the Nature Conservancy site, located along the Polk/Osceola County border (DF01; staff time only).

Estimated completion date: Ongoing

Funding source: SFWMD

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

Total spent to date: FY2000–FY2012 – \$15,676,314

Total project cost: Ongoing

Proposed expenditures:

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	1,449 ¹	1,197 ²	1,180 ³	1,180 ³	1,180 ³	6,186

¹ Includes \$281K contractual costs and \$1,168K FTEs

² Includes \$20K contractual costs and \$1,177 FTEs

³ Includes \$20K contractual costs and \$1,160 FTEs

Groundwater and Wetland Monitoring (DF01)

Water level and water quality monitoring at existing wells provide critical information to aid the SFWMD in the development of groundwater models, assessing groundwater conditions, and management of these resources. The District maintains extensive groundwater monitoring networks and partners with the USGS to provide additional support and funding for ongoing monitoring. Data are archived in the District's DBHYDRO database. Data from sites monitored by the USGS are archived in the USGS database and published annually.

Implementing entity: SFWMD and USGS

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

Completed implementation activities:

- **Fort Lauderdale Office of the Florida Water Science Center (USGS) – Groundwater Core Network.** Collected groundwater level data in the surficial and intermediate aquifer systems (in the LWC, LEC, and UEC) and continued recorder maintenance. This is an ongoing effort and all data are archived in the USGS database.
- **Orlando Office of the Florida Water Science Center (USGS) – Groundwater Monitoring:** Continued ongoing water level monitoring in the surficial, intermediate, and Floridan aquifer systems; Kissimmee Basin Floridan water quality monitoring, data analysis, data validation, and archiving data in the USGS database.
- **Groundwater Level Monitoring.** Continued ongoing monitoring of groundwater levels in all planning areas of the District within the surficial, intermediate, and Floridan aquifer systems and performed recorder maintenance at all locations. Data were collected, analyzed, quality-controlled, and archived in the District's DBHYDRO database.
- **Regional Floridan Groundwater Monitoring.** Continued ongoing water quality monitoring at 20 of 60 Floridan aquifer well sites (all wells sampled and analyzed once every three years) throughout the SFWMD including data collection, data analysis and validation, and archiving data in the District's DBHYDRO database.
- **Hydrogeologic Database Improvements.** Uploaded backlogged data and conducted miscellaneous database corrections.
- **Monthly Groundwater Level Measurements.** Continued ongoing water level monitoring at select sites, including data collection, data analysis and validation for the Hydrologic Online Well Data Inventory (HOWDI) wells, and archiving data in the District's DBHYDRO database.
- **Floridan Aquifer Well Maintenance.** Continued ongoing water level monitoring and maintenance at select Floridan aquifer well sites, including data collection, data analysis and validation, archiving data in the District's DBHYDRO database, and data logger maintenance.

- **Emergency Wellhead Repairs.** Wellhead repairs were conducted on District-owned monitoring wells that are under artesian pressure and were in danger of flowing unexpectedly onto land surface. As an ongoing effort, sites were rehabilitated according to a prioritized list.
- **Parts and Supplies – Field Equipment.** Funds were expended for the maintenance of existing data loggers, sondes, pumps, and gauges.
- **Isotope Data Interpretation.** Funds were expended to obtain expert interpretations of isotope water quality data for age-dating and characterization of fluid movement into groundwater resources in south Miami-Dade County.

Activities proposed for FY2013:

- **Fort Lauderdale Office of the Florida Water Science Center (USGS) – Groundwater Core Network.** Continue ongoing water-level monitoring in the surficial, intermediate, and Floridan aquifer systems; recorder maintenance, and archiving data in the USGS database (DF01; \$313,002).
- **Orlando Office of the Florida Water Science Center (USGS) – Groundwater Monitoring.** Continue ongoing water level monitoring in the surficial, intermediate, and Floridan aquifer systems; Kissimmee Basin Floridan water quality monitoring, data analysis, data validation, and archiving data in the USGS database (DF01; \$95,380).
- **Groundwater Level Monitoring.** Continue ongoing monitoring of groundwater levels in all planning areas of the District within the surficial, intermediate, and Floridan aquifer systems and perform recorder maintenance at all locations. Data will be collected, analyzed, quality-controlled, and archived in the District’s DBHYDRO database (DF01; staff resources only).
- **Regional Floridan Groundwater Monitoring.** Continue ongoing water quality monitoring at the next 20 of 60 Floridan aquifer well sites throughout the SFWMD, including data collection, data analysis and validation, and archiving data in the District’s DBHYDRO database (DF01; staff resources only);
- **Hydrogeologic Database Improvements.** Continue uploading of backlogged data and conduct miscellaneous database corrections (DF01; \$15,000).
- **Monthly Groundwater Level Measurements.** Continue ongoing water level monitoring at select sites, including data collection, data analysis and validation for the Hydrologic Online Well Data Inventory (HOWDI) wells, and archiving data in the District’s DBHYDRO database (DF01; \$19,800).
- **Floridan Aquifer Well Maintenance.** Continue ongoing water level monitoring and maintenance at select Floridan aquifer well sites, including data collection, data analysis and validation, archiving data in the District’s DBHYDRO database, and data logger maintenance (DF01; \$34,090).
- **Emergency Wellhead Repairs.** These funds are provided for emergency wellhead repairs in case artesian wells begin flowing unexpectedly onto land surface. If no emergency occurs, then funds are expended to repair wellheads according to a prioritized list (DF01; \$50,000).
- **Parts and Supplies – Field Equipment.** These funds are allocated for the maintenance of existing data loggers, sondes, pumps, and gauges (DF01; \$25,000).
- **Isotope Data Interpretation.** These funds are allocated to retain experts to interpret isotope water quality data for age-dating and characterization of fluid movement into groundwater resources (DF01; \$50,000).
- **3D Hydrologic Model.** Development and application of a three-dimensional transient density-dependent groundwater model in south Miami-Dade County to evaluate scenarios of future conditions and permitting decisions (DF06; \$150,000).

Estimated completion date: These ongoing projects, which monitor water levels and stages, are 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 spent to date: FY2000–FY2012 – \$8,654,422

Proposed expenditures:

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	1,517 ¹	1,380 ²	1,380 ²	1,380 ²	1,380 ²	7,037

¹ Includes \$758K contractual costs and \$759K FTEs

² Includes \$608K contractual costs and \$772K FTEs

Modeling (DF02)

The Water Supply Program is currently undertaking several modeling efforts that are described below. In FY2013, the only contractual funds designated for these efforts is \$75,000 earmarked for a peer review of a revised Lower West Coast Surficial/Intermediate Aquifer System Model; all other modeling work is expected to be performed by the SFWMD.

Proposed expenditures:

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	402 ¹	406 ²	406 ²	406 ²	406 ²	2,026

¹ Includes \$75K contractual costs and \$327K FTEs

² Includes \$75K contractual costs and \$331K FTEs

Lower West Coast Floridan Aquifer Model

During FY2008, the District retained three independent groundwater modeling experts to conduct a technical peer review of its draft Lower West Coast Floridan Aquifer Model, which used 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 extended into FY2012. The model is now available to be used for predictive scenarios in support of future water supply planning efforts.

Implementing entity: SFWMD

Estimate of quantity of water produced by project: Project is not designed to make water available, but to evaluate potential use of the Floridan aquifer and its impacts.

Activities completed in FY2012: Finalized the documentation of the transient calibration effort completed in FY2011, published a technical manuscript summarizing the model, and placed the completed model in the District's Library of Models for future application.

Activities proposed for FY2013: None

Estimated completion date: FY2012

Funding source: SFWMD**Cost per thousand gallons:** Project is not designed to make water available**Total spent to date:** FY2006 – \$170,000 [Florida Atlantic University (FAU)]; FY2007 – \$150,000 (FAU); FY2008 – \$200,000 [full-time employees (FTEs) and includes \$80,000 for peer reviewers]; FY2009 – \$40,000 (FTEs); FY2010 – \$60,000 (FTEs and consultants); FY2011 – \$245,000 (FTEs and consultants); FY2012 – \$0**Total project cost:** To be determined (TBD)**East Coast Floridan Aquifer Model, Incorporation of Peer-Review Comments**

During FY2011, the District retained three independent groundwater modeling experts to conduct a technical peer review of its Phase II East Coast Floridan Aquifer Model, which used the USGS's SEAWAT-2005 computer 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 report was completed in June 2011 and the District began incorporating the panel's recommendations in FY2012, which will extend into FY2013.

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 and their impacts.**Activities completed in FY2012:** Compiled data (1980–present) to facilitate steady-state model development per peer review recommendations. Developed first draft steady-state model and refined calibration.**Activities proposed for FY2013:** Finalize steady-state model and develop transient and density-dependent versions of model**Estimated completion date:** FY2013**Funding source:** SFWMD**Cost per thousand gallons:** Project is not designed to make water available**Total spent to date:** FY2006 – \$150,000 [HydroGeoLogic, Inc.]; FY2007 – \$110,000 (Golder Associates, Inc.); FY2008 – \$10,000 [Golder Associates, Inc.]; FY2011 – \$85,000 [peer-review panelists]; FY2012 – \$150,000 (FTEs and consultants)**Total project cost:** TBD**Lower East Coast Subregional Model, Model Calibration**

The Lower East Coast Subregional (LECsR) Model was developed by the SFWMD using the USGS's MODFLOW code (McDonald and Harbaugh, 1988¹). This model simulates groundwater flow in the SFWMD's Lower East Coast region and is used for planning and regulatory purposes. A peer review was conducted on the LECsR Model, and the peer-review report was completed in June 2006. Subsequently, the model was updated to reflect most primary peer-review comments.

¹ McDonald, M.G. and A.W. Harbaugh. 1988. A Modular Three-Dimensional Finite-Difference Groundwater Flow Model: Techniques of Water-Resources Investigations of the United States Geological Survey, Book 6, Chapter A1, 586 p.

The tool and variations of the tool have been used to evaluate specific consumptive use permits, select CERP projects, and water resource development projects.

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 and their impacts

Activities completed for FY2012: Due to other project priorities, no work was completed on the LECsR Model in FY2012

Activities proposed for FY2013: Address remaining peer-review comments (which primarily address canal flows in northern Broward County) and combine all completed work into a single tool

Estimated completion date: FY2013

Funding source: SFWMD

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

Total spent to date: FY2006 – \$300,000 (FTEs and peer review panel); FY2007 – \$150,000 (FTEs); FY2008 – \$150,000 (FTEs); FY2011 – \$115,000 (FTEs); FY2012 – \$0

Total project cost: TBD

Lower West Coast Surficial/Intermediate Aquifer Systems Model, Model Development

During FY2006, the District retained a consultant to develop a groundwater flow model using the USGS MODFLOW computer code of the surficial aquifer system in the SFWMD Lower West Coast planning region. The Lower West Coast Surficial/Intermediate Aquifer Systems Model (LWCSAS) was completed in 2006 by Marco Engineering but has been used sparingly to evaluate specific consumptive use permits but has not been used for planning purposes. The SFWMD intends to (1) update the model with improved hydrostratigraphic interpretation, (2) add additional wells and the associated longer period of record data sets, and (3) add the IAS to the model. If sufficient staff resources become available, then the updated model will be documented and peer review will be initiated. (DF01, \$75,000)

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 and their impacts

Activities completed in FY2012: None

Activities proposed for FY2013: Compile existing water and hydrogeologic data and develop calibrated model

Estimated completion date: FY2014

Funding source: SFWMD

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

Total spent to date: FY2006 – \$150,000 [Marco Engineering]

Total project cost: TBD

Central Florida Water Initiative (CFWI)/East Central Florida Transient (ECFT) Model Runs

Predictive simulations (i.e., model runs) will be conducted in FY2013 that estimate water demands and the effects of these water withdrawals on wetlands, springs, lakes, saltwater intrusion, and existing legal users of water for the Central Florida Water Initiative [formerly referred to as the Central Florida Coordination Area (CFCA)]. The USGS's ECFT model is being refined and District staff will conduct six scenario runs with the updated model to estimate groundwater availability. Once an estimate of groundwater availability is made, solutions development model runs will be conducted in FY2013 in an attempt to meet water demands in Central Florida.

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 in FY2012:

- Attended workshops for public comment and met with potential users of model
- USGS completed and documented the USGS ECFT model
- District staff along with the SJRWMD, SWFWMD, and other stakeholders reviewed the USGS-ECFT model and identified areas needing clarification and potential recalibration

Activities proposed for FY2013:

- Complete six scenario runs with the USGS ECFT model to estimate groundwater availability and revise the model as needed
- Complete additional runs as requested by the CFWI Steering Group
- Provide assistance to the SFWMD regarding select consumptive use permits as needed
- Attend meetings and workshops

Estimated completion date: FY2014

Funding source: SFWMD

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

Total spent to date: FY2006 – \$170,000 (consultant); FY2007 – \$150,000 (consultant); FY2008 – \$300,000 (FTEs and peer-review panel); FY2009 – \$200,000 (FTEs for model recalibration); \$35,000 for stage recorder installation; FY2010 – \$200,000 (FTEs for modeling the six predictive scenarios); FY2011 – \$265,000 (FTEs for modeling four of the six predictive scenarios); FY2012 – \$202,000 (FTEs only)

Total project cost: TBD

PROGRAM SUPPORT (DZ)

There are no District-wide water resource development efforts currently planned for the Program Support element.

REGIONAL WATER RESOURCE DEVELOPMENT PROJECTS (DA)

The following are project descriptions of region-specific water resource development efforts funded by the District’s Water Supply Program for FY2013. Additional information, such as the implementing entities, activities proposed for FY2013, estimated completion dates, and funding sources are included in each project summary.

CENTRAL FLORIDA WATER SUPPLY PLANNING (KISSIMMEE BASIN PLANNING AREA)

STOPR/Orange County Settlement Agreement

The intent of the St Cloud, Toho, Orange County, Polk, Reedy Creek (STOPR) Study is to complete a utility-specific water supply plan for those portions of Central Florida within the SFWMD and surrounding areas. The study and plan is the result of a settlement agreement with Orange County and the City of St. Cloud. The proposed plan will identify water supply projects and a strategy for developing and permitting these projects such that the water needs of Orange County and the City of St. Cloud are timely met (DA03, \$465,000).

Implementing entity: SFWMD

Estimate of quantity of water produced by project: Project is not designed to produce water. These funds were appropriated as a result of a settlement agreement related to a consumptive use permit challenge and must be used to develop a comprehensive water supply plan for the region

Activities completed for FY2012: The identification of short- and long-term water supply projects was to occur during FY2012, but no agreement was reached with utilities during this period to complete this task.

Activities proposed for FY2013: There is conceptual agreement with the five utilities that these funds will be used as part of a cost-share toward a hydraulic engineering study to evaluate the possibility of interconnecting utilities in central Florida.

Estimated completion date: FY2014

Funding sources: SFWMD and cost share with local utilities

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

Total spent to date: \$35,000

Total project cost: \$500,000

Proposed expenditures:

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	475 ¹	10 ²	-	-	-	485

¹ Includes \$465K contractual costs and \$10K FTEs

² Includes \$10K FTEs

CENTRAL FLORIDA WATER INITIATIVE PROJECT FACILITATOR

The District will continue to provide funding for a facilitator to coordinate with the SJRWMD, SWFWMD, and FDEP to develop a regional water strategy that crosses all three

water management district lines. The facilitator will schedule meetings, provide documentation of meetings, develop presentations, and provide additional similar services (DA03, \$25,000).

Implementing entity: SFWMD, SWFWMD, and SJRWMD

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

Completed implementation activities: Continued regular meetings of the steering committee and technical teams. A calibrated groundwater model was delivered by USGS (see the *Modeling* section above for details) and planning level simulations were conducted. These USGS deliverables are currently being evaluated for adequacy.

Activities proposed for FY2013: Continue regular meetings of the steering committee and technical teams. Continue calibrating groundwater model by USGS (see the *Modeling* section above for details) and planning level simulations will be conducted.

Estimated completion date: FY2014

Funding sources: SFWMD (other water management districts provide matching funds)

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

Total spent to date: \$65,000

Total project cost: TBD

Proposed expenditures:

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	211 ¹	188 ²	-	-	-	399

¹ Includes \$25K contractual costs and \$185K FTEs

² Includes \$188K contractual costs

CENTRAL FLORIDA WATER INITIATIVE PROJECT

The District, along with the SJRWMD and SWFWMD, will provide funding to cost share groundwater model development. It is a joint effort by the District, SJRWMD, SWFWMD, FDEP, FDACS, and regional public water supply utilities (DA03, \$200,000).

Implementing entity: SFWMD, SJRWMD, SWFWMD, FDEP, and FDACS

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

Completed implementation activities:

- Held a series of Steering Committee meetings composed of representatives from the water management districts, FDEP, FDACS, and public water supply utilities
- Continued model development by USGS (see the *Modeling* section above for details)
- Continued facilitator contract and initiated stakeholder workshops
- Received calibrated groundwater model from USGS
- Preparing to determined groundwater availability
- Initiated stakeholder workshops

Activities proposed for FY2013:

- Continue Steering Committee meetings
- Continue facilitator contract
- Continue stakeholder workshops
- Determine groundwater availability
- Initiate solution development activities

Estimated completion date: FY2014

Funding sources: SFWMD (other water management districts provide matching funds)

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

Total spent to date: N/A – initial year

Total project cost: \$250,000, plus District staff time for linkage to FY2013 planning, implementation, MFL, hydrogeology, and modeling projects

Proposed expenditures:

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	280 ¹	77 ²	-	-	-	357

¹ Includes \$200K contractual costs and \$80K FTEs

² Includes \$77K FTEs

**C-51 RESERVOIR PROJECT FACILITATOR
(LOWER EAST COAST PLANNING AREA)**

In October 2010, the District Governing Board discussed the potential for a multi-purpose C-51 reservoir to benefit public water supply. The study focused on three areas: 1) determine future water availability from the C-51 canal and whether sufficient water could be captured and delivered to meet future demands; 2) whether construction of the reservoir could serve as an effective regional alternative water supply source for public water supply, thereby offsetting the need for utilities to develop costly local water supply alternatives; and 3) ability to obtain permits for the reservoir and how use of water from the reservoir would affect permits issued to local utilities. The facilitator promoted dialogue, provided monthly status reports and arranged meetings for the evaluation of the reservoir located in the Palm Beach County L-8 Basin.

Implementing entity: SFWMD

Estimate of quantity of water produced by project: Preliminary analysis indicate 180 mgd could potentially be made available

Completed implementation activities: During FY2012, the *C-51 Reservoir – Preliminary Design and Cost Estimate-Draft Final Report* was finalized by the Lake Worth Drainage District, Palm Beach County, Broward County, and SFWMD.

Activities proposed for FY2013: None

Estimated completion date: FY2012

Funding sources: SFWMD

Cost per thousand gallons: TBD

Total spent to date: \$50,000

Total project cost: \$50,000

Proposed expenditures:

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	-	-	-	-	-	0

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

The Kissimmee Chain of Lakes Long-Term Management Plan (KCOL LTMP) interagency draft document was distributed in FY2011 to partners who participated in the plan's development. At this time, no further work is expected on the plan due to projected SFWMD fiscal constraints. The Kissimmee Basin Modeling and Operations Study (KBMOS) is a District initiative to identify alternative water control structure operating criteria for the Kissimmee Basin and its associated water resource projects. A recommendation in the 2005–2006 Kissimmee Basin Water Supply Plan Update directed water supply planning efforts to support agency work to develop a plan for improving the health and sustainability of the KCOL. The KBMOS will define the required water control structure operations needed to meet the hydrologic requirements of the Kissimmee River Restoration Project, while also achieving a more acceptable balance between water resource management objectives associated with flood control, water supply, aquatic plant management, and natural resource requirements of the KCOL. A set of modeling tools, including an advanced hydrologic/hydraulic model, has been developed as part of the study. Model construction was completed in 2008. The study is evaluating the operating criteria modifications of the existing water control infrastructure and lands.

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

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

Completed implementation activities:

- Completed recalibration and base conditions simulations using improved ET data in FY2009
- Completed screening of proposed operating criteria and initiated MIKE 11 hydraulic evaluations of top alternative plans in FY2009
- Applied recalibrated model and base condition to identify water required for the protection of fish and wildlife as part of the Kissimmee Basin Water Reservation rule development effort in FY2009
- Completed preliminary calibration of a flood routing model requested by the USACE and SFWMD to help verify and refine flood control performance of top performing alternative plans
- Completed calibration of flood routing model
- Initiated USACE flood analyses of top performing alternative plans
- Update base condition model to reflect projected 2014 water uses

Activities proposed for FY2013:

- Complete USACE flood analyses of top performing alternative plans
- Initiate final evaluation, promotion, and reporting on alternative plan performance

Estimated completion date: FY2014

Funding sources: SFWMD and USACE through Kissimmee River Restoration Project Cooperation Agreement

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

Total spent to date: FY2005–FY2012 – \$7,852,550

Total project cost: TBD

Proposed expenditures (reflected in the Kissimmee Watershed Program budget):

Cost	FY2013	FY2014	FY2015	FY2016	FY2017	Total
(\$ in thousands)	835 ¹	354 ²	-	-	-	1,189

¹ Includes \$486K contractual costs and \$349K FTEs

² Includes \$354K FTEs