

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

Patrick Martin

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## INTRODUCTION

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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 (Work Program). Accordingly, this report presents the South Florida Water Management District's (SFWMD or District) Work Program for Fiscal Years 2015–2019 (FY2015–FY2019) (October 1, 2014–September 30, 2019). This document describes the District's implementation strategy for the water resource development component of each approved regional water supply plan developed or updated under Section 373.709, F.S. Further information on the District's role in managing the region's water resources is available at [www.sfwmd.gov/watersupply](http://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(24), 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 non-structural 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 District's responsibility. These projects support water supply development at the local level and are intended to ensure the availability of adequate water supplies for all uses deemed reasonable and beneficial and maintain the function of natural systems.



The CFWI Regional Water Supply Plan is being developed by three water management districts: the SFWMD, Southwest Florida Water Management District (SWFWMD) and St. Johns River Water Management District (SJRWMD) ([www.cfwiwater.com](http://www.cfwiwater.com)). A key component of the CFWI's mission is to implement a long-term approach to water resource management in Central Florida.

The 2011 UEC, 2012 LWC, and 2013 LEC water supply plan updates project water demands through 2030. They were approved by the District's Governing Board in March 2011, November 2012, and September 2013, respectively. Both the LKB and the CFWI water supply plans have a planning horizon of 2035. The Governing Board approved the LKB plan in September 2014. The governing boards of the three water management districts acknowledged the delivery of the draft CFWI Regional Water Supply Plan in May 2014 but delayed final agency action until the completion of work by the Solutions Planning Team. The team's work and any resulting changes or refinements are scheduled to be completed in 2015.

District-wide population in 2014 was 8.1 million, with the 2030 population expected to increase to approximately 10 million with an estimated raw water demand of 4 billion gallons per day. Information shows that the rate of population growth varies throughout the District with some counties experiencing more growth than others. Overall, water supply demand projections in current water supply plans/updates are significantly lower than previous plans due to slower population growth and improved water conservation.

Regional water supply plans identify water supply projects that public water supply utilities are proposing to meet their future increases in demand. The plans indicate public water supply demands are projected to increase by 358 million gallons per day (mgd) over the next 20 years (2010 demand versus projected 2030 demand) with 130 future water supply projects having an estimated cost of \$7.2 billion anticipated to be constructed. While most of these projects will meet future demand increases, some will also support changes in water treatment processes or utilize other water sources. These projects include both potable and nonpotable water (i.e., reclaimed water and storm water). The capacity of these proposed projects exceeds the projected needs. Construction of these water supply development projects are 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 Alternative Water Supply (AWS) funding program. The evaluation of increases in projected demand from 2010 to 2030 for individual utilities compared to current allocations and water treatment capacity indicates that allocations and treatment facilities are currently in place to meet 81 percent of the projected increase in demand. Further information on the AWS program is presented in the *Alternative Water Supply (DE)* section of this chapter and Chapter 5B of this volume.

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## **WATER RESOURCE DEVELOPMENT PROJECTS**

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Most water resource development projects support and enhance water supply development but do not themselves yield specific quantities of water. For example, project-related hydrologic investigations and groundwater monitoring and modeling provide important information about aquifer characteristics (e.g., hydraulic properties and water quality), but do not increase water availability. 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). Water resource development projects in this report have been divided into District-wide and regional water resource development projects. District-wide water resource development projects geographically benefit the entire District while regional water resource development projects are specific to a particular planning region or basin located within the planning region. Water resource development projects are

discussed in Chapter 5 of the 2011 UEC and 2012 LWC plan updates, Chapter 4 of the 2013 LEC plan update and 2014 LKB plan, and Chapter 8 of the draft CFWI plan.

It should be noted that District projects that provide water supply primarily for the environment are presented in the South Florida Environmental Report (SFER) Consolidated Project Report Database, which is accessible at [www.sfwmd.gov/sfer](http://www.sfwmd.gov/sfer). Funding described in this report does not include projects associated with the Comprehensive Everglades Restoration Plan (CERP), restoration strategies, or other restoration projects; this is captured in other sections of the 2015 SFER.

### **District-wide Water Resource Development Projects**

As stated above, District-wide water resource development projects geographically benefit the entire District. With respect to these projects, a portion of the District’s annual operations and maintenance (O&M) budget for the Central & Southern Florida Flood Control Project (C&SF) is allocated to providing water supply to the region. The SFWMD is responsible for managing and protecting the water resources of South Florida, which requires balancing and improving water quality, flood control, natural systems, and water supply. These activities are closely linked to water resource development activities such as hydrologic investigations and groundwater monitoring and modeling. As an essential part of the agency’s core mission, providing water supply for agriculture, urban uses, and natural resource needs and preventing saltwater intrusion are a routine part of O&M.

The water resource development projects described in this report—rulemaking for Minimum Flows and Levels (MFLs), Alternative Water Supply (AWS), the comprehensive water conservation program, drilling and testing, groundwater monitoring, and groundwater modeling—are primarily District-wide projects. For more detail, refer to the *District-wide Water Resource Development Projects (DC, DD, DE, DF)* section of this report. Implementation schedules and projected costs for FY2015–FY2019 are summarized in **Table 5A-1**.

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

Regional water resource development projects are specific to a particular planning region or basin located within the planning region. The regional water resource development projects described in this report—Central Florida Water Supply Planning and Central Florida Water Initiative—are focused on the Upper Kissimmee Basin region. For more detailed information about these projects, see the *Regional Water Resource Development Projects (DA, DB, FA)* section of this report. Implementation schedules and projected costs for FY2015–FY2019 are summarized in **Table 5A-1**.

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## **FUNDING**

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The District’s budget is approved annually in September. Over \$7.6 million has been allocated to water resource development projects in the FY2015 budget. In addition, the FY2015 O&M budget is \$215 million, of which approximately 50 percent (\$107.5 million) is allocated to providing water supply to the region. This equates to approximately \$115.2 million that is planned to be spent in FY2015 on ensuring water supply for the region, as shown in **Table 5A-1**.

The budget is organized by elements. In this report, funding for each water resource development project related element includes full-time equivalent (FTE) costs and contractual dollars, where applicable, to portray the actual program costs. The following six water resource development project-related budgetary elements were allocated funding in FY2015:

- **Planning (DA)** [Water Supply Planning (DA01), Central Florida Coordination (DA03)]
- **Implementation Projects (DB)** [Water Supply Plan Implementation (DB01)]
- **Rulemaking (DC)** [Water Reservations – Kissimmee (DC01), Water Reservations – Caloosahatchee MFL Update (DC09)]
- **Conservation (DD)** [Regulatory Initiatives, Water Savings Incentive Program (WaterSIP), Mobile Irrigation Laboratories (MIL) and Florida Automated Weather Network (FAWN) (DD01), Community Outreach (DD08)]
- **Alternative Water Supply (DE)** [Alternative Water Supply (DE01), Big Cypress Basin (DE02)]
- **Resource Evaluation (DF)** [Hydrogeologic Data Gathering & Analysis (DF01), Groundwater Modeling (DF02), Drilling & Testing (DF05), South Miami-Dade Hydrologic Analysis (DF06), Modeling (DF07)]

To align the budgeted projects within this report to the actual budget spreadsheets, the report is organized to follow the Water Supply Program’s elements with associated projects for each element. **Table 5A-2** lists water resource development projects from the regional water supply plans, while **Table 5A-3** shows water resource development projects being funded in FY2015.

**Table 5A-1.** Fiscal Years 2015–2019 (FY2015–FY2019)  
(October 1, 2014–September 30, 2019) implementation schedule  
and projected expenditures (including FTE costs) for  
water resource development projects.

Regional Water Resource Development Projects	Plan Implementation Costs (\$ in thousands)					Total
	FY2015	FY2016	FY2017	FY2018	FY2019	
<b>Water Supply Planning (DA01)</b> Est. finish date: Ongoing	1,191	1,200	1,200	1,300	1,300	6,191
<b>CFWI Project Facilitator (DA03)</b> Est. finish date: 2015	25	*	*	*	*	25
<b>CFWI Water Supply Planning Project (DA03)</b> Est. finish date: 2015	457	150	150	150	150	1,057
<b>CFWI/ECFT Model (DA03)</b>	75	30	30	30	30	195
<b>Water Supply Implementation (DB01)</b> Est. finish date: Ongoing	401	401	401	401	401	2,005
<b>KCOL Long-Term Management Plan/KB Modeling &amp; Operations Study<sup>1</sup> (FA09)</b> Est. finish date: On Hold	N/A	N/A	N/A	N/A	N/A	N/A
<b>Sub-Total</b>	<b>2,149</b>	<b>1,781</b>	<b>1,781</b>	<b>1,881</b>	<b>1,881</b>	<b>9,473</b>

**Table 5A-1.** Continued.

District-wide Water Resource Development Projects	Plan Implementation Costs (\$ in thousands)					
	FY2015	FY2016	FY2017	FY2018	FY2019	Total
<b>MFL, Water Reservation Activities and Restricted Allocation Areas (DC01, DC09)</b> Est. finish date: Ongoing	751	440	440	380	380	2,391
<b>Comprehensive Water Conservation Program (DD01, DD08)</b> Est. finish date: Ongoing	671	675	675	675	675	3,371
<b>Alternative Water Supply (DE01, DE02)</b> Est. finish date: Ongoing	1,739	1,740	1,740	1,740	1,740	8,699
<b>Drilling and Testing (DF05)</b> Est. finish date: Ongoing	198	200	200	200	200	998
<b>Groundwater Monitoring (DF01, DF06)</b> Est. finish date: Ongoing	1,326	1,330	1,330	1,330	1,330	6,646
<b>Groundwater Modeling (DF02, DF07, DA03)</b> Est. finish date: Ongoing	838	840	840	840	840	4,198
<b>Estimated Portion of C&amp;SF Operations and Maintenance Budget Allocated to Water Supply<sup>2</sup></b>	107,500	107,500	107,500	107,500	107,500	537,500
<b>Sub-Total</b>	<b>113,023</b>	<b>112,725</b>	<b>112,725</b>	<b>112,665</b>	<b>112,665</b>	<b>563,803</b>
<b>Total</b>	<b>115,172</b>	<b>114,506</b>	<b>114,506</b>	<b>114,546</b>	<b>114,546</b>	<b>573,276</b>

C&amp;SF – Central &amp; South Florida Flood Control Project

CFWI – Central Florida Water Initiative

ECFT – East Central Florida Transient Model

KB – Kissimmee Basin

KCOL – Kissimmee Chain of Lakes

MFL – Minimum Flows and Levels

N/A – Included in the CFWI Regional Water Supply Plan but not funded by the SFWMD

\* Project is completed: no future funding will be provided

<sup>1</sup> Information on the Kissimmee Watershed program is provided in Volume I, Chapter 9<sup>2</sup> Approximated based on 50 percent of the FY2015 Operations & Maintenance budget

**Table 5A-2.** Crosswalk for water supply plans, water resource development projects, and sections of this report.

Recommended Water Resource Development Projects	Status	Report Section	Coverage Area	2011 UEC	2012 LWC	2013 LEC	2014 LKB	2014 UKB
Alternative Water Supply Program	Ongoing	District-wide Water Resource Development Projects	District-wide	*	*	*	*	*
Comprehensive Water Conservation Program	Ongoing	District-wide Water Resource Development Projects	District-wide	*	*	*	*	*
Floridan Aquifer System Model and Database Development	Ongoing	District-wide Water Resource Development Projects	District-wide	*	*	*		*
Floridan Aquifer Exploratory Well Program	Ongoing	District-wide Water Resource Development Projects	District-wide	*	*	*	*	*
Groundwater Monitoring	Ongoing	District-wide Water Resource Development Projects	District-wide	*	*	*	*	*
ET Measurement Project	Complete	District-wide Water Resource Development Projects	District-wide	*	*			
USGS Water Quality Module	Complete	District-wide Water Resource Development Projects	District-wide	*	*			
MFL Activities	Ongoing	District-wide Water Resource Development Projects	District-wide		*			*
Water Reservation Activities	Ongoing	District-wide Water Resource Development Projects	District-wide		*		*	*
Saltwater Intrusion Monitoring & Mapping	Ongoing	District-wide Water Resource Development Projects	District-wide		*	*		*
Surficial & Intermediate Aquifer System Model & Database Development	Ongoing	District-wide Water Resource Development Projects	Basin-specific		*			
Mobile Irrigation Labs	Ongoing	District-wide Water Resource Development Projects	District-wide		*			
Water Savings Incentive Program	Ongoing	District-wide Water Resource Development Projects	District-wide	*	*	*	*	*
Kissimmee Basin Modeling & Operations Study	Ongoing	Regional Water Resource Development Projects	District-wide					*
Central Florida Water Cooperative	Complete	Regional Water Resources Development Projects	Basin-specific					*
Central Florida Water Initiative Project Facilitator	Ongoing	Regional Water Resources Development Projects	Basin-specific					*
Central Florida Water Initiative Water Supply Planning Project	Ongoing	Regional Water Resources Development Projects	Basin-specific					*
Central Florida Water Initiative/East Central Florida Transient Model	Ongoing	Regional Water Resources Development Projects	Basin-specific					*

ASR – Aquifer Storage & Recovery  
 ET – Evapotranspiration  
 LEC – Lower East Coast

LKB – Lower Kissimmee Basin  
 LWC – Lower West Coast  
 MFL – Minimum Flows and Levels

UEC – Upper East Coast  
 UKB – Upper Kissimmee Basin  
 USGS – U.S. Geological Survey

**Table 5A-3.** Crosswalk for FY2015 budget (excluding FTE costs), water resource development projects, and sections of this report.

Budget Line Item	Program Element Name	Functional Area Name	Functional Area	State Activity	Amount	Project	Report Section
	Planning	Central Florida Water Initiative	DA03	1.1.1	\$25,000	Central Florida Water Initiative Project Facilitator	Central Florida Water Supply Planning (p. 5A-11)
21163	Planning	Central Florida Water Initiative	DA03	1.1.1	\$75,000	Modeling	Central Florida Water Supply Planning (p. 5A-13)
22603	Rulemaking	MFL Water Reservation Rule Status	DC09	1.1.2	\$83,000	Tape Grass Restoration Pilot Study	Rulemaking (p. 5A-17)
20227	Rulemaking	MFL Water Reservation Rule Status	DC01	1.1.2	\$55,000	Kissimmee SERC Evaluation	Rulemaking (p. 5A-17)
	Water Conservation	Regulatory Initiatives	DD01	2.4.1	\$250,000	Water Savings Incentive Program (WaterSIP)	Conservation (p. 5A-19)
22546	Water Conservation	Regulatory Initiatives	DD01	2.4.1	\$55,000	Mobile Irrigation Lab – BCB	Conservation (p. 5A-19)
20393	Water Conservation	Regulatory Initiatives	DD01	2.4.1	\$75,000	FAWN	Conservation (p. 5A-19)
22602	Water Conservation	Education & Marketing Initiatives – Public Information & Outreach	DD08	5.2.1	\$15,000	Great Water Odyssey	Conservation (p. 5A-19)
22607	Alternative Water Supply	Alternative Water Supply – District-wide	DE01	2.2.2	\$1,650,000	Alternative Water Supply	Alternative Water Supply (p. 5A-21)
18240	Resource Evaluation	Hydrogeologic Data Gathering	DF01	1.1.1	\$313,002	FTL USGS GW Core Network Monitoring	Resource Evaluation – Groundwater Monitoring (p. 5A-22)
18241	Resource Evaluation	Hydrogeologic Data Gathering	DF01	1.1.1	\$95,380	ORL USGS GW Core Network Monitoring	Resource Evaluation – Groundwater Monitoring (p. 5A-22)
18269	Resource Evaluation	Hydrogeologic Data Gathering	DF01	1.1.1	\$48,390	Groundwater RTU Maintenance/Repair	Resource Evaluation – Groundwater Monitoring (p. 5A-22)
17220	Resource Evaluation	Hydrogeologic Data Gathering	DF01	1.1.1	\$50,000	Emergency Wellhead Repairs	Resource Evaluation – Groundwater Monitoring (p. 5A-22)

**Table 5A-3. Continued.**

Budget Line Item	Program Element Name	Activity Name	Activity	State Activity	Amount	Project	Report Section
17221	Resource Evaluation	Hydrogeologic Data Gathering	DF01	1.1.1	\$25,000	Parts & Supplies – Field Equipment	Resource Evaluation – Groundwater Monitoring (p. 5A-22)
17222	Resource Evaluation	Hydrogeologic Data Gathering	DF01	1.1.1	\$18,893	Geophysical Logging	Resource Evaluation – Groundwater Monitoring (p. 5A-22)
17223	Resource Evaluation	Hydrogeologic Data Gathering	DF01	1.1.1	\$15,000	Hydrogeologic Data Archiving	Resource Evaluation – Groundwater Monitoring (p. 5A-22)
17224	Resource Evaluation	Hydrogeologic Data Gathering	DF01	1.1.1	\$14,400	Monthly Groundwater Level Measurements	Resource Evaluation – Groundwater Monitoring (p. 5A-22)
19192	Resource Evaluation	South Miami Dade Hydrologic Analysis	DF06	1.1.1	\$50,000	Technical Review – FPL (Isotope Data Interpretation)	Resource Evaluation – Groundwater Monitoring (p. 5A-22)
16994	Resource Evaluation	Groundwater Modeling	DF02	1.1.1	\$75,000	Groundwater Model Peer Reviews	Resource Evaluation – Groundwater Modeling (p. 5A-24)

BCB – Big Cypress Basin  
 FAWN – Florida Automated Weather Network  
 FPL – Florida Power & Light  
 FTE – Full-Time Employee  
 FTL – Fort Lauderdale

GW – Groundwater  
 MFL – Minimum Flows and Levels  
 ORL - Orlando  
 RTU – Remote Terminal Units  
 SERC – Statement of Estimated Regulatory Costs  
 USGS – U.S. Geological Survey

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## REGIONAL WATER RESOURCE DEVELOPMENT PROJECTS (DA, DB, FA)

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### WATER SUPPLY PLANNING (DA01)

Regional water supply plans are updated every five years; however, there is ongoing work annually to support the updates (i.e., modeling, saltwater intrusion mapping, population and demand projections, receiving, reviewing and compiling annual utility status reports). In addition, development of the regional plans are staggered and approved in varying years, requiring allocation of staff time annually. Water supply plans and updates describe proposed water supply projects, water resource projects, and implementation strategies for the planning period. CFWI planning efforts are captured in a combination of DA01 and DA03.

**Implementing entity:** SFWMD

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

**Activities completed for FY2014:**

- The Draft CFWI Regional Water Supply Plan was acknowledged by the governing boards of the SFWMD, SWFWMD, and SJRWMD
- Received approval of the LKB Water Supply Plan
- Participated on the CFWI Solutions Team, including the Regulatory Team and Technical sub-teams
- Initiated UEC Floridan aquifer modeling including public participation process
- Continued development of the LWC Surficial Aquifer System and Intermediate Aquifer System Model
- Initiated data collection and evaluation for the 2016 UEC Water Supply Plan Update

**Activities proposed for FY2015:**

- Receive approval of the Final CFWI Regional Water Supply Plan
- Continue data collection and evaluation for the 2016 UEC Water Supply Plan Update
- Initiate the UEC Water Supply Plan public participation process and initiate development of plan chapters
- Complete UEC Floridan aquifer modeling
- Continue participation on the Solution Planning Team including Regulatory Team and Technical sub-teams
- Continue development of the LWC Surficial Aquifer System and Intermediate Aquifer System Model
- Initiate data collection and evaluation for the 2017 LWC Water Supply Plan Update

**Estimated completion date:** Ongoing

**Funding sources:** SFWMD

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

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	1,191 <sup>1</sup>	1,200 <sup>1</sup>	1,200 <sup>1</sup>	1,300 <sup>1</sup>	1,300 <sup>1</sup>	6,191

<sup>1</sup> FTE costs

## **CENTRAL FLORIDA WATER SUPPLY PLANNING (DA03) (KISSIMMEE BASIN PLANNING AREA)**

Water supply planning in Central Florida is continuing and includes four projects in this report: the Central Florida Water Cooperative, the Central Florida Water Initiative Project Facilitator, the Central Florida Water Initiative Water Supply Planning Project, and the Central Florida Water Initiative/East Central Florida Transient Model. These projects were developed to address Central Florida's current and long-term water supply needs.

### **Central Florida Water Cooperative (formerly STOPR/Orange County Settlement Agreement)**

The original intent of the St. Cloud, Tohopekaliga (TOHO), Orange County, Polk County, and Reedy Creek (STOPR) Study was to complete a utility-specific water supply strategy for those portions of Central Florida within the SFWMD and surrounding areas. The funds available from a settlement agreement with Orange County and the City of St. Cloud (originally allocated to STOPR) were transferred to the Central Florida Water Cooperative, which is an inter-local agreement between the City of St. Cloud, the TOHO Water Authority, Orange County, and Polk County, also known as the Water Co-op. The Water Co-op is authorized to implement water projects with member and non-member governments with whom it may enter into agreements with and has undertaken the Cypress Lake Potable Water Transmission, Optimization, and Interconnection Analysis Project. The purpose of this project is to develop a conceptual design for transmission and optimization of Cypress Lake wellfield finished water in concert with existing potable water sources and to facilitate the efficient and cost-effective transfer and transmission of potable water among utilities.

**Implementing entity:** SFWMD

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

**Activities completed for FY2014:** The remaining tasks of the District's agreement were completed; Phase I Water Wheeling with Cypress Lake wellfield water and the Initial Conceptual Design Plan.

**Activities proposed for FY2015:** Project is closed and the District has fulfilled its obligation to the Water Co-op.

**Estimated completion date:** FY2014

**Funding sources:** District funding has been expended; remaining work on the report will be funded by the Water Co-op.

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

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	0 <sup>1</sup>	0	0	0	0	0

<sup>1</sup> remaining funds fully expended during FY2014

### **Central Florida Water Initiative Project Facilitator**

The District will continue to provide funding for a facilitator to coordinate with agencies and stakeholders to develop a regional water supply solution strategy in the CFWI area. The facilitator will schedule and 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.

**Activities completed in FY2014:**

- Continued facilitation of meetings of the Steering Committee, Management Oversight Committee (MOC), and Solutions Planning Team
- Maintained and updated CFWI Guidance Document
- Maintained and updated website ([www.cfwewater.com](http://www.cfwewater.com))

**Activities proposed for FY2015:** Continue facilitation of meetings of the Steering Committee, MOC, and Solutions Planning Team

**Estimated completion date:** FY2015

**Funding sources:** SFWMD, SWFWMD, SJRWMD

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

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	25 <sup>1</sup>	0	0	0	0	25

<sup>1</sup> \$25K contractual costs

## **Central Florida Water Initiative Water Supply Planning Project**

This project encompasses development of the CFWI Regional Water Supply Plan in cooperation with SJRWMD, SWFWMD, Florida Department of Environmental Protection (FDEP), Florida Department of Agriculture and Consumer Services (FDACS), regional public water supply utilities, and stakeholders.

**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

**Activities completed in FY2014:**

- Completed the Draft CFWI Regional Water Supply Plan; presented to and acknowledged by the governing boards of all three water management districts
- Initiated the Solution Planning Phase
- Convened Solution Planning Team including Regulatory Team and Technical sub-teams
- Revised East Central Florida Transient (ECFT) groundwater model with improved water demand information
- Developed East Central Florida Steady State groundwater model to expedite evaluations of various scenarios
- Began modeling Solution Project Scenarios
- Continued meetings of the Steering Committee, MOC, and Solutions Planning Team, and Technical sub-teams

**Activities proposed for FY2015:**

- Continue participation at Steering Committee, MOC, and Solutions Planning Team and Technical Sub-Team meetings
- Simulate solutions project scenarios with ECFT modeling
- Incorporate Solutions Planning Team work into the Regional Water Supply Plan

- Complete the Solutions Planning document
- Approve the Regional Water Supply Plan by the three water management district governing boards

**Estimated completion date:** FY2015

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

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

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	457 <sup>1</sup>	150 <sup>1</sup>	150 <sup>1</sup>	150 <sup>1</sup>	150 <sup>1</sup>	1,057

<sup>1</sup> FTE costs

**Central Florida Water Initiative/East Central Florida Transient Model**

SFWMD groundwater modeling staff is supporting the CFWI through the use of the updated version of the East Central Florida Transient Model. This model has been used to estimate groundwater availability in the CFWI while considering the effects of groundwater withdrawals on wetlands, springs, lakes, saltwater intrusion, and existing legal users of water. In FY2015, contractual funds are allocated to compile and analyze input datasets for the model (DA03; \$75,000).

**Implementing entity:** SFWMD, SWFWMD, and SJRWMD

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

**Activities completed in FY2014:**

- Prepared model documentation for CFWI Groundwater Availability (CFWI Regional Water Supply Plan)
- Updated CFWI Reference Condition and 2015 scenarios with revised Landscape Irrigation, Rapid Infiltration Basin (RIB) flows, and reclaimed water irrigation values
- Completed additional model runs as requested by the CFWI Solutions Planning Team

**Activities proposed for FY2015:** Staff will prepare documentation of model improvements and description of scenarios to support the CFWI Solutions Planning Team. The three districts that are part of the CFWI will begin the process of updating the ECFT model by (1) expanding the model domain, (2) updating the rainfall – runoff partitioning package, and (3) preparing updated model input datasets.

**Estimated completion date:** FY2016

**Funding source:** SFWMD

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

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	75 <sup>1</sup>	30 <sup>2</sup>	30 <sup>2</sup>	30 <sup>2</sup>	30 <sup>2</sup>	195

<sup>1</sup>\$75K contractual costs (FTEs for this effort are being reported under the Central Florida Water Initiative Water Supply Planning Project)

<sup>2</sup>FTEs only (Note: estimate ½ FTE for modeling associated with CFWI water supply planning in future years)

## **WATER SUPPLY IMPLEMENTATION (DB01)**

Regional water supply plans include specific recommendations and implementation strategies to ensure availability of future water supplies. Coordination, execution, and facilitation of water resource development projects, operational changes, implementation of alternative water supply development, consumptive use permitting, conservation programs, and rulemaking associated with the plans is a multiyear process that involves working closely with other agencies, local governments, utilities, the agricultural industry, and environmental interests. The SFWMD budgets annual staff time to be spent on these activities.

**Implementing entity:** SFWMD

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

### **Activities completed in FY2014:**

- Coordinated desalination activities in the District including updating the District's desalination facility inventory and map.
- Managed District water reuse activities including regular coordination meetings with three FDEP district offices whose boundaries include portions of the SFWMD, development of reclaimed water GIS coverage, and updating the District's reclaimed water inventory.
- Oversaw District Aquifer Storage and Recovery (ASR) activities, which involved maintaining inventory, coordinating with other water management districts, state and federal agencies (including work on the CERP ASR Regional Study), and work with the United States Army Corps of Engineers (USACE) to finalize a 12-year technical evaluation report on the feasibility of constructing numerous ASR sites throughout South Florida in support of Everglades restoration.
- Facilitated and coordinated with over 100 water utilities for their online annual update of water supply development projects to the District's Local Government and Water Supply Planning and Utility Project database.
- Assisted the FDEP in formulating and initializing a process to conduct a comprehensive study on the expansion of the beneficial use of reclaimed water, stormwater, and excess surface water in Florida as required by Senate Bill 536, which was approved during the 2014 legislative session.
- Provided hydrogeologic support to District projects including:
  - **L-8 Flow Equalization Basin** – Construction Support. Staff provided hydrogeologic interpretation and evaluation of water level responses during construction of the L-8 Flow Equalization Basin in Palm Beach County.
  - **Picayune Strand Restoration Project (PSRP)** – Design Support. Hydrogeologic and geotechnical interpretation and evaluation of groundwater conditions to assist in the design of a manatee mitigation/protection feature to be constructed in association with the PSRP located in Collier County.
  - **Lakebelt Seepage Barrier** – Evaluation Support. Staff provided hydrogeologic interpretation and evaluation of water level responses during the construction of a test section of a subsurface seepage barrier feature in an area of active rock mining in Miami-Dade County to support Everglades restoration efforts to improve hydraulic conditions in the Shark River Slough.
  - **Stormwater Treatment Area (STA)** – Staff provided hydrogeologic interpretation of soil conditions, initial remedial design concepts, and well abandonment design at

water storage and treatment areas associated with the Istokpoga Marsh Feature in Highlands County and the expansion of STA-1W in Palm Beach County. These projects are in association with the Everglades Restoration Strategies initiative.

**Activities proposed for FY2015:**

- Continue coordination of desalination activities in the District.
- Continue management of District water reuse activities including regular coordination meetings with the FDEP, updating reclaimed water GIS coverage, and maintaining District reclaimed water inventory.
- Continue oversight of District ASR activities. Specific projects include:
  - **City of West Palm Beach ASR System:** District staff is providing assistance with cycle testing, data collection, and evaluation. The city recently activated this ASR system and will be evaluating the testing results through 2015.
  - **CERP ASR Regional Study – Technical Data Report:** Staff is working with the USACE to finalize a 12-year technical evaluation report on the feasibility of constructing numerous ASR projects throughout South Florida in support of Everglades restoration.
  - **ASR Database:** Staff is compiling information on ASR projects throughout Florida and compiling an electronic database that will be available at [www.sfwmd.gov](http://www.sfwmd.gov). The database will include technical information, publications, and links to sources for a variety of topics related to the technology. In 2015, a GIS-based component of the database will be finalized, allowing interested workers to search ASR data via a geographically based platform.
- Provide hydrogeologic support of District projects including:
  - **L-8 Flow Equalization Basin:** Staff will continue to provide hydrogeologic support.
  - **PSRP:** Continue to provide hydrogeologic and geotechnical support during construction of the manatee mitigation/protection feature.
  - **Lakebelt Seepage Barrier:** Continue to provide hydrogeologic support during the design and construction of the seepage barrier feature.
- **FDEP Senate Bill 536 Water Report:** Continue to assist the FDEP in completing a report on the statewide expansion of reclaimed water, stormwater, and excess surface water use.
- **Utility Database:** Facilitate and coordinate with water utilities to update the status of their water supply development projects in the District’s Utility Project Database.

**Estimated completion date:** Ongoing

**Funding sources:** SFWMD

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

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	401 <sup>1</sup>	2,005				

<sup>1</sup>\$396K FTEs and \$5K other

## **KISSIMMEE BASIN MODELING AND OPERATIONS STUDY (FA09)**

The Kissimmee Basin Modeling and Operations Study (KB MOS) was the first comprehensive review of water management operations for the Kissimmee Basin in more than 30 years. Its goal was to evaluate alternative procedures for the C&SF Project water control structures throughout the Kissimmee Basin by aligning upstream and downstream operations with the Kissimmee River Restoration Project (KRRP) headwater discharges at S-65. The result is expected to enhance or sustain habitat conditions for fish and wildlife throughout the Kissimmee Chain of Lakes (KCOL).

KB MOS was put on hold in October 2013 due to KRRP cost-crediting issues between the SFWMD and the USACE. There were six work products conducted in FY2014 that were closed out or shut down. At this time, there are no activities planned for the future.

**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 directly available

### **Activities completed in FY2014:**

The Study Team was requested to close out ongoing activities and shut down/close out study activities. The following District products were finalized in FY2014:

- “No Action” Alternative Base Condition Model Development and Evaluation Report
- AFET LT/-Flood “No Action” Alternative/Base Condition and Alternative Plan Model Refinement Technical Memorandum
- Interagency Workshop Summaries from the Review of Performance Measures and Review of Preliminary Versions of the Top Performing Alternative Plans
- Final Interim Alternative Plan Selection Document (APSD)
- Independent Interim APSD Section 8 (this document describes preliminary versions of the top four alternative plan operating criteria and captures the state of alternative plans at the time KB MOS was put on hold)
- Preliminary Draft Operational Guidance Memorandum for the “No Action” and “Pre-Alt” Base Condition for the KRRP

### **Activities proposed for FY2015:**

- All activities have been placed on indefinite hold

**Estimated completion date:** TBD

**Past Funding sources:** SFWMD and USACE through KRRP Cooperation Agreement

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

### **Proposed expenditures:**

<b>Cost</b>	<b>FY2015</b>	<b>FY2016</b>	<b>FY2017</b>	<b>FY2018</b>	<b>FY2019</b>	<b>Total</b>
(\$ in thousands)	N/A	N/A	N/A	N/A	N/A	N/A

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

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This section provides project descriptions by budget element for the District-wide water resource development efforts funded through the District's Water Supply Program for FY2015. Additional information, including the implementing entities, proposed FY2015 activities, estimated completion dates, and funding sources, is presented in each project summary.

### **RULEMAKING (DC01, DC09)**

#### **Minimum Flows and Levels and Water Reservation Activities**

MFLs are developed pursuant to Sections 373.042 and 373.0421, F.S., and are part of a comprehensive water resource management approach to assure the sustainability of Florida's water resources. An MFL is a minimum threshold below which further water withdrawals will cause significant harm to water resources or the ecology of the area. MFL implementation activities include conducting research to set scientifically based criteria for defining significant harm, conducting voluntary independent scientific peer review of the associated science where needed, gaining stakeholder input in the process, and completing rulemaking. Prevention or recovery strategies are developed concurrently with MFLs to either maintain (prevention strategy) or achieve (recovery strategy) compliance with established MFLs.

The SFWMD Governing Board has the ability to authorize rule development to establish water reservations in accordance with Section 373.223(4), F.S. A water reservation is a legal mechanism to reserve water from consumptive uses that is needed to protect fish and wildlife or public health and safety. Water reservations help support Everglades restoration and aid in a recovery or prevention strategy for established MFLs. The creation of a water reservation is necessary for the District and the USACE to enter into a Project Partnership Agreement, as required by the Water Resources Development Act of 2000 for construction of CERP project components such as reservoirs or Stormwater Treatment Areas. Priority water bodies, which include both MFLs and water reservations, are required to be approved annually by the District's Governing Board and submitted to the FDEP.

**Implementing entity:** SFWMD with federal and state government support

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

**Activities completed in FY2014:**

- **Caloosahatchee River Estuary MFL Reevaluation – Quantifying Tape Grass:** Anticipated collecting and analyzing data for the tidal basin and its tributaries as well as developing models to evaluate resource responses to MFL criteria. The project was abandoned due to the absence of tape grass in the Caloosahatchee River.
- **Caloosahatchee River Estuary MFL Reevaluation – Benthic Macrofauna:** Evaluated the effects of MFL flows on oysters, benthic macrofauna, zooplankton, and ichthyoplankton. Data were used to develop models for evaluating MFL criteria.
- **Florida Bay MFL Reevaluation – Peer Review:** Updated technical analysis and report with submittal of the technical report to FDEP, which included an integrated review of the hydrologic and ecological changes since the rule adoption in 2006. A peer review of the technical report was not required.

- **Caloosahatchee River (C-43) West Basin Storage Reservoir CERP Project Water Reservation:** Finalized the technical document for public review and the rule development process. A draft rule was presented to the Governing Board in consideration for Notice of Rule Adoption in May 2014. The process to develop a water reservation rule has been completed and became effective on July 16, 2014.
- **Kissimmee Basin Water Reservation:** Initiated reservation development; conducted one public workshop; water reservation rule scheduled to be adopted in calendar year 2015.

**Activities proposed for FY2015:**

- **Tape Grass Restoration Pilot Study:** The resurgence of tape grass in the Caloosahatchee River is not only limited by chronic high salinity in the dry season, but also by grazing pressure. This study will test the hypothesis that protecting a donor population using cages will allow sufficient colonization of unprotected areas to withstand grazing pressure. (DC09, \$83,000)
- **Kissimmee Basin Water Reservation:** Continue reservation development and begin update of previous technical analysis, if necessary. Conduct public workshops and finalize the rule development process in anticipation of a water reservation rule to be adopted in calendar year 2015.
- **Kissimmee Basin Water Reservation – Statement of Estimated Regulatory Costs:** Funding has been set aside for a Statement of Estimated Regulatory Cost (SERC) to determine the impact the new rule may have on small businesses. (DC01, \$55,000)
- **Caloosahatchee River Estuary MFL Update:** Continue technical analysis of the data and research conducted to date and feed this information into the models for the MFL update, which is anticipated to be completed in 2017.
- **Caloosahatchee River Estuary MFL Peer Review:** These data and analyses will provide information to complete a Caloosahatchee MFL technical document. The peer review of the document is anticipated to start in FY2016 with completion in FY2017.
- **Caloosahatchee River Estuary MFL – Statement of Estimated Regulatory Costs:** A SERC to determine the impact the new rule may have on small businesses will be completed in 2017. There are no monies budgeted for this work in FY2015.

**Estimated completion date:** Various

**Funding source:** SFWMD

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

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	751 <sup>1</sup>	440 <sup>2</sup>	440 <sup>2</sup>	380 <sup>3</sup>	380 <sup>3</sup>	2,391

<sup>1</sup> \$138K contractual costs and \$613K FTEs (elements DC01, DC09)

<sup>2</sup> \$60K contractual costs and \$380K FTEs (elements DC01, DC09)

<sup>3</sup> FTEs only (element DC09)

## CONSERVATION (DD01, DD08)

### 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. Strategies have been implemented during FY2014 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 and creating an enduring conservation ethic. From a regulatory perspective, 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 advance water use efficiency and result in quantifiable water savings. Voluntary and incentive-based initiatives, including financial assistance, technical assistance, and recognition programs, supplement regulations and build goodwill, leverage investments, and bring wider environmental benefits. Education, outreach, and social marketing complement and sustain these efforts by instilling a lasting conservation ethic in Florida businesses and communities. Further information is available at [www.sfwmd.gov/watersupply](http://www.sfwmd.gov/watersupply), under the *Water Conservation* link.

Through the Water Savings Incentive Program (WaterSIP), the SFWMD provides reimbursement up to 50 percent or up to \$50,000, whichever is less, 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.

The Conserve Florida Water Clearinghouse, provided information and tools to improve water conservation through the development of utility-specific, goal-based water conservation programs. The Clearinghouse delivered their final version of the EZ Guide tool on June 30, 2014, to the water management district for their use. Further information is available at [www.conservefloridawater.org](http://www.conservefloridawater.org). In addition, the University of Florida 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: Big Cypress Basin (BCB), FDACS, and the Soil and Water Conservation Districts
- Conserve Florida Water Clearinghouse: SFWMD, FDEP, University of Florida (UF), and other water management districts
- FAWN: SFWMD, UF, FDACS, other water management districts, and other entities
- Orange County Conservation Study: SFWMD, Orange County Utilities, 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. (WSF): SFWMD and BCB Service Center

**Activities completed in FY2014:**

- **Conserve Florida Water Clearinghouse:** Funding was provided in the FY2014 budget for the final phase of operations and maintenance activities.
- **WaterSIP:** Since program inception, 172 projects were funded District-wide with an estimated water savings of 7.55 mgd. In FY2014, 11 projects with an estimated water savings of 85 MGY were awarded funding totaling \$250,000.
- **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 Co. and the BCB service area. The BCB lab was funded by the District while the remaining labs were funded by other sources.
- **FAWN:** The District is in the second year of a 10-year memorandum of understanding for the installation, operation, and maintenance of two FAWN/FDACS-funded weather stations located on District property in the Village of Wellington and Okeechobee County. UF calculates all estimates of water savings on a statewide basis.
- **The Great Water Odyssey (Online Teacher Training Program):** This web-based, interactive water resource teacher training is available to public elementary school teachers, home schoolers, private school elementary teachers, and others teaching within the SFWMD. The curriculum is offered free of charge to teachers located in District. In FY2014, the training reached 99 teachers, resulting in the curriculum being taught to more than 2,200 third, fourth, and fifth grade students.
- **Water Symposium of Florida, Inc. – Big Cypress Basin:** Naples Bay is impaired for copper due to extensive runoff from neighborhood stormwater ponds and canals. In coordination with WSF and the Collier County Department of Transportation, it was determined that Collier County should modify its annual maintenance program and cease applying copper for the treatment of algae in detention ponds. This would significantly decrease the amount of copper entering primary canal waters of the BCB, which in turn discharge to Naples Bay. WSF held community workshops about utilizing native plants and aeration in place of copper to control algae.
- **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. UF selected 167 residential participants and 1 commercial property in each of the residential clusters for the study. UF completed surveys and site evaluations for these properties, and has determined that the commercial property will have ET controllers installed on its irrigation system.

**Activities proposed for FY2015:**

- **WaterSIP:** Options are being evaluated to combine this program with the alternative water supply and stormwater programs into one cooperative funding program. (DD01, \$250,000)
- **MIL Program (BCB):** One urban MIL in the BCB will continue to be funded by the District (DD01, \$55,000). The remaining MILs will be funded by other entities.
- **FAWN:** Activities will include maintenance of weather stations, enhancement of the mobile application, and continued enhancement of the FAWN system. (DD01, \$75,000)
- **Orange County Conservation Study:** Irrigation data will continue to be collected during FY2015 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; however, the District will not be providing additional funds during FY2015.

- **The Great Water Odyssey:** This web-based, interactive water resource teacher training will continue to be made available to public elementary school teachers, home schoolers, private school elementary teachers, and others teaching within the SFWMD. The program is planned to reach 75–125 educators. (DD08, \$15,000)

**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 (Note: funding complete)
- Orange County Conservation Study: Orange County Utilities and other water management districts
- The Great Water Odyssey: SFWMD
- Water Symposium of Florida, Inc.: SFWMD

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

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	671 <sup>1</sup>	675 <sup>2</sup>	675 <sup>2</sup>	675 <sup>2</sup>	675 <sup>2</sup>	3,371

<sup>1</sup>\$395K contractual costs and \$276K FTEs

<sup>2</sup>\$395K contractual costs and \$280K FTEs

**ALTERNATIVE WATER SUPPLY (DE01, DE02)**

A full description of Alternative Water Supply-related projects and associated funding is contained in the District’s Alternative Water Supply Annual Report in Chapter 5B of this volume, prepared pursuant to Section 373.707(7), F.S.

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	1,739 <sup>1</sup>	1,740 <sup>1</sup>	1,740 <sup>1</sup>	1,740 <sup>1</sup>	1,740 <sup>1</sup>	8,699

<sup>1</sup>\$1.65M contractual costs and \$89K FTEs

<sup>2</sup>\$1.65M contractual costs and \$90K FTEs

**RESOURCE EVALUATION (DF01, DF02, DF05, DF06, DF07)**

**Drilling and Testing Program (DF05)**

The District’s knowledge of Florida’s hydrogeology is enhanced whenever exploratory test wells are constructed. 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 hydro-meteorologic database, DBHYDRO ([www.sfwmd.gov/dbhydro](http://www.sfwmd.gov/dbhydro)).

**Implementing entity:** SFWMD

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

**Activities completed in FY2014:**

- **Lower Floridan Aquifer Evaluation in the Kissimmee Basin:**
  - **Site C:** Finalized well construction and testing report.
  - **Site E:** Located along the border between SFWMD and SWFWMD, site E represents the recharge area of the Floridan aquifer system. The SFWMD conducted water quality sampling and analysis of geochemical tracers and isotopes from five wells; four existing and one new well in the area during FY2014.
  - Prepared draft report on isotope water quality in the Lower Floridan aquifer in Central Florida.
- **Geophysical Log Analysis:** Caliper and gamma logging was conducted at 13 wells within the District to identify screened intervals from wells where this information does not exist in the DBHYDRO database.

**Activities proposed for FY2015:**

- **Lower Floridan Aquifer Evaluation in the Kissimmee Basin:** Prepare final report on isotope water quality in the Lower Floridan aquifer in Central Florida. (DF05, FTEs only)
- **Geophysical Logging:** Conduct geophysical logging on selected wells and boreholes throughout the District. (DF01; \$18,893)

**Estimated completion date:** Ongoing

**Funding source:** SFWMD

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

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	198 <sup>1</sup>	200 <sup>2</sup>	200 <sup>2</sup>	200 <sup>2</sup>	200 <sup>2</sup>	998

<sup>1</sup>\$19K contractual and \$179 FTEs

<sup>2</sup>\$20K contractual and \$180 FTEs

## **Groundwater Monitoring (DF01, DF06)**

Water level and water quality monitoring at existing wells provide critical information to aid the SFWMD in developing groundwater models, assessing groundwater conditions, and managing these resources. The District maintains extensive groundwater monitoring networks and partners with the United States Geological Survey (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 directly available.

**Activities completed in FY2014:**

- **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 DBHYDRO.
- **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, analysis and validation, and archival in DBHYDRO.
- **Hydrogeologic Data Archiving:** Uploaded backlogged data and conducted miscellaneous database corrections.
- **Monthly Groundwater Level Measurements:** Continued ongoing water level monitoring at select sites, including data collection, analysis, and validation for the Hydrologic Online Well Data Inventory (HOWDI) wells. Data were archived in DBHYDRO.
- **Floridan Aquifer Well Monitoring Equipment Maintenance:** Continued ongoing water level monitoring and maintenance at select Floridan aquifer well sites, including data collection, analysis and validation, and archival in DBHYDRO, as well as 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 part of 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 Central Florida.
- **3D Hydrologic Model:** Modeling did not occur in FY2014 and budgeted money was used for other purposes.
- **Saltwater Intrusion Maps.** Staff compiled chloride concentrations from wells in District regulatory, DBHYDRO, and USGS databases and prepared maps displaying the estimated location of the 250 mg/L isochlor, which indicates the position of the saltwater interface in the surficial aquifer system along the coastal counties in the SFWMD.

**Activities proposed for FY2015:**

- **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 data archival 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 DBHYDRO. (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, analysis and validation, and archival in DBHYDRO. (DF01; staff resources only)
- **Hydrogeologic Data Archiving:** Continue uploading 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, analysis and validation for the HOWDI wells, as well as archiving data in DBHYDRO. (DF01; \$14,400)
- **Floridan Aquifer Well Monitoring Equipment Maintenance:** Continue ongoing water level monitoring and maintenance at select Floridan aquifer well sites, including data collection, analysis and validation, and archival in DBHYDRO, in addition to data logger maintenance. (DF01; \$48,390)
- **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, than 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:** Funds are allocated to retain university and consultant experts to interpret isotope water quality data for age-dating and characterization of fluid movement into groundwater resources. (DF06; \$50,000)

**Estimated completion date:** These are ongoing projects.

**Funding sources:** SFWMD and USGS

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

**Proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	1,326 <sup>1</sup>	1,330 <sup>2</sup>	1,330 <sup>2</sup>	1,330 <sup>2</sup>	1,330 <sup>2</sup>	6,646

<sup>1</sup> \$611K contractual costs and \$715K FTEs

<sup>2</sup> \$615K contractual costs and \$715K FTEs

### **Groundwater Modeling (DF02, DF07)**

The Water Supply Bureau is currently undertaking or has completed a number of groundwater modeling efforts that are described below. In FY2015, contractual funds are allocated to conduct peer review of a revised Lower West Coast Surficial/Intermediate Aquifer

System Model (LWCSIM) (DF02; \$75,000). All other modeling work is expected to be performed by District staff. There are three significant groundwater modeling initiatives underway or recently completed: Lower West Coast Floridan Aquifer Model, the previously mentioned LWCSIM, and the East Coast Floridan Aquifer System Model (ECFM).

### **Lower West Coast Floridan Aquifer Model**

The District's Lower West Coast Floridan Aquifer Model, which used the SEAWAT-2005 computer code, is now available to be used for predictive scenarios in support of future water supply planning efforts. The Lower West Coast Floridan Aquifer Model will be used to support development of the 2017 update to the LWC Water Supply Plan.

**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 FY2014:** No activity occurred in FY2014.

**Activities proposed for FY2015:** Though no activity is proposed for FY2015, development of input data sets and performance measures in preparation of modeling will be initiated in FY2016 and model simulations will be conducted in FY2016 and 2017.

**Estimated completion date:** FY2017

**Funding source:** SFWMD

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

### **Lower West Coast Surficial/Intermediate Aquifer Systems Model (LWCSIM)**

The Lower West Coast Surficial Aquifer System model (LWCSAS) was completed in 2006 and has been used sparingly to evaluate specific consumptive user permits but has not been used for planning purposes. The SFWMD intends to (1) develop an updated, calibrated model covering both the surficial and intermediate aquifer systems for the LWCSIM; (2) prepare model documentation of the updated model; (3) convene an independent peer review of the model; and (4) incorporate peer review comments and finalize the model and documentation. (DF02; \$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 FY2014:** Prepared final hydrostratigraphic surfaces and documentation, compiled aquifer parameters, and developed conceptual model.

**Activities proposed for FY2015:** The updated LWCSIM will be developed, calibrated, documented, and peer review will be initiated.

**Estimated completion date:** FY2016

**Funding source:** SFWMD

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

### East Coast Floridan Aquifer System Model (ECFM)

In June 2011, three independent groundwater modeling experts released their technical report reviewing the District's Phase II ECFM, which used the USGS's SEAWAT-2005 computer code. The District began incorporating the panel's recommendations in FY2012.

**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 FY2014:** The District completed final steady state model, transient density dependent model, and model documentation. Application of the model was initiated in the UEC.

**Activities proposed for FY2015:** The ECFM will be used to support development of the update to the UEC Water Supply Plan.

**Estimated completion date:** N/A

**Funding source:** SFWMD

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

**Total for Groundwater Modeling proposed expenditures:**

Cost	FY2015	FY2016	FY2017	FY2018	FY2019	Total
(\$ in thousands)	838 <sup>1</sup>	840 <sup>2</sup>	840 <sup>2</sup>	840 <sup>2</sup>	840 <sup>2</sup>	4,198

<sup>1</sup> \$75K contractual costs and \$528K FTEs (DF02), \$235K FTEs (DF07)

<sup>2</sup> \$75K contractual costs and \$765K FTEs

### PROGRAM SUPPORT (DZ)

No water resource development efforts are currently planned for the Program Support element.