

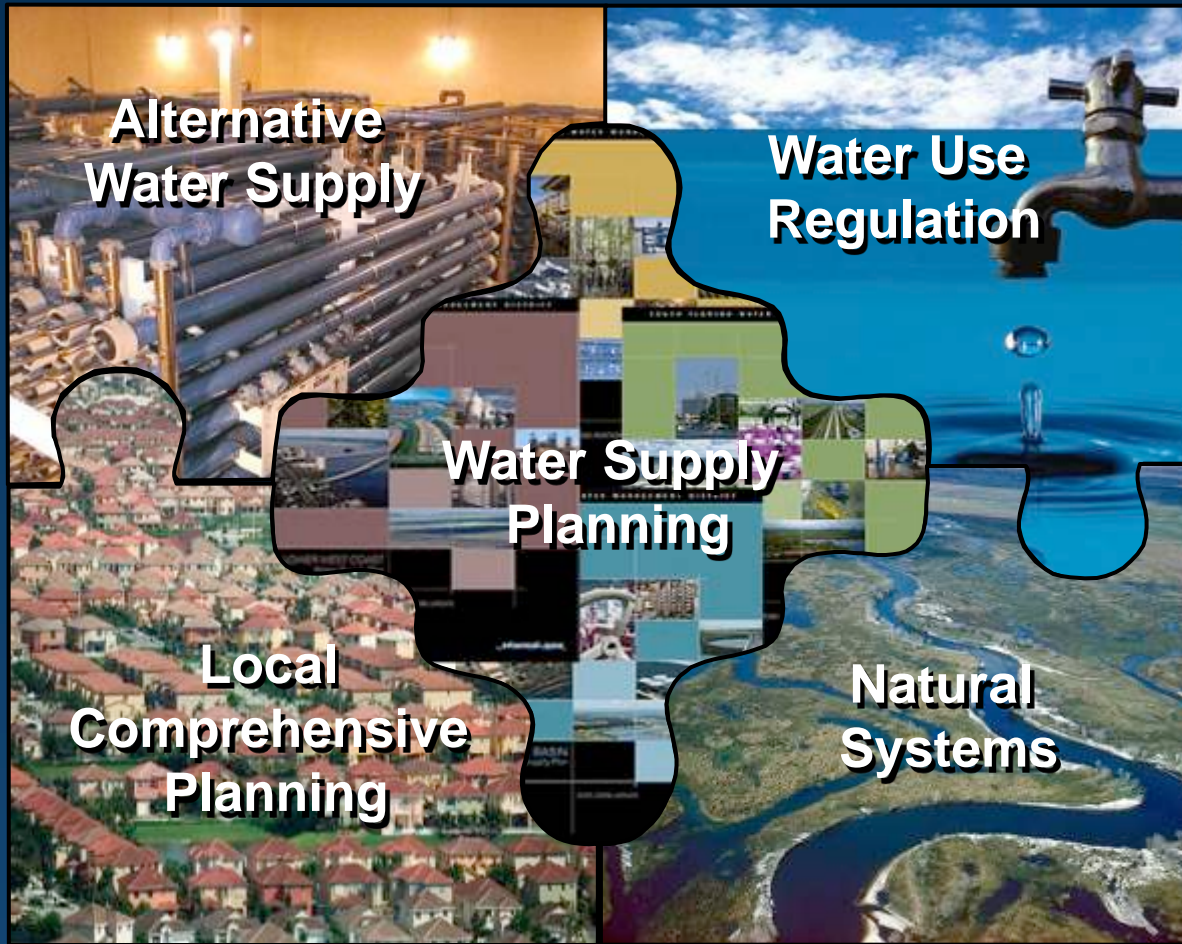


Alternative Water Supplies: Emerging Issues and Solutions

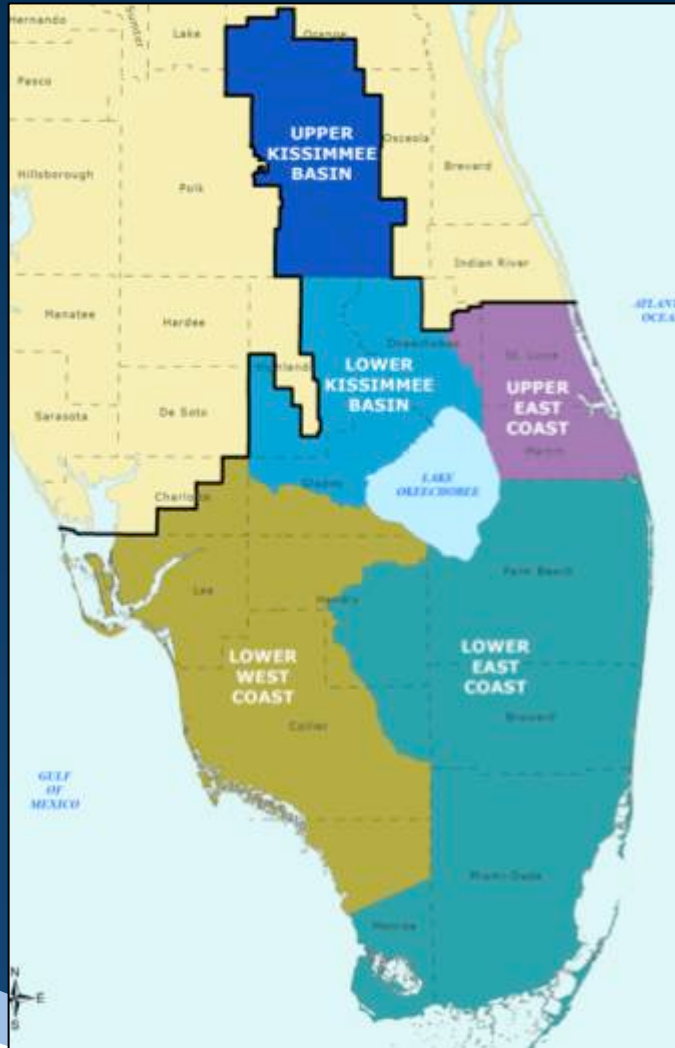
**Environmental Permitting Summer School
July 8, 2015**

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Assistant Executive Director
South Florida Water Management District

Program Linkages

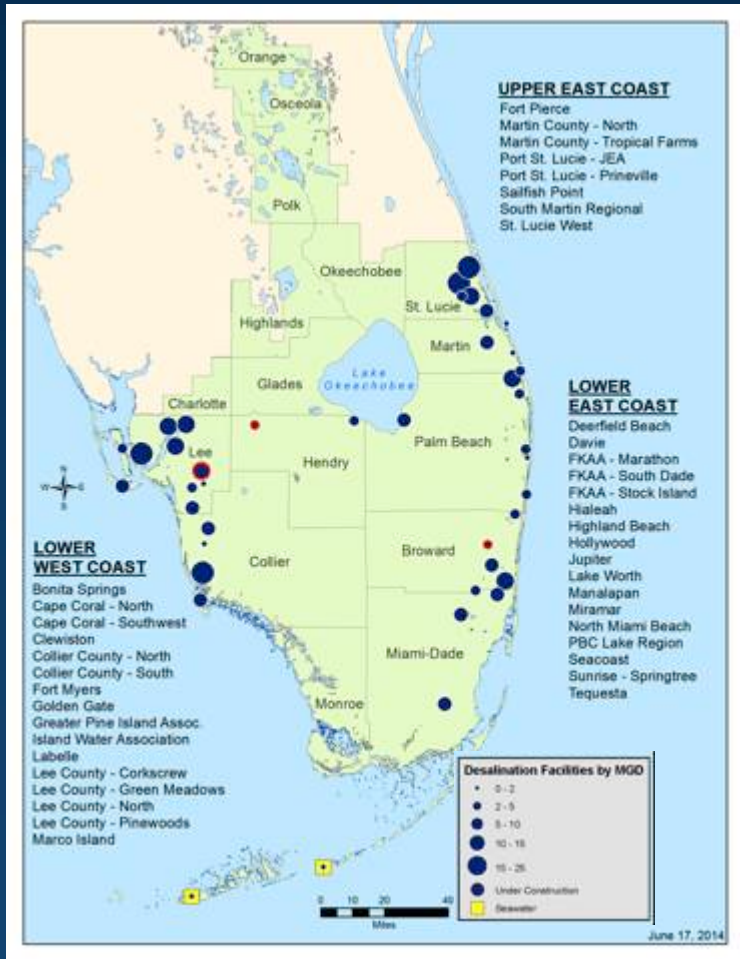


Regional Water Supply Planning



- At least a 20-year planning period
- Updated demand estimates and projections
- Resource analyses/issue identification
- Evaluation of water source options
- Water Resource and Water Supply Development
- Minimum Flows and Levels (MFLs)
- Identification of Alternative Water Supplies
 - Brackish groundwater
 - Reclaimed water
 - Surface water
 - Conservation

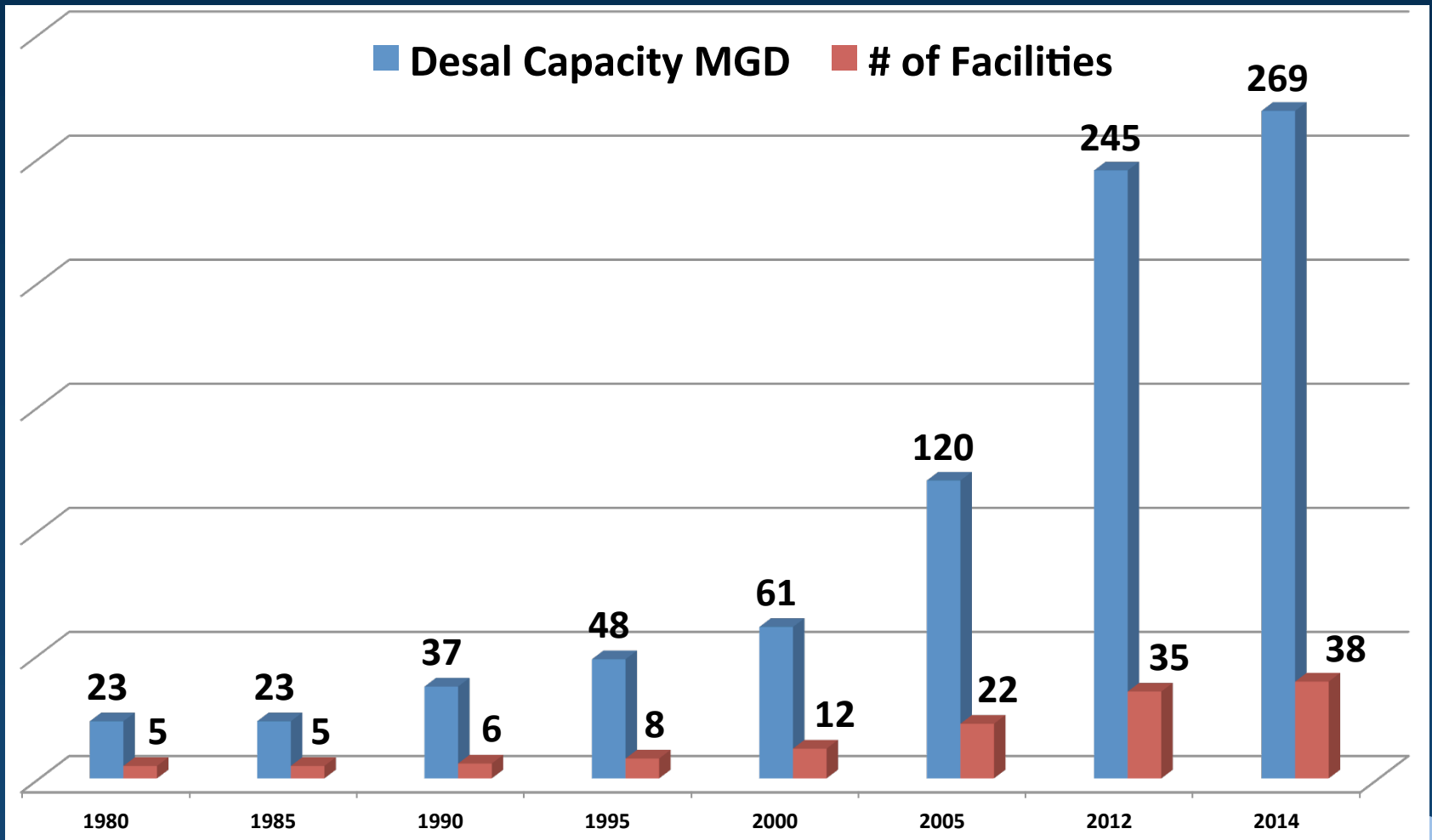
Potable Desalination Plants (2014)



- **Number of Facilities:**
 - Operating: 38
 - Under construction: 3

- **Total Capacity (MGD):**
 - Operating: 269
 - Under Construction: 17

Growth of Desalination in SFWMD



Conservation is a Win-Win

The cheapest gallon of water is the gallon we don't waste.

- Reduced impact on water resources
- Reduced wastewater that has to be treated and disposed
- Postpone/negate utility capital expenditures for new infrastructure
- Reduces impact of drought
- SFWMD Water Savings Incentive Program (WaterSIP) has partially funded 181 projects with an estimated savings of 2.84 billion gallons of water per year.



Lake Region Water Treatment Plant

- Serves ~25,000 people in western Palm Beach County
- Upper Floridan Aquifer water treated using reverse osmosis
- Up to 10 million gallons of water per day
- This eliminates the need to use Lake Okeechobee as a public water supply source.
- Construction was completed for a total project cost of \$58 million, including \$17.6 million in SFWMD and State approved funding



Little Cypress Tail Water Recovery

- 200-acre retention area at C&B Farms in Hendry County
- Reduced groundwater use from a restricted aquifer (Lower Tamiami)
- Reduced the farm's energy costs for irrigation
- Uses a drip irrigation system with lift pumps from the retention area
- Reduces phosphorus discharges to the C-139 Drainage District
- Improvements were completed for a total project cost of \$1.5 million, including \$363,000 in SFWMD funding



South Central Regional Plant

- Serves eastern Palm Beach County
- Project increased wastewater treatment capacity from 10 MGD to 24 MGD
- Now 100 % of effluent is reused for irrigation
- Virtually eliminated discharges through ocean outfalls
- The expansion project was completed for a total project cost of \$18.6 million, including \$7 million in SFWMD funding

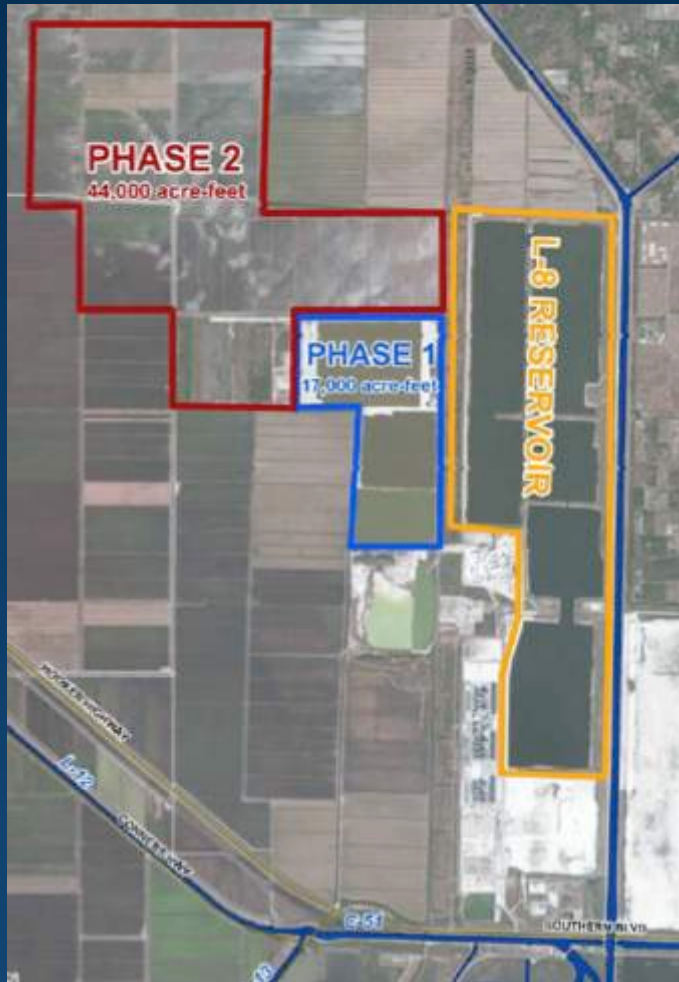


Martin County Utilities



- Tropical Farms Reverse Osmosis Plant expanded from 2 MGD to 8 MGD
- Expansion decreased the plant's dependency on water from the surficial aquifer
- Limited the potential for wetland impacts and saltwater intrusion
- Plant expansion was completed for a total project cost of \$11 million, including approximately \$2.4 million in SFWMD

C- 51 Reservoir



- Public-Private Partnership in western Palm Beach County
- Will capture stormwater high flows that would otherwise be discharged to Lake Worth Lagoon
- Water will then be discharged back into regional conveyance systems during periods of need to provide offsets for potential impacts to Lower East Coast Waterbodies

West County Energy Center

- Located in western Palm Beach County, West County Energy Center is the largest combined cycle power plant in the U.S. providing electricity to ~750,000 homes and businesses.
- The three combined cycle natural gas units use 100% reclaimed water. Total water use is @ 20 mgd; agreements provide for up to 27 mgd
- Reclaimed water is supplied through a 17-mile pipeline by the regional water supply authority composed of Palm Beach County and four municipalities



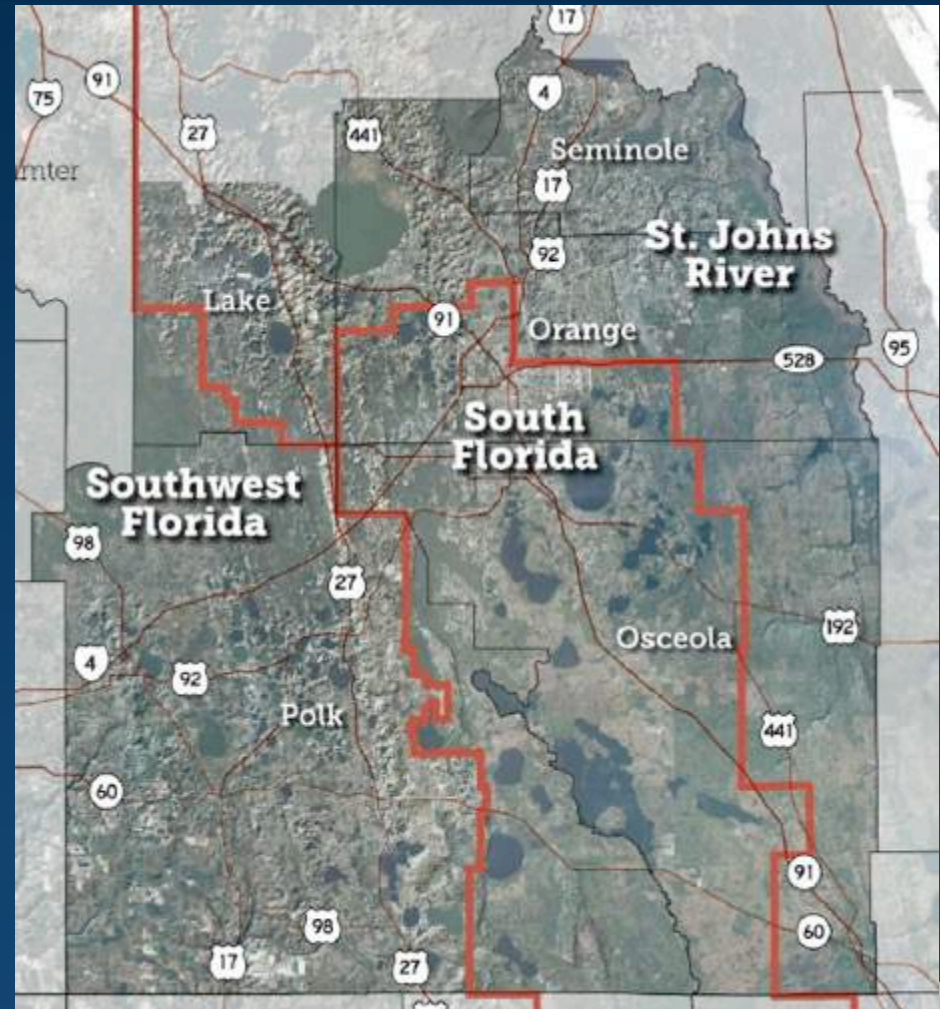
Tohopekaliga Water Authority



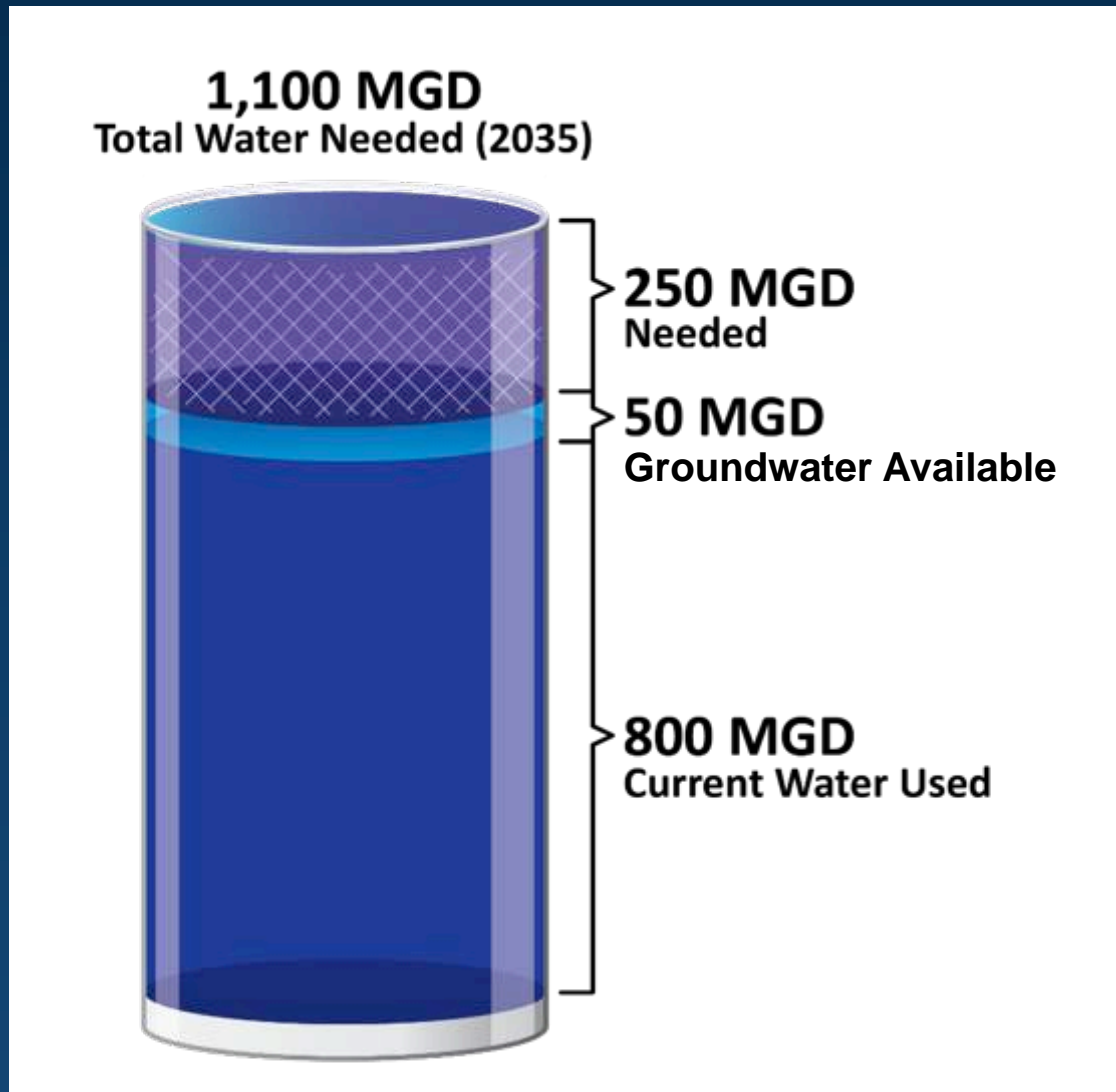
- Parkway Water Reclamation Project in Osceola County installed a covered tank that increases reclaimed water storage capacity to 7.5 MGD
- Added a new high-service pump that provides reclaimed water customers with a more consistent supply source and improved water pressure
- Improvements were completed for a total project cost of \$3.8 million, including approximately \$982,000 in SFWMD funding

Central Florida Water Initiative

- A collaborative regional water supply effort to protect, conserve and restore our water resources



Central Florida Water Initiative



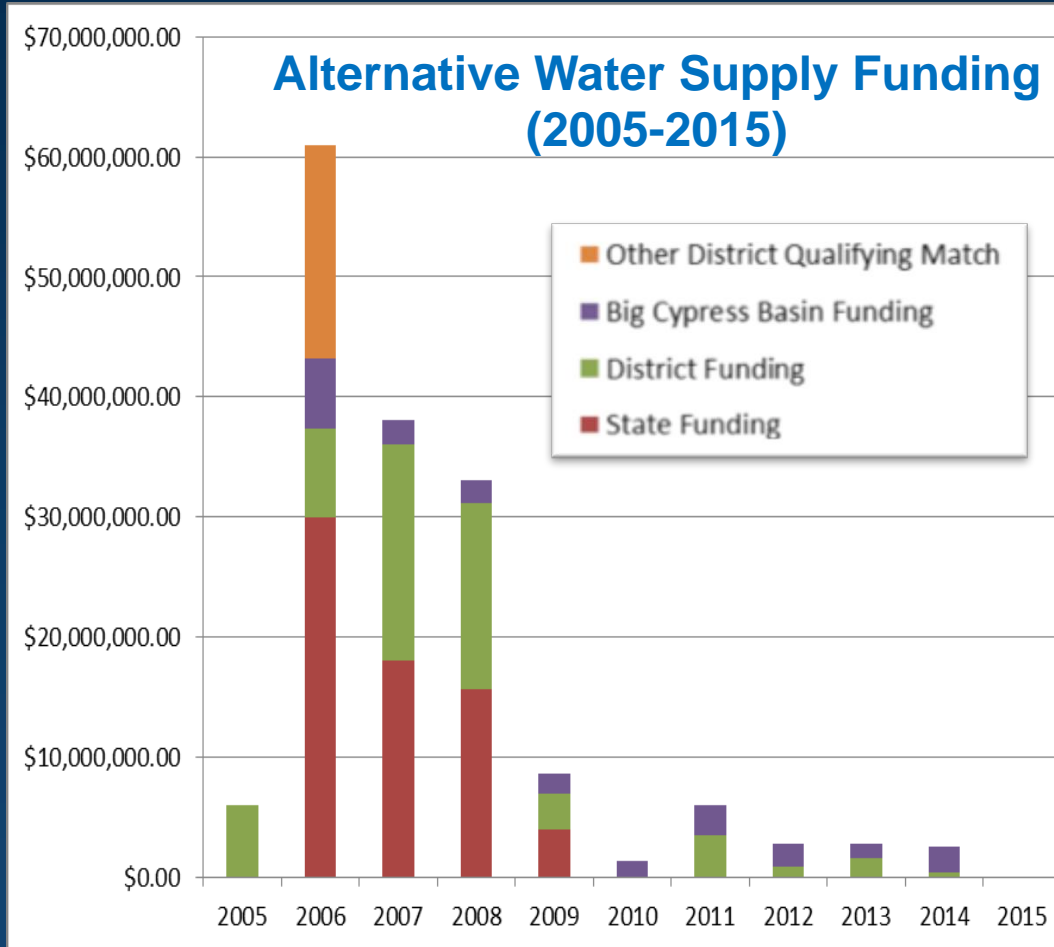
Regional Project Solutions

Projects	Total Quantity	Year 1 (MIL \$)	Year 2 (MIL \$)	Years 3-5 (MIL \$)	Total Cost (Mil \$)
Conservation (All)	36.8 mgd	3.8	6.1	24.5	170
Recovery Projects		2	1.5	10	50
Data Monitoring & Investigation		3	7.5	23.1	34.1
Other Investigations		1.3	3.3	3.7	8.9
Groundwater Projects					
South Lake County Wellfield	12.7 mgd			60.7	116.5
Cypress Lake Wellfield	30 mgd	14	25.8	153.7	374.3
Southeast Polk County Wellfield (centralized)	30 mgd	2.4	2.6	129.5	284.6
Reclaimed Water Projects					
Project RENEW	9.2 mgd			24.6	50.5
West Ditch Stormwater for Reuse Augmentation	0.9 mgd	1.6	2.3	11	28.2
160-ac Site Indirect Potable Reuse	4.5 mgd	0.6	0.7	6.4	7.7
TECO Polk Power Reuse	10 mgd				97
AFIRST/Altamonte Springs	4.5 mgd				15
Surface Water Projects					
St. Johns River/Taylor Creek Reservoir	54 mgd			10	637.6
St. Johns River near State Road 46	40 mgd				584.3
St. Johns River near Yankee Lake	40 mgd		2	20	536.7
Polk Regional Alafia River Basin	10 mgd				263.4
Grove Land Reservoir and Stormwater Treatment	122.4 mgd raw water	3	3		435.4
Stormwater Projects					
Judge Farms Reservoir and Impoundment	5 mgd	0.5	17.7	6.8	28.3
Lake Wailes Stormwater Mitigation	1.4 mgd		1.2	12.4	13.6
Reedy Creek Watershed	4 mgd				1.6
Total Financial Plan	224.5 mgd	32.2	73.7	496.4	2,775.7
Total Solutions Projects	415.4 mgd				3,737.7

Summary

- From Fiscal Years 1997 to 2014, alternative water supply projects totaling approximately \$1.4 billion in construction costs received partial funding from the South Florida Water Management District
- The District provided approximately \$193.5 million in budgeted grants toward 488 alternative water supply projects that produced 434 million gallons of capacity per day

Summary



- Water Protection and Sustainability Program established in 2005, but not funded since FY2009
- SFWMD continued to budget ad valorem revenues for the program for FY2011-2014
- No State or District funding for FY2015

AWS on the WWW

Alternative Water Supply

RELATED LINKS

- ▶ About Water Supply Planning
- ▶ Desalination
- ▶ Water Reuse
- ▶ Aquifer Storage and Recovery
- ▶ Alternative Water Supply Funding Assistance
- ▶ Alternative Water Supply – Highlighted Projects
- ▶ Intergovernmental Programs: Linking Land and Water
- ▶ Cooperative Funding Program
- ▶ Water Conservation
- ▶ WaterSIP

www.sfwmd.gov/AWS

Senate Bill 536 Study

During its 2014 session, the Florida Legislature passed SB 536 requiring the Florida Department of Environmental Protection to "conduct a comprehensive study and submit a report on the expansion of use of reclaimed water, stormwater, and excess surface water in this state" by December 2015. The state's five water management districts are working with DEP on the study.

For more information:

- ▶ DEP: Report on Beneficial Use of Reclaimed Water, Stormwater and Excess Surface Water

www.sfwmd.gov/AWS

www.sfwmd.gov/coopfunding

Cooperative Funding Program

RELATED LINKS

- ▶ Cooperative Funding Program Application Process
- ▶ Just the Facts: SFWMD Cooperative Funding Program [PDF]
- ▶ FAQs: SFWMD Cooperative Funding Program [PDF]
- ▶ Intergovernmental Programs: Linking Land and Water
- ▶ Alternative Water Supply
- ▶ Water Conservation
- ▶ Water Savings Incentive Program (WaterSIP)

www.sfwmd.gov/coopfunding

People recognize and respect city and county borders. Water does not. The South Florida Water Management District is a regional agency committed to ensuring that local perspectives are incorporated into our activities. Strong working relationships between local officials and staff allow us to share and utilize our knowledge, expertise and resources to address shared water and land stewardship responsibilities. Intergovernmental communication, cooperation and coordination are vital to meeting the water resource needs of our communities.

Cooperative Funding Program