WRAC Issues Workshop

June 27, 2013

2013 LOWER EAST COAST WATER SUPPLY PLAN UPDATE

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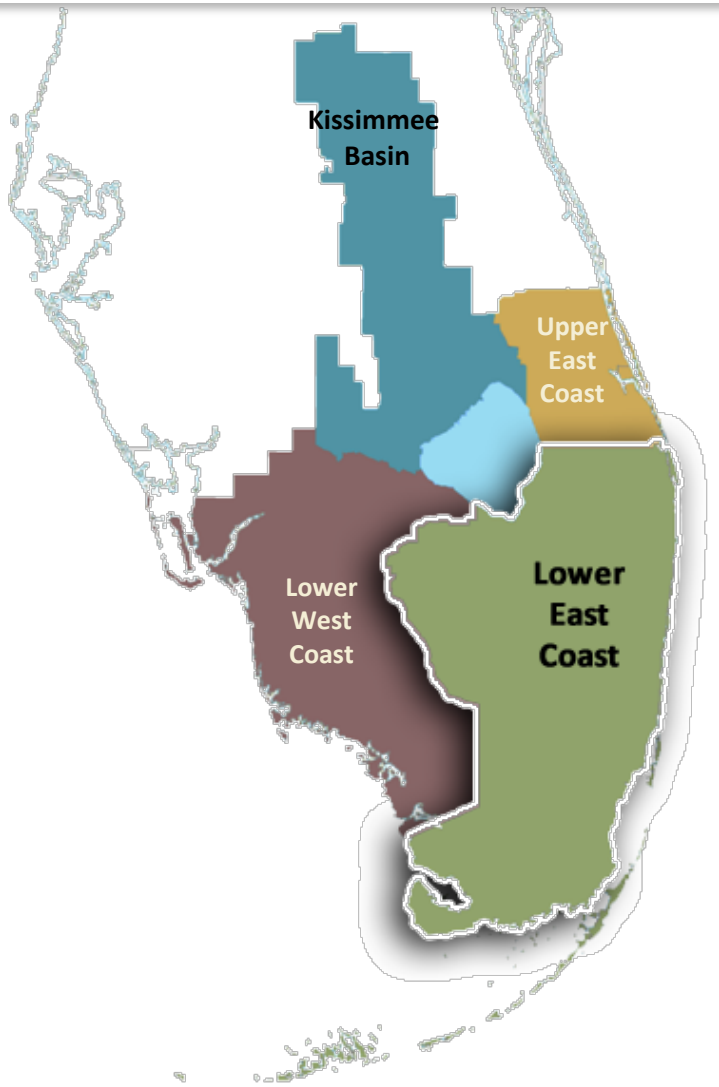
What is a Regional Water Supply Plan?

- Current and future look at water needs
- Strategies and sources to meet future water demands and the needs of the environment
- Based on at least a 20-year future planning horizon
- Updated every 5 years
- Local governments required to respond with updates to water facilities element of comprehensive plan

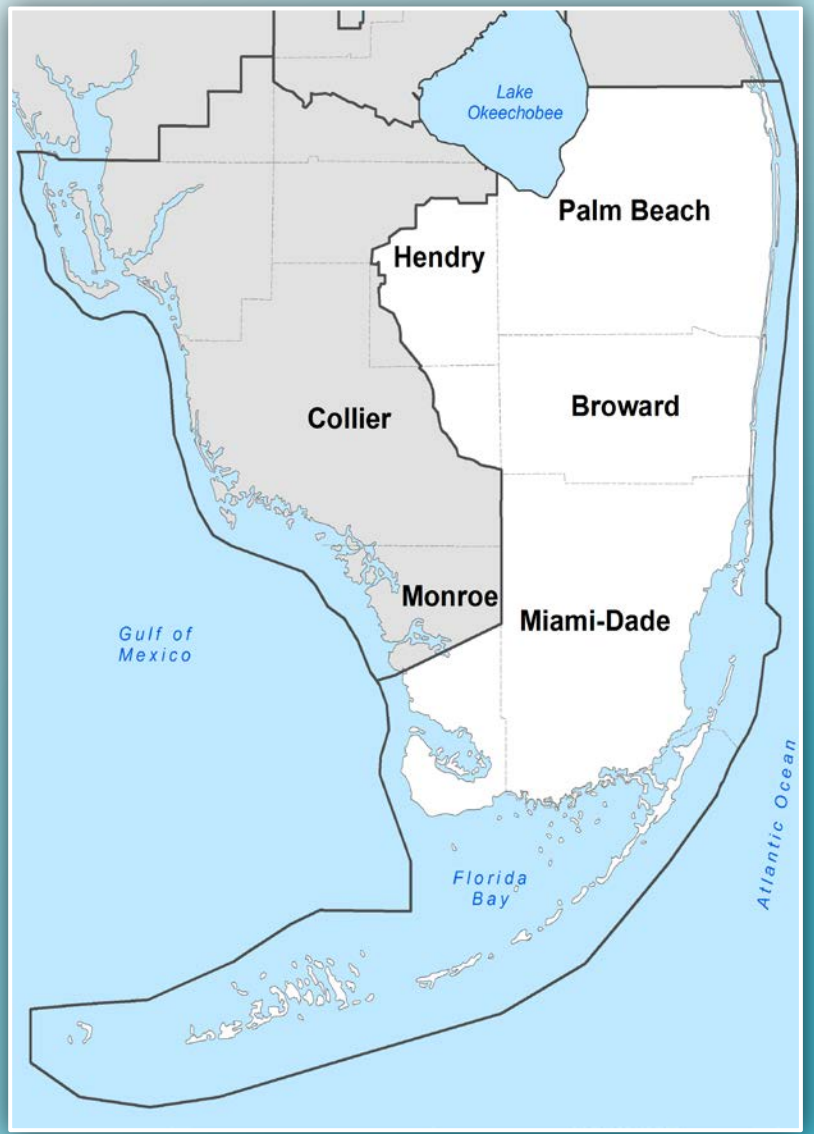


Regional Water Supply Plan Requirements

- **20-year planning period**
- **1-in-10 level of certainty**
- **Demand estimates and projections**
- **Resource analyses/issue identification**
- **Evaluation of water source options, including conservation**
- **Water Resource Development**
  - *Responsibility of water management*
- **Water Supply Development**
  - *Responsibility of water utilities/users*
- **Minimum Flows and Levels (MFLs)**
  - *Prevention or recovery strategies*

Lower East Coast (LEC) Planning Area

- **Geographic Area:**
  - Palm Beach, Broward, Miami-Dade and Monroe counties
  - Eastern Collier and Hendry counties
- **Major urban areas**
- **112 local governments**
- **50 public water supply utilities**
- **Major agricultural industry**
- **Significant environmental resources**



LEC Planning Area

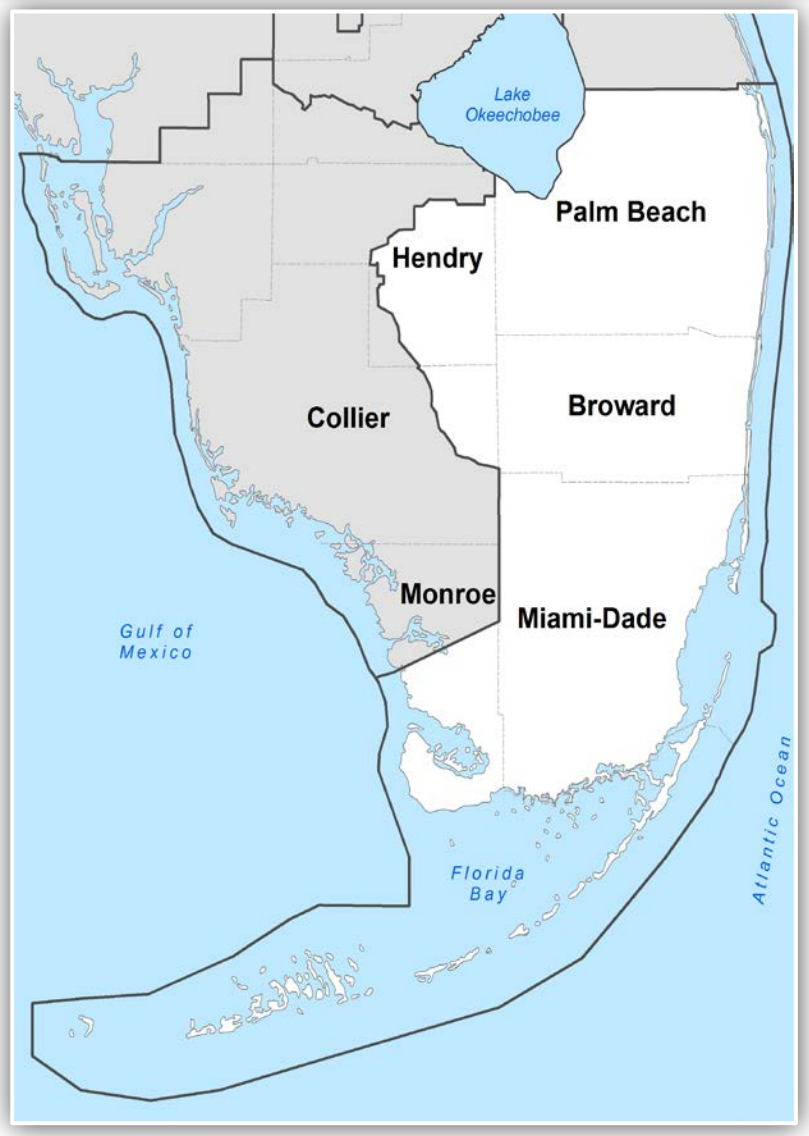
Planning Horizon 2010 – 2030

- **Population:**
  - 2010 5,637,725
  - 2030 6,666,866 (projected)

  18% population increase
- **Irrigated agricultural acreage:**
  - 2010 575,316
  - 2030 575,897

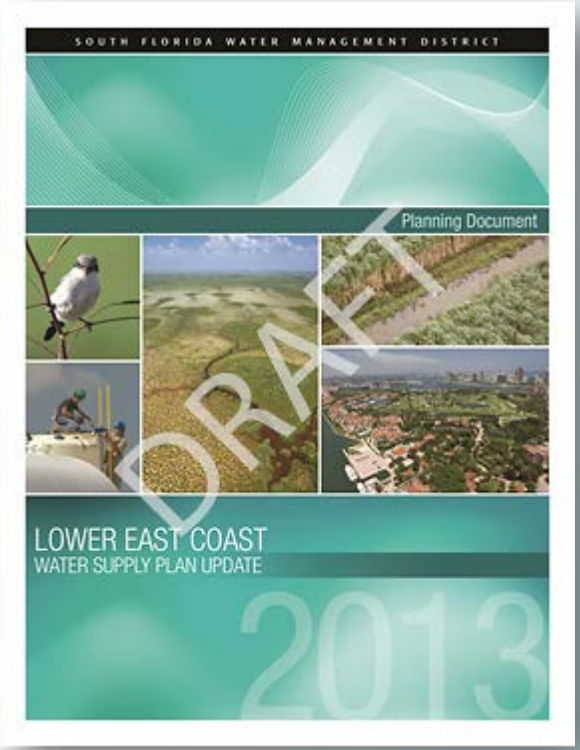
  Slight increase (< 1%) in ag acres
- **Gross water demands:**
  - 2010 1,719 MGD
  - 2030 1,933 MGD

  12% water demand increase

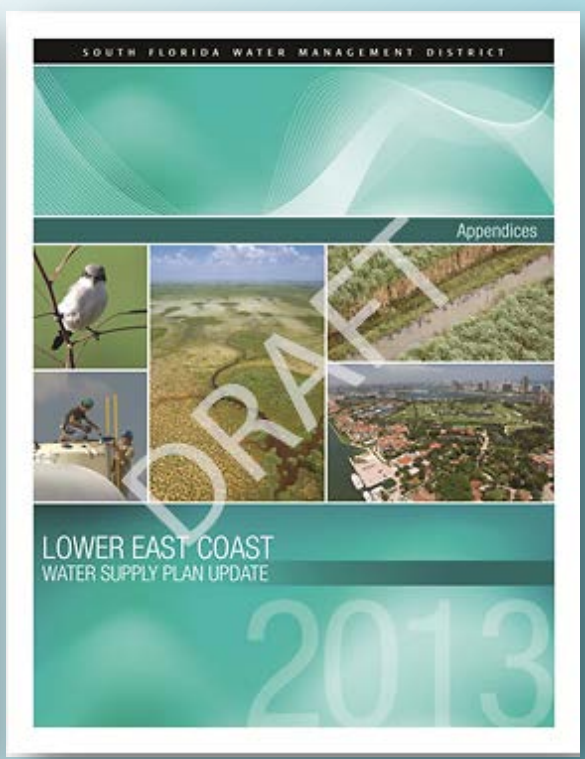


2013 Draft LEC Plan Update Documents

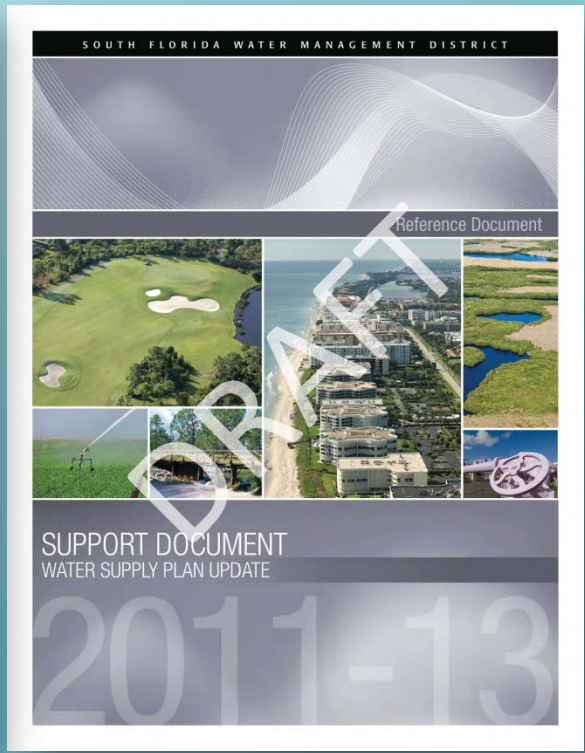
Planning



Appendices



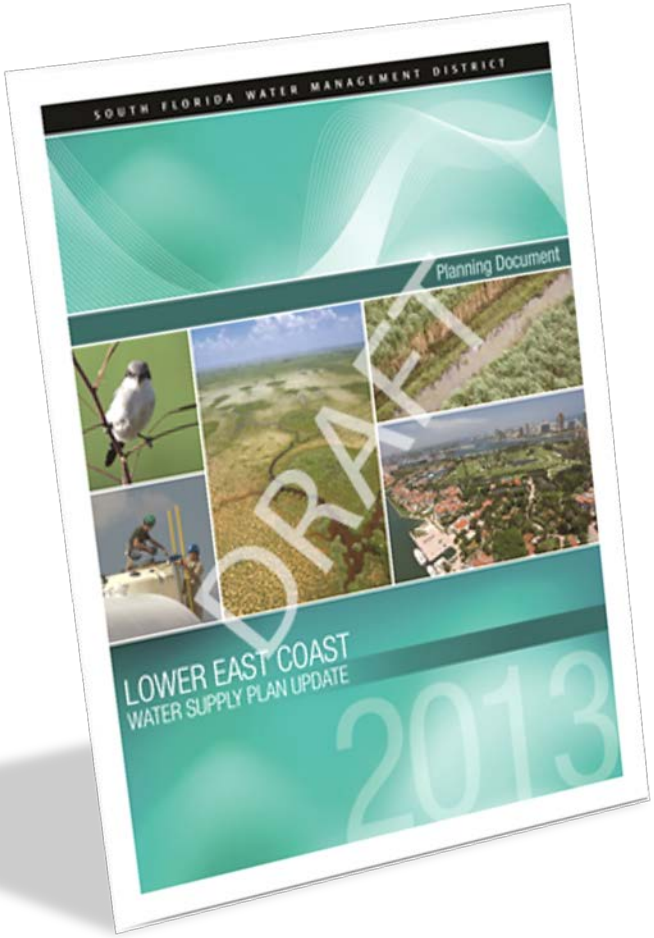
Support



Planning Document Outline

- **Executive Summary**
- ✓ ***Chapter 1: Introduction***
  - Purpose, plan goal and objectives
  - Overview of planning area and update process
  - Water supply planning for next 20 years
- ✓ ***Chapter 2: Demand Estimates and Projections***
  - Demands by water use category
  - Population and water use trends
  - Demand projections in perspective
- **Chapter 3: Water Resource Analyses – Current and Future Conditions**
  - Resource protection overview, water resources overview, and climate change

Planning Document Outline (cont.)



- **Chapter 4: Water Resource Development Projects**
  - Water resource projects such as CERP, monitoring, MFLs, water reservations, and modeling
- ✓ ***Chapter 5: Evaluation of Water Source Options***
  - Surface water, groundwater, reclaimed water, storage, conservation, and seawater
- ✓ ***Chapter 6: Water Supply Development Projects***
  - PWS projects to meet the next 20-year needs
  - Utility summaries
- **Chapter 7: Future Direction**
  - Water sources, coordination and climate change

Goal

To identify sufficient water supply sources and future projects to meet existing and future reasonable-beneficial uses during a 1-in-10 year drought condition through 2030 while sustaining water resources and natural systems

Objectives

Water Supply

- Identify sufficient water resource and water supply development options to meet projected 2030 demands during a 1-in-10 year drought event

Conservation and Alternative Source Development

- Increase levels of conservation, efficiency of water use, and development of alternative water sources to meet projected demands

Natural Systems

- Protect and enhance the environment including the Everglades and other federal, state and locally identified natural resource areas

Objectives (cont.)

Linkage with Local Governments

- Provide information to support local governments comprehensive plans

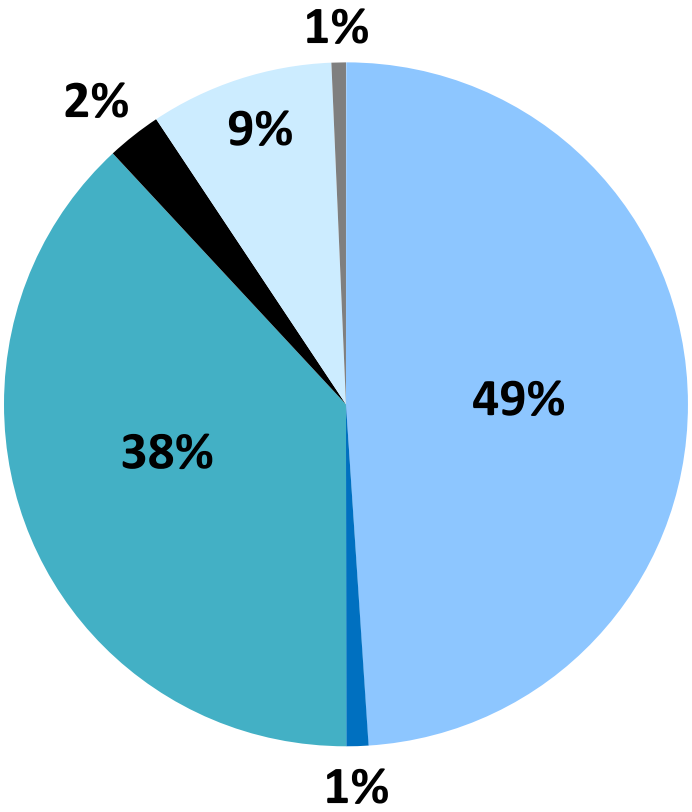
Compatibility and Linkage with Other Efforts

- Achieve compatibility and integration with:
  - CERP and other environmental restoration projects
  - Modifications to operating schedules for the regional system, including Lake Okeechobee
  - Water use permitting process, minimum flows and level criteria, and water reservations
  - Other local and regional water resource planning efforts

Demand Estimates & Projections

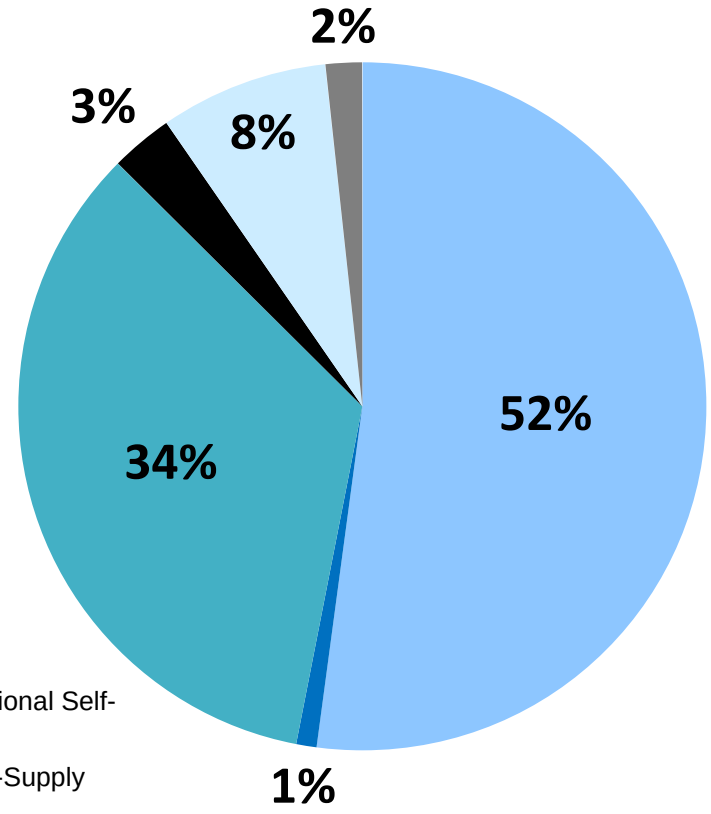
Water Use Category	Estimated 2010 Gross Demand (MGD)	Projected 2030 Gross Demand (MGD)
Public Water Supply	842	1,008
Domestic Self-Supply	18	19
Agricultural Self-Supply	655	664
Industrial/Commercial/Institutional Self-Supply	44	57
Recreation/Landscape Self-Supply	149	153
Power Generation Self-Supply	12	33
LEC Planning Area Gross Demand Total	**1,719**	**1,933**

2010 & 2030 Percentage of Use by Water Use Category



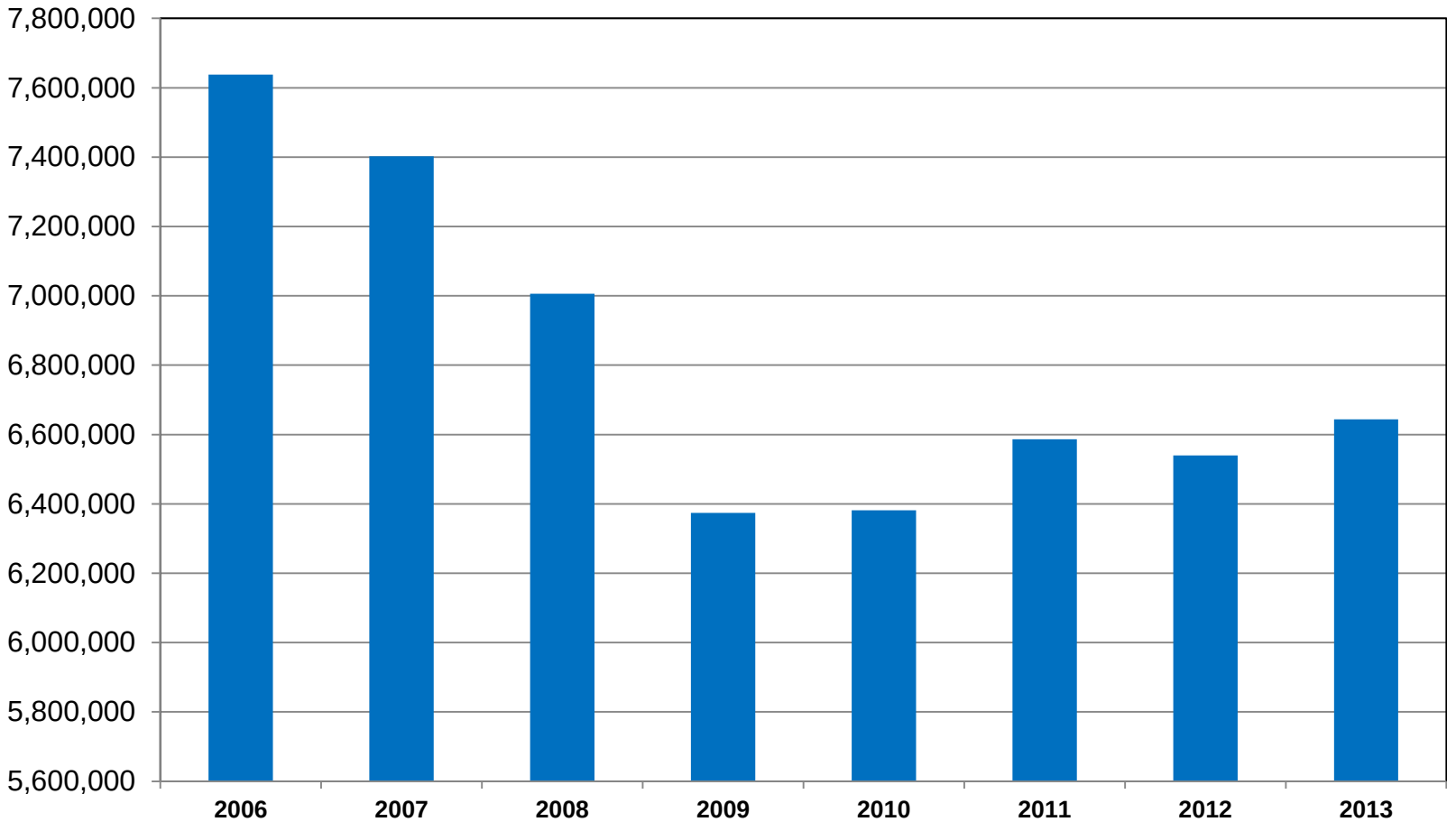
2010 DEMAND (1,719 MGD)

- Public Water Supply
- Domestic Self-Supply
- Agricultural Self-Supply
- Industrial/Commercial/Institutional Self-Supply
- Recreational/Landscape Self-Supply
- Power Generation Self-Supply



2030 DEMAND (1,933 MGD)

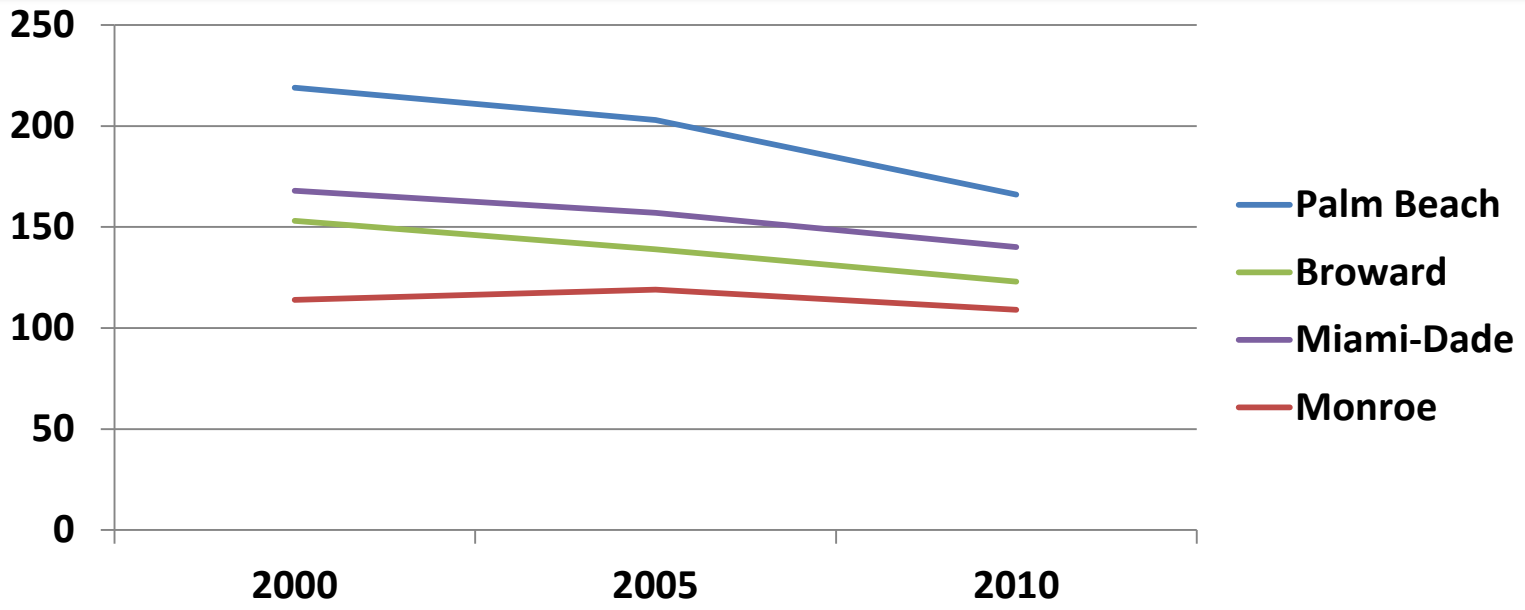
Changes Since 2006 LEC Plan in Population Projections* for 2030



* Official state population projections made annually by the Bureau of Economic & Business Research at UF

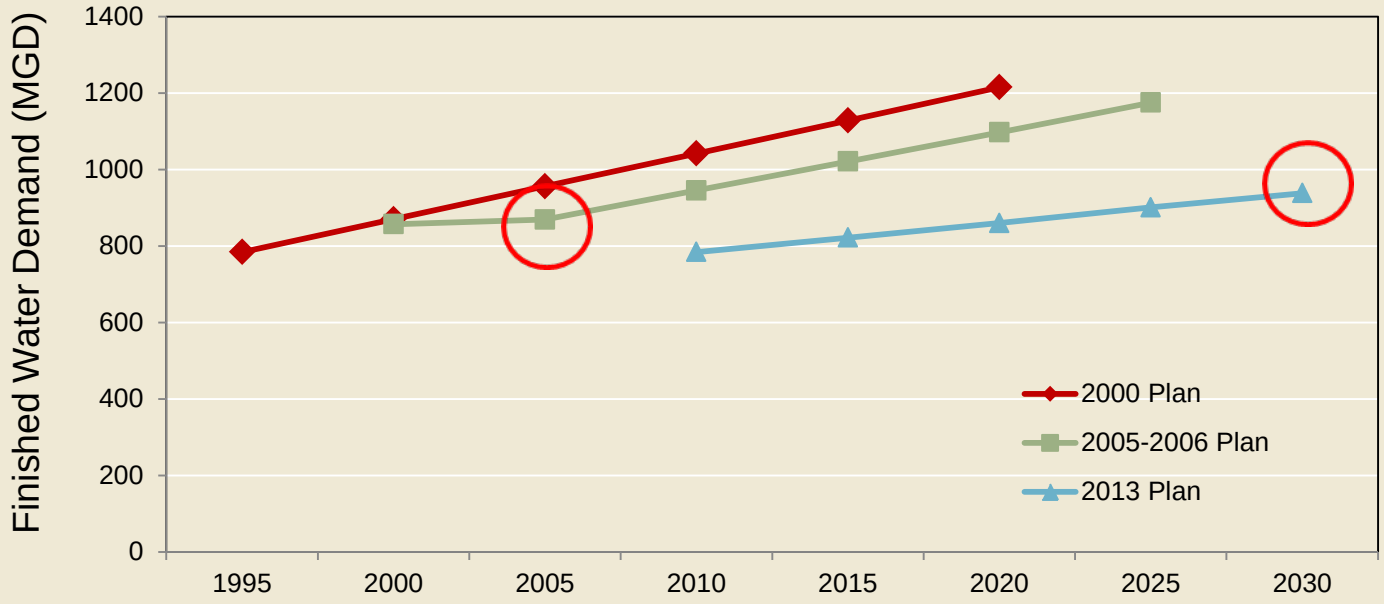
LEC Declining Per Capita Usage

Gallons Per Capita Per Day



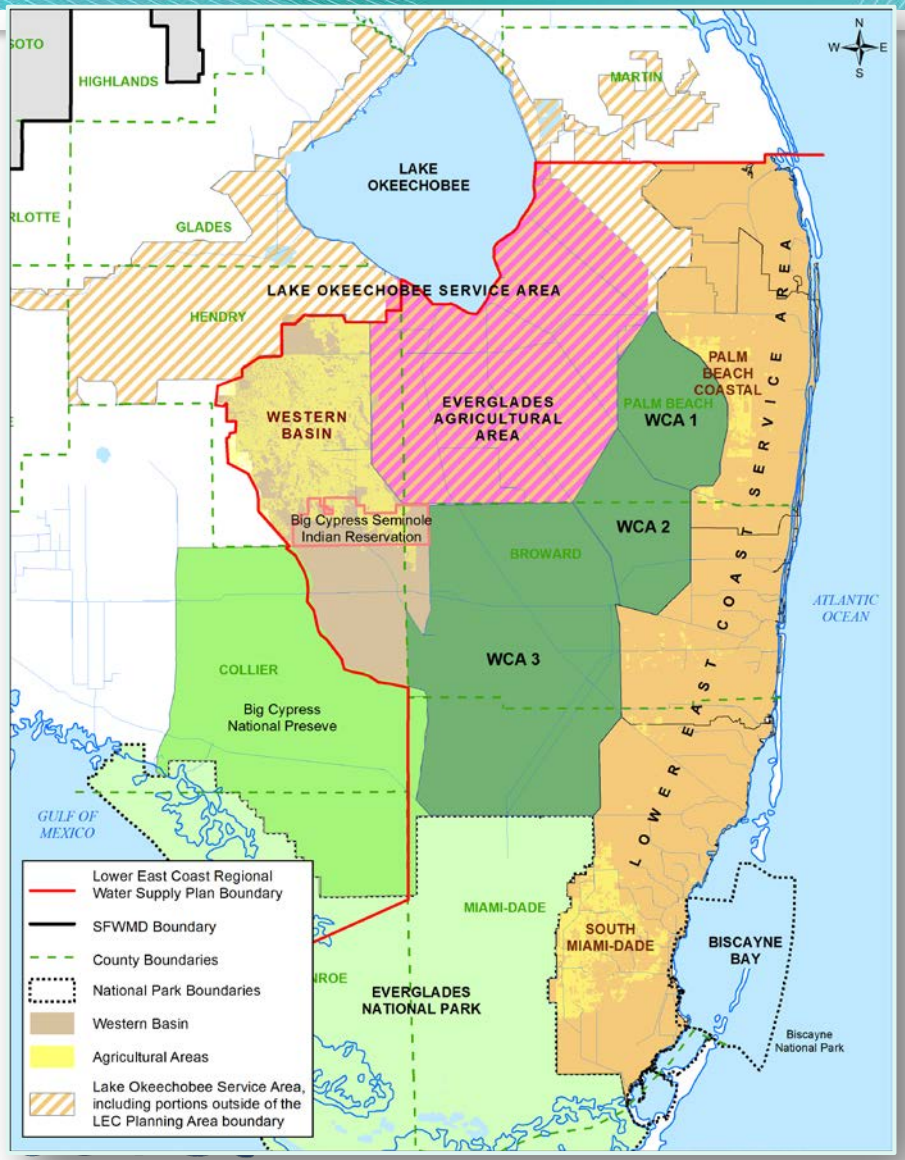
County	Gallons Per Capita Per Day		
	2000	2005	2010
Palm Beach	219	203	166
Broward	153	139	123
Miami-Dade	168	157	140
Monroe (includes permanent and seasonal population)	114	119	109
LEC Area Average	176	163	142

History of Public Water Supply Demand Projections (Finished Water)



Plan Year	1995	2000	2005	2010	2015	2020	2025	2030
2000 Plan	784	870	956	1,042	1,128	1,215		
2005 Plan		857	869	945	1,021	1,097	1,175	
2013 Plan				784	822	860	901	938

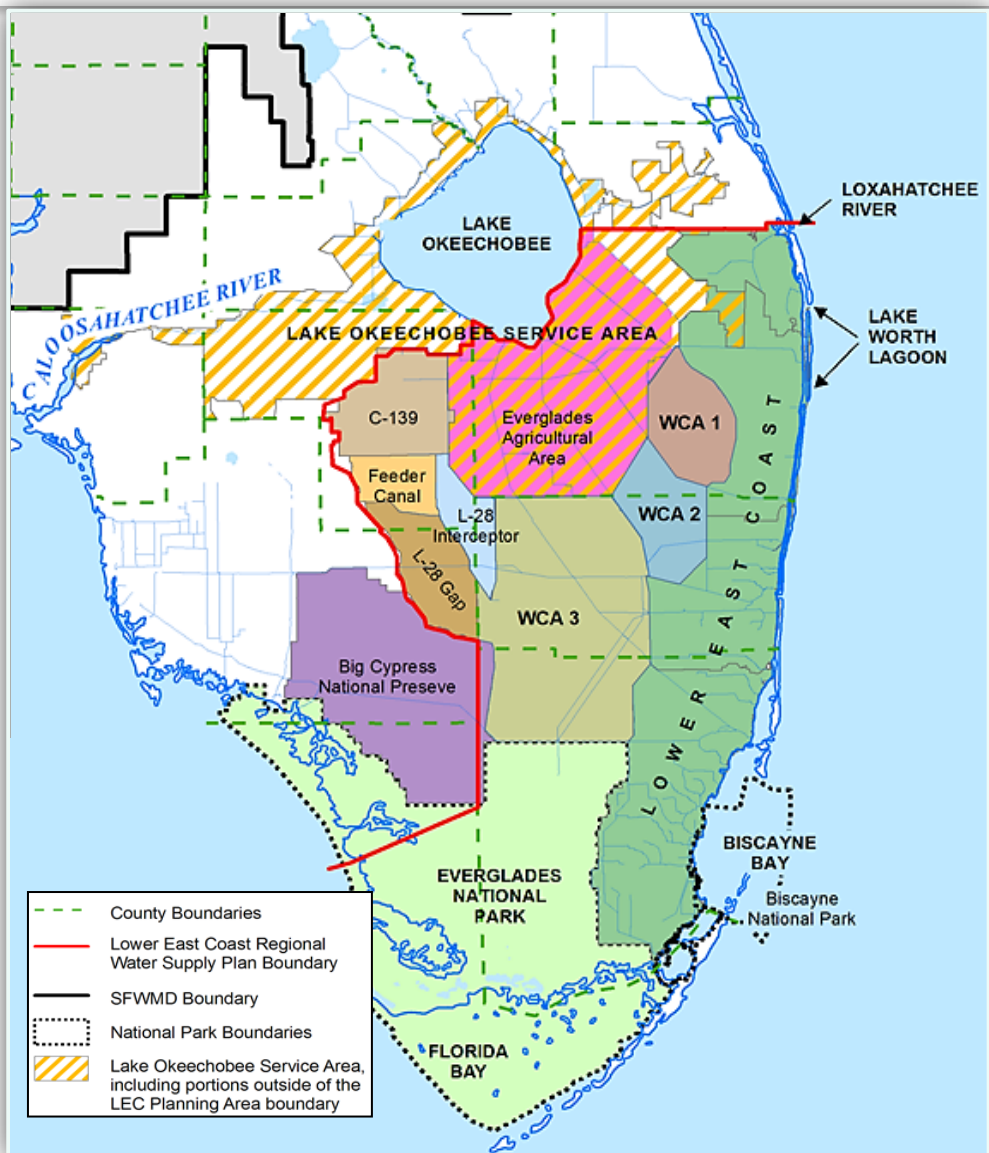
Agricultural Projections



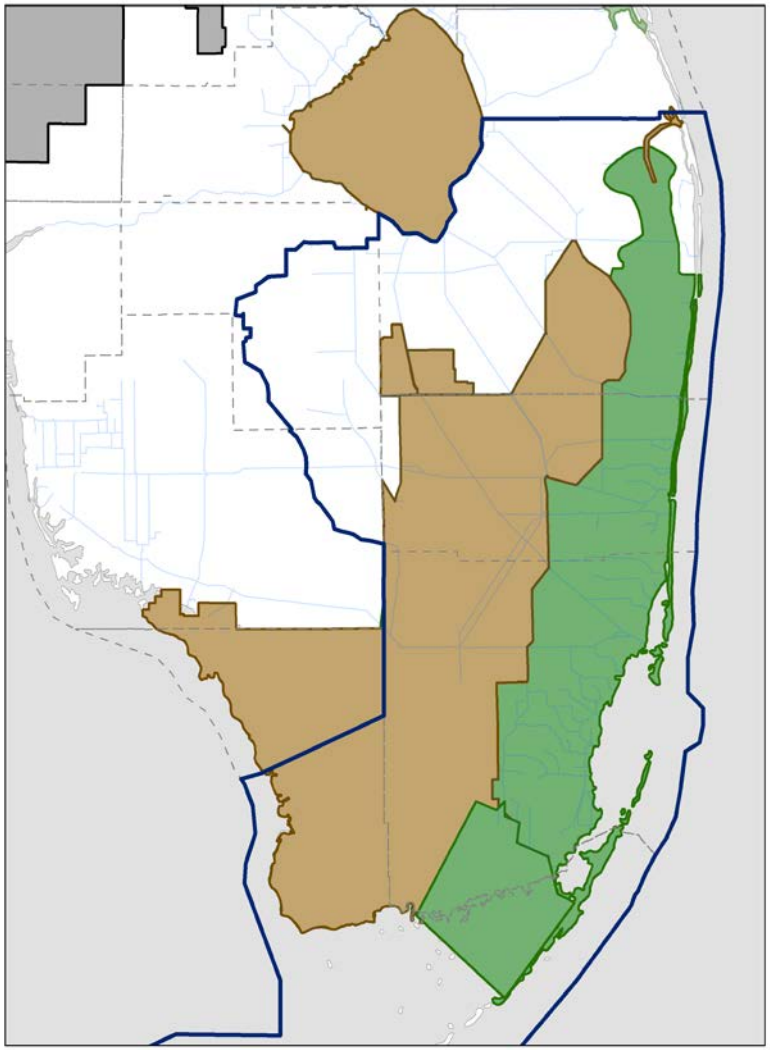
- **EAA:**
  - Fully developed and stable
  - No increase expected
- **LECSA:**
  - Minimal increase (404 acres, <1%)
- **Western Basins**
  - Minimal increase (177 acres, <1%)
  - Includes Big Cypress Seminole Indian Reservation

Water Resources

- **Regulatory Criteria**
- **Resource Regions**
  - Lake Okeechobee
  - Everglades
  - Loxahatchee River and Estuary
  - Lake Worth Lagoon
  - Biscayne Bay
  - Florida Bay
  - Lower East Coast Service Area



LEC Minimum Flows and Levels (MFLs) Water Bodies



MFL Prevention Water Bodies

- Biscayne aquifer
- Northeastern Florida Bay

MFL Recovery Water Bodies*

- Northwest Fork of Loxahatchee River
- Lake Okeechobee
- Everglades (WCAs and ENP)

***Recovery and prevention strategies rely on CERP implementation**

Table B-3. Water resource development projects that provide water supplies associated with MFL recovery and prevention strategies. [a]

MFL Water Body	Water Resource Development Projects	Program	Finish Date [b]
Everglades (including WCAs and Everglades National Park) – projects needed for MFL recovery	Modified Water Deliveries to Everglades National Park	Department of Interior/USACE	Substantially complete
	C-111 Spreader Canal Western	CERP/SFWMD	Operational testing
	C-111 South Dade	SFWMD/USACE	Substantially complete
	Broward County Water Preserve Area – WCA 3A/3B Seepage Management	CERP	Waiting for congressional authorization
	Environmental Preserve at Marjory Stoneman Douglas Everglades Habitat	SFWMD	Operational
	Fran Reich Preserve Reservoir	CERP	Under construction
	Broward County Water Preserve Area C-11 Impoundment	CERP	Waiting for congressional authorization
	Broward County Water Preserve Area C-9 Impoundment	CERP	Waiting for congressional authorization
	WCA 3 Decompartmentalization and Sheetflow Enhancement	CERP	To be determined
	EAA Storage Reservoir on EAA A2 Site	CERP	To be determined
	WCA 3B/Everglades National Park Seepage Management	CERP	To be determined
Lake Okeechobee – projects needed for MFL recovery	Lake Okeechobee Watershed	CERP	To be determined
	USACE Herbert Hoover DikeMajor Rehabilitation	USACE	2030 [c]
Loxahatchee River - projects needed for MFL recovery	Loxahatchee River Watershed Restoration	CERP	To be determined
	Loxahatchee River Watershed Restoration – G-160 and G-161 Structures	CERP/SFWMD	Operational
	Interim Use of L-8 Site	SFWMD	To be determined
Florida Bay – projects needed for MFL prevention	Everglades National Park Seepage Management	CERP	To be determined
	WCA 3 Decompartmentalization and Sheetflow Enhancement	CERP	To be determined
	C-111 Spreader Canal Western Project	CERP/SFWMD	Substantially complete

a. MFL rules identify the general programs that will be used to develop and implement prevention or recovery, rather than specific projects. The potential role of specific projects to address MFL water needs is generally considered in the respective MFL technical supporting documentation.

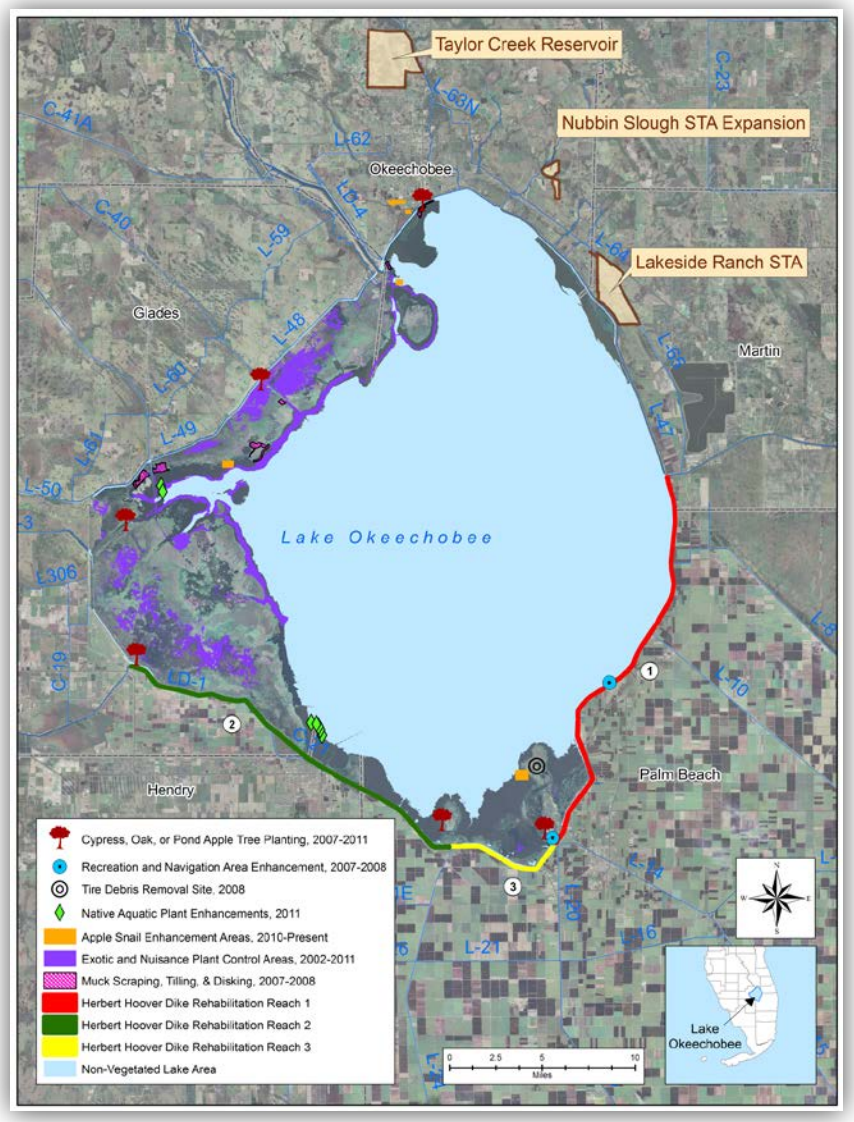
b. Finish dates indicate when construction will be complete.

c. Time shown is for complete dike repair. Partial repairs may be sufficient to allow additional storage in Lake Okeechobee necessary to prevent MFL violations.

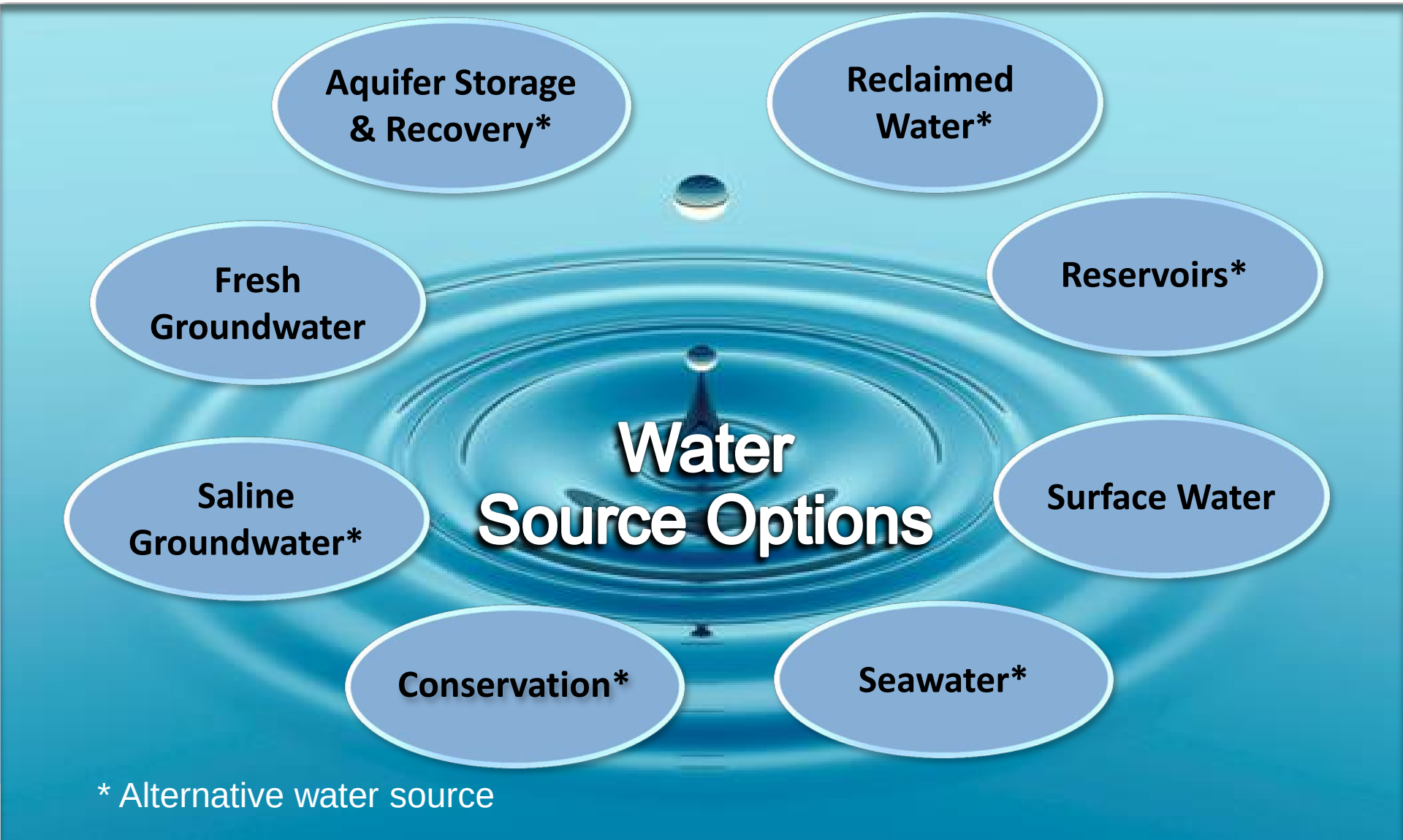
Updated MFL Recovery & Prevention Strategies - Projects

Water Resource Development – Project Examples

- **Structural**
  - USACE Herbert Hoover Dike Rehabilitation
- **Ecosystem Restoration**
  - Restoration Strategies Regional Water Quality Plan
  - CERP
    - Lake Okeechobee Watershed Plan
    - Broward Water Preserve Areas
    - WCA 3 Decompartmentalization and Sheetflow Enhancement, Part 1 (Decomp)
    - WCA 3B/Everglades National Park Seepage Management
- **Evaluation Tools**
  - East Coast Floridan Aquifer Model



Water Source Options



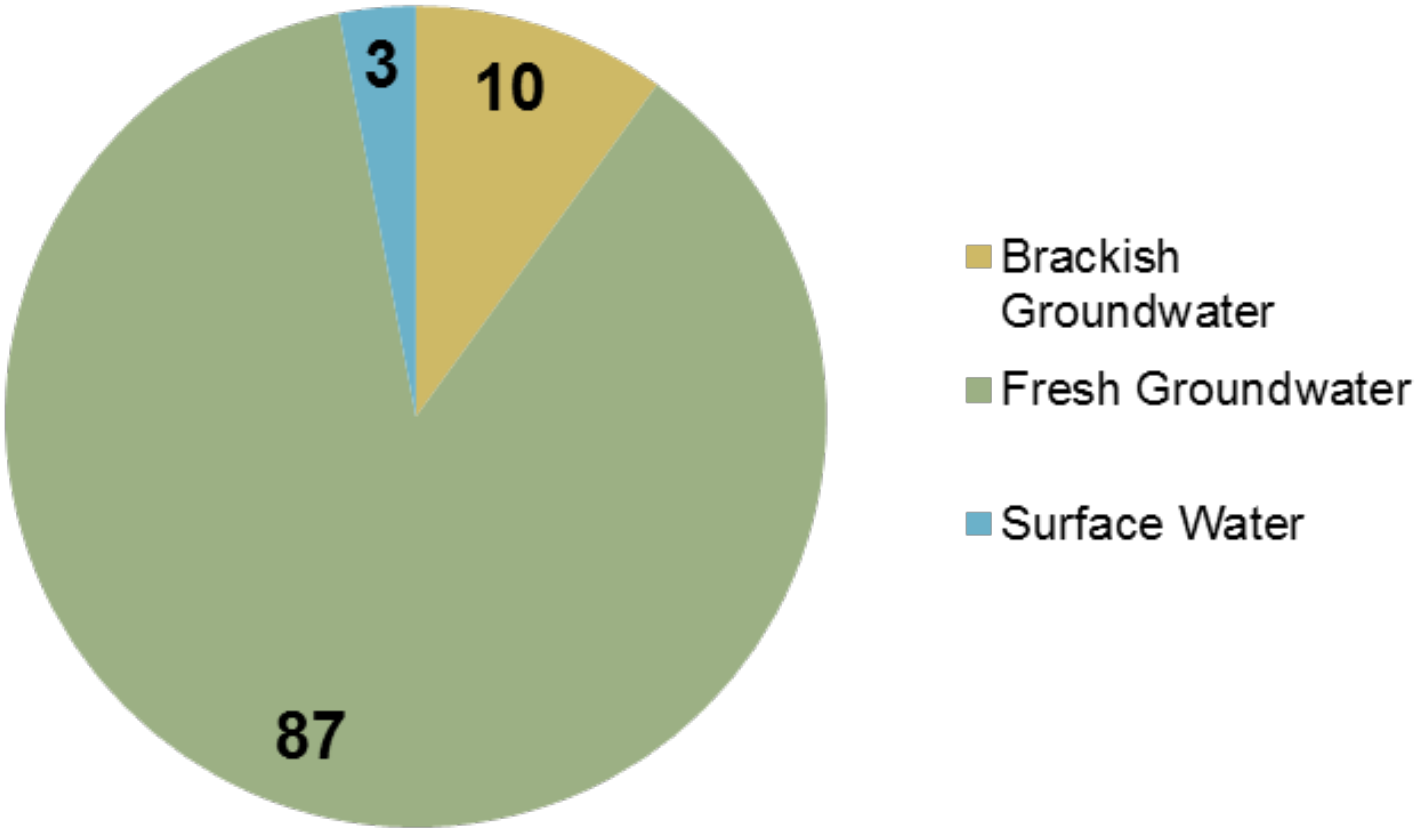
* Alternative water source

Water Supply Development Projects: FY 2012 - 2030

	No. of Projects/ Programs	Project Type
Potable	19	Brackish
	3	Fresh
	22	***Subtotal: Potable***
Non-Potable	12	Reclaimed capacity expansions
	4	Surface water/ Storage
	16	***Subtotal: Non-Potable***
	4	Conservation
	42	***Total Projects***

~94% of PWS projected needs/capacity in place today

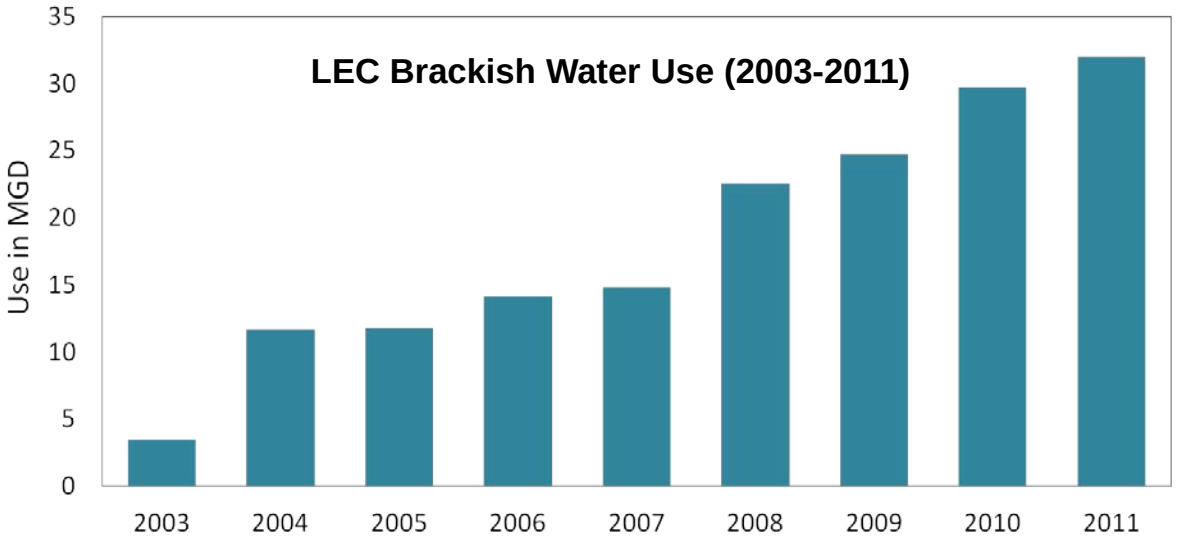
PWS 2010 Percentage Use By Source

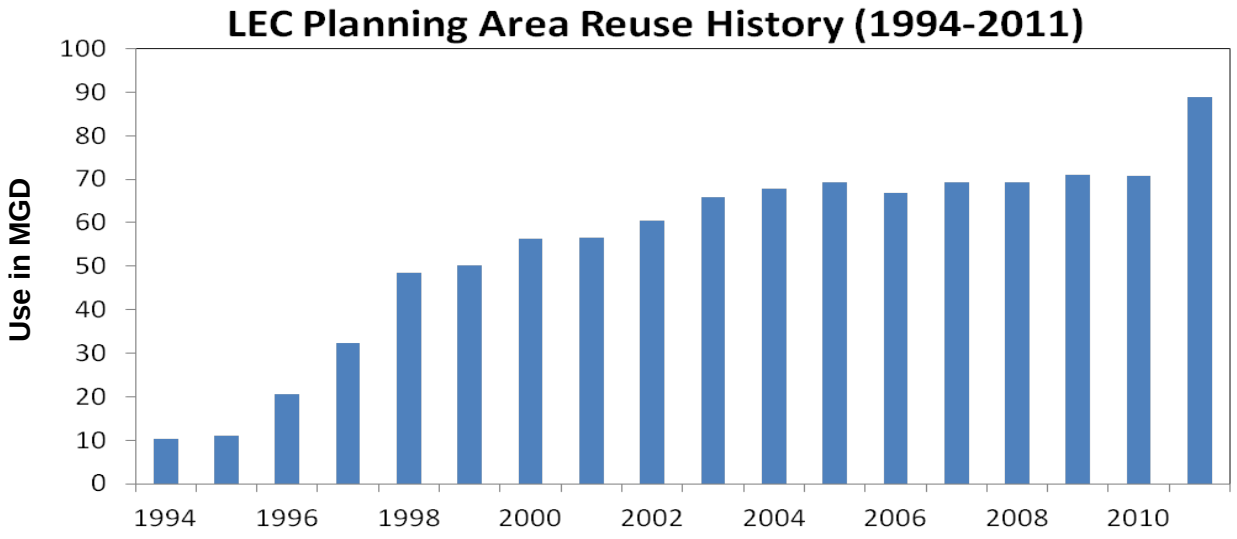


Projects Proposed by Utilities

- **Potable**
  - 36 of the 50 utilities did not propose any new projects
  - 14 utilities proposed projects (109 MGD)
  - Only 7 utilities need projects to meet 2030 demand projections or treatment requirements
- **Non-Potable**
  - Reclaimed water projects include projects to comply with 2008 Ocean Outfall Act
  - Several reclaimed water distribution projects included

Reuse & Brackish Water Development in LEC





How Will Future Demands Be Met?
(PWS, Ag and Rec/Landscaping)

Category	Surface Water	Fresh Groundwater	Brackish Groundwater	Reclaimed Water	Storage	Conservation
Public Water Supply		✓	✓		✓	✓
Agricultural Irrigation	✓	✓				✓
Recreation/ Landscape Irrigation	✓	✓		✓		✓

Environmental Water Needs

- **Implementation of CERP and other projects**
- **Regulatory protection of water resources**
  - Water Use Permitting Program
  - Minimum Flows and Levels*
  - Water Reservations
  - Restricted Allocation Area Rules
  - Water Shortage Criteria

** Recovery & prevention strategies rely on CERP implementation*

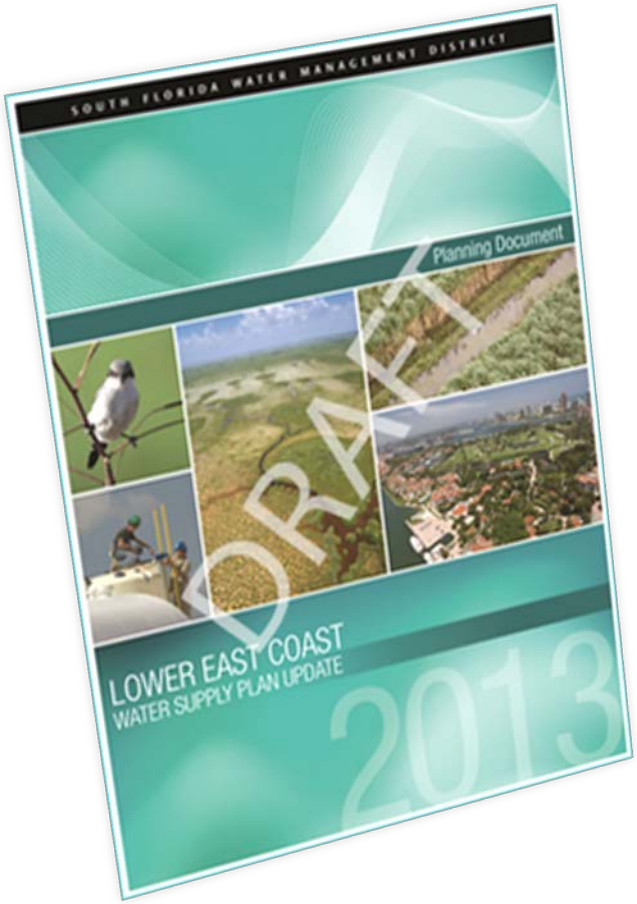
Conservation

- **Year-round rule savings**
- **All water sources should be used efficiently by all users**

The cheapest gallon of water is the gallon we don't use

Water Year (Water Supply Plan)	1995 (2000 Plan)	2000 (2006 Plan)	2005 (2006 Plan)	2010 (2013 Plan)
LEC Planning Area - PWS (gallons per capita per day)	184	176	163	142

Conclusion



The future water demands of the region can be met through the 2030 planning horizon with appropriate management, conservation and implementation of projects in this Plan

Dependent on completion of:

- Water supply development projects by 7 utilities
- Completion of USACE Herbert Hoover Dike Rehabilitation Project and subsequent revision to the Lake Okeechobee regulation schedule
- CERP and other projects to meet environmental needs

Future Direction

Fresh Groundwater

- Design wellfields, operations and monitoring regimes to maximize withdrawals while not impacting natural systems
- Expand reclaimed water systems to provide “substitution” or offset credits
- Continue to work with utilities and scientific community to monitor and reduce the potential for saltwater intrusion

Brackish Groundwater

- Water users and SFWMD should collaborate to increase the understanding of the aquifer
- Consider blending FAS water with other sources to produce acceptable quality water
- Finalize the East Coast Floridan Model
- Consider incremental wellfield development to minimize water quality degradation

Surface Water

- USACE should complete the Herbert Hoover Dike Rehabilitation and revise the regulation schedule
- Continue to implement MFL recovery and prevention strategies
- Water users are encouraged to create additional storage for surface water

Reclaimed Water

- Local governments should consider requiring reclaimed water infrastructure and mandatory reuse zones in new development projects and building codes
- Continue to evaluate the use of reclaimed water for environmental supply and canal recharge
- Consider the use of blending reclaimed water with supplemental water supplies to meet peak irrigation demands
- SFWMD should provide technical assistance in implementing the 2008 Ocean Outfall program

New Storage Capacity

- Construct new or retrofit surface water storage systems to provide additional supply when feasible
- Continue to evaluate the feasibility of the C-51 Reservoir Project
- Use ASR and other viable subsurface storage options when available

Seawater

- Where appropriate, consider the feasibility of desalinated seawater as an additional water source

Water Conservation

- **SFWMD should continue to implement the 2008 Comprehensive Water Conservation Program**
- **Utilities are encouraged to implement water conservation plans with numerical goals**
- **Local governments should:**
  - Develop ordinances with Florida-Friendly Landscaping™ provisions
  - Provide water conservation education programs and public outreach
  - Implement two-day-per-week landscape irrigation ordinances where appropriate
  - Encourage landscape water use efficiency through advanced irrigation technology and other programs
- **All water users are encouraged to maximize the efficiency of their irrigation systems**

Environmental Restoration

- **Restoration Strategies**
  - SFWMD should improve Everglades water quality by expanding storage and treatment capacity

- **CERP**
  - USACE and SFWMD should continue to implement CERP including congressional authorization

Climate Change

- Saltwater intrusion monitoring networks should be reviewed by utilities, counties, the USGS and the SFWMD. Maps should be updated and published periodically
- Evaluate the consequences of sea level rise and cumulative impacts to existing structures and legal users
- Participate in the Southeast Florida Regional Climate Change Compact

Requirement: Link Land Use and Water Supply Planning (Ch 163, F.S.)

After the District updates the water supply plan:

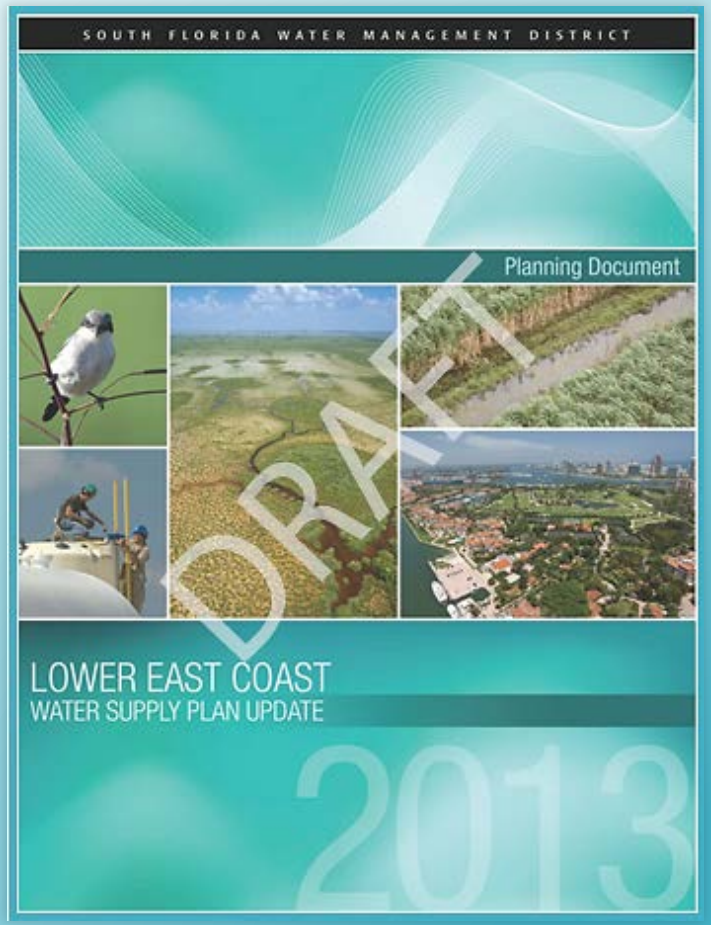
- All local governments must amend their comprehensive plan to incorporate a water supply facilities work plan within 18 months of water supply plan update
- Utilities identify the projects to be developed
- Utility Annual Progress Reports

2013 LEC Plan Update Documents

- **Further information including LEC Plan documents, can be found at:**

  www.sfwmd.gov/watersupply

QUESTIONS?



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Lead Hydrogeologist
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What's Next?

July 26	Comment period ends – *written comments to Brenda Mills (bmills@sfwmd.gov)*
August	Sixth Stakeholder Workshop (if necessary)
Sept 5	Final Plan to SFWMD WRAC
Sept 12	Final Plan to SFWMD Governing Board
June-Sept	Presentations to local governments and others

2013 LEC Plan Update Documents

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