

2023-2024 Lower East Coast Water Supply Plan Update



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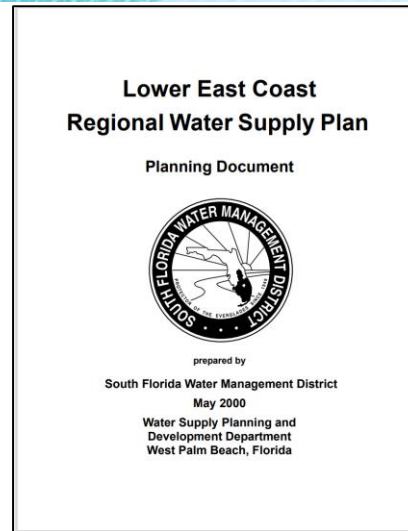
Palm Beach County Water Resources Task Force

December 2, 2024

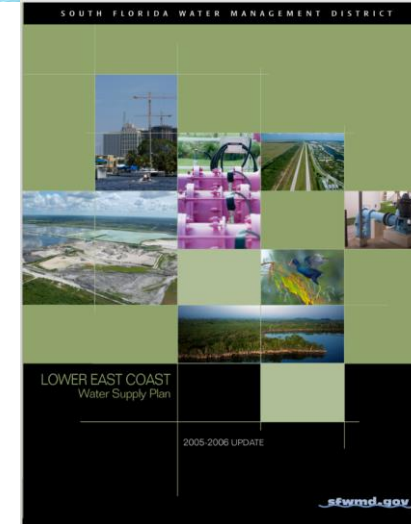


Water Supply Planning in Florida

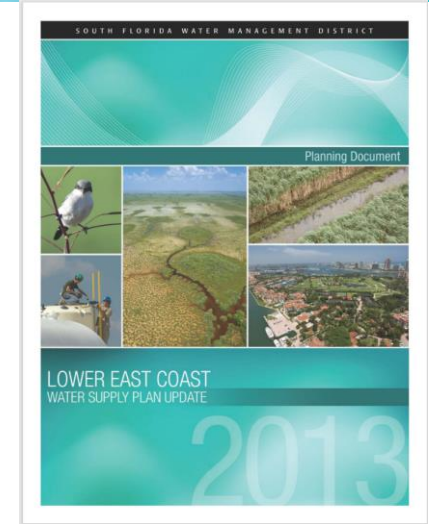
- SFWMD initiated water supply planning in the early 1990s
- Required by Florida Statute since 1997
- The first LEC Water Supply Plan was completed in 2000
- This is the fourth update!
- Planning horizon for the 2023-2024 Update is 2021 to 2045



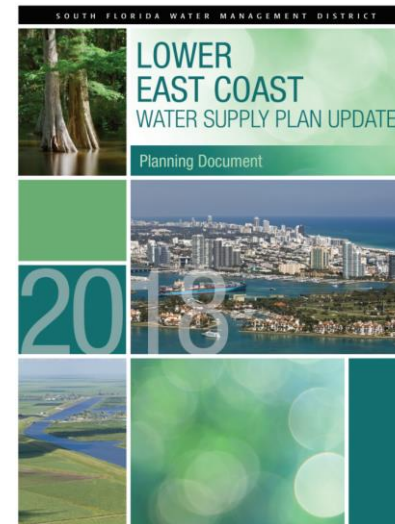
2000



2005-2006



2013



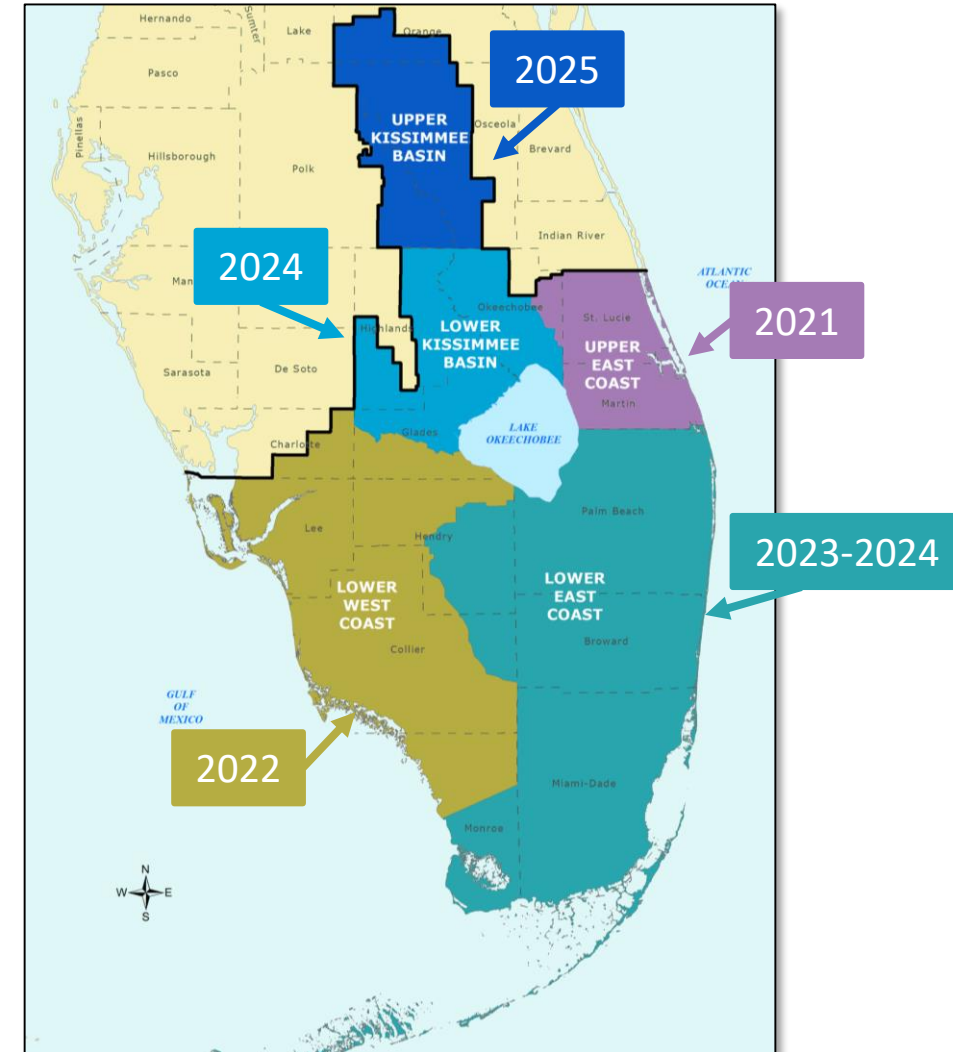
2018



2023-2024

Water Supply Plan Requirements

- 20-year planning period
- Demand estimates and projections
- Resource analyses
- Issue identification
- Evaluation of water source options
- Water resource development
 - Responsibility of water management district
- Water supply development
 - Responsibility of water users
- Environmental protective and restoration strategies
 - Review/update prevention and recovery strategies for minimum flows and minimum water levels (MFLs)



Regional Water Supply Plan

What It Does

- Provides a road map to meet future water needs for 6 categories
- Conducts a planning-level approach
- Projects future water demands at 5-year increments
- Identifies and evaluates water source options
- Triggers requirement for local governments to update their Water Facilities Workplans

What It Does NOT Do

- Does not authorize consumptive use permits
- Does not establish minimum flows and minimum water levels (MFLs)
- Does not adopt rules
- Does not address water quality issues

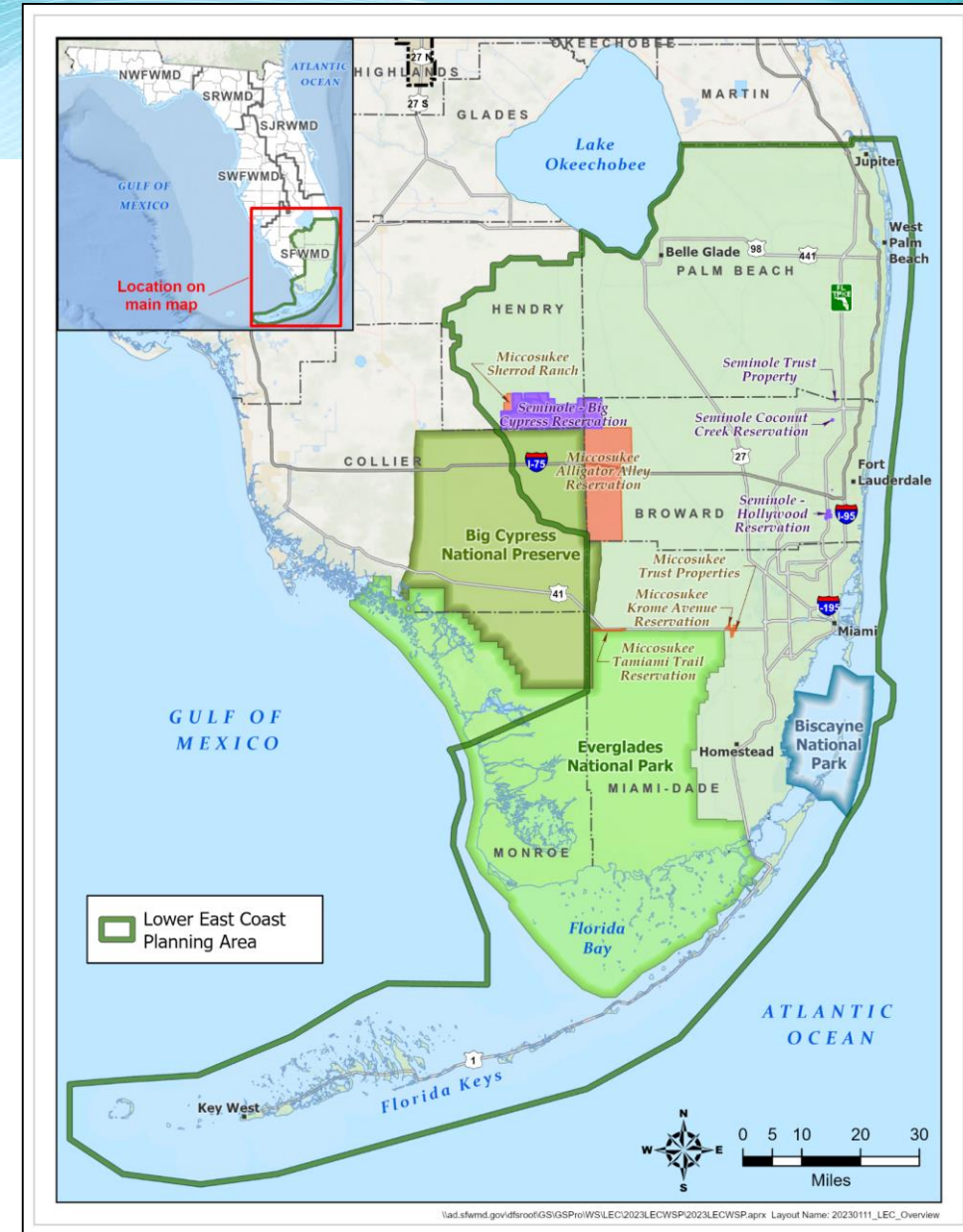
Public Participation

- Three stakeholder workshops
- Discussions with local and tribal governments, agricultural, and utility representatives
- Governing Board updates
- Draft plan documents posted online February and June for public comment



Planning Area

- Palm Beach, Broward, and Miami-Dade counties, most of Monroe County, and the eastern portions of Hendry and Collier counties
- Seminole Tribe of Florida Big Cypress Reservation and Miccosukee Tribe of Indians of Florida multiple reservations
- Growing population
- Major agricultural industry
- Important natural and water resources
 - Lake Okeechobee
 - 2 National Parks: Everglades and Biscayne
 - Loxahatchee River
 - Florida Bay



Gross Demand Projections

Population

2021 6,222,707 residents

2045 7,294,265 residents

17% increase



Irrigated agricultural acres

2021 566,162 acres

2045 554,697 acres

2% decrease



	Public Supply	Domestic Self-Supply	Agriculture	Commercial/ Industrial/ Institutional	Landscape/ Recreational	Power Generation	Total
2021	890.57	10.55	645.20	87.35	178.65	42.20	1,854.52
2045	1,047.19	14.45	637.65	102.56	199.18	62.33	2,063.36

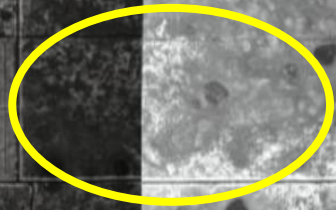
Demands under average rainfall conditions, in million gallons per day.

11% increase in demands from 2021 to 2045

PBC System 3

1940

2023



Palm Beach County



1983

The Acreage



2021

Palm Beach County

➤ Population (permanent)*

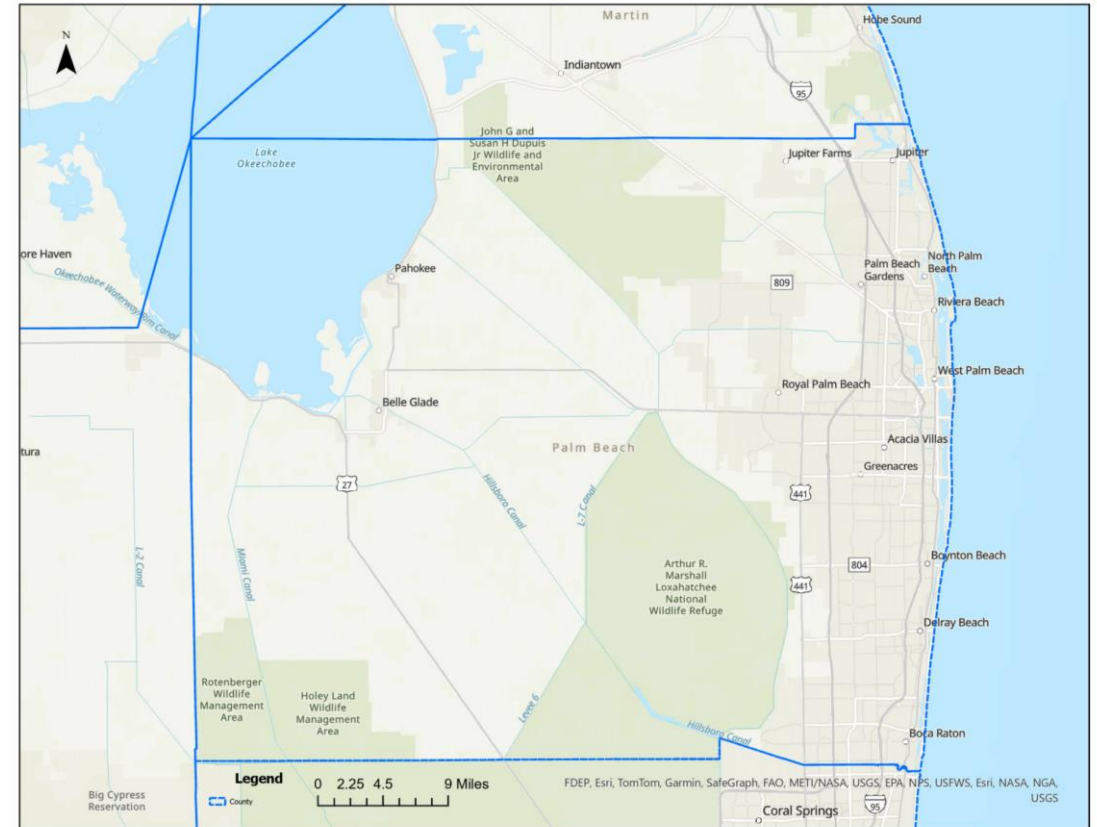
- 2021 1,485,183
 - 2045 1,758,500
- 18% increase

➤ Irrigated agricultural acreage**

- 2021 419,164
 - 2045 411,502
- 2% decrease

➤ Gross water demand (mgd)

- 2021 866.87
 - 2045 912.89
- 5% increase



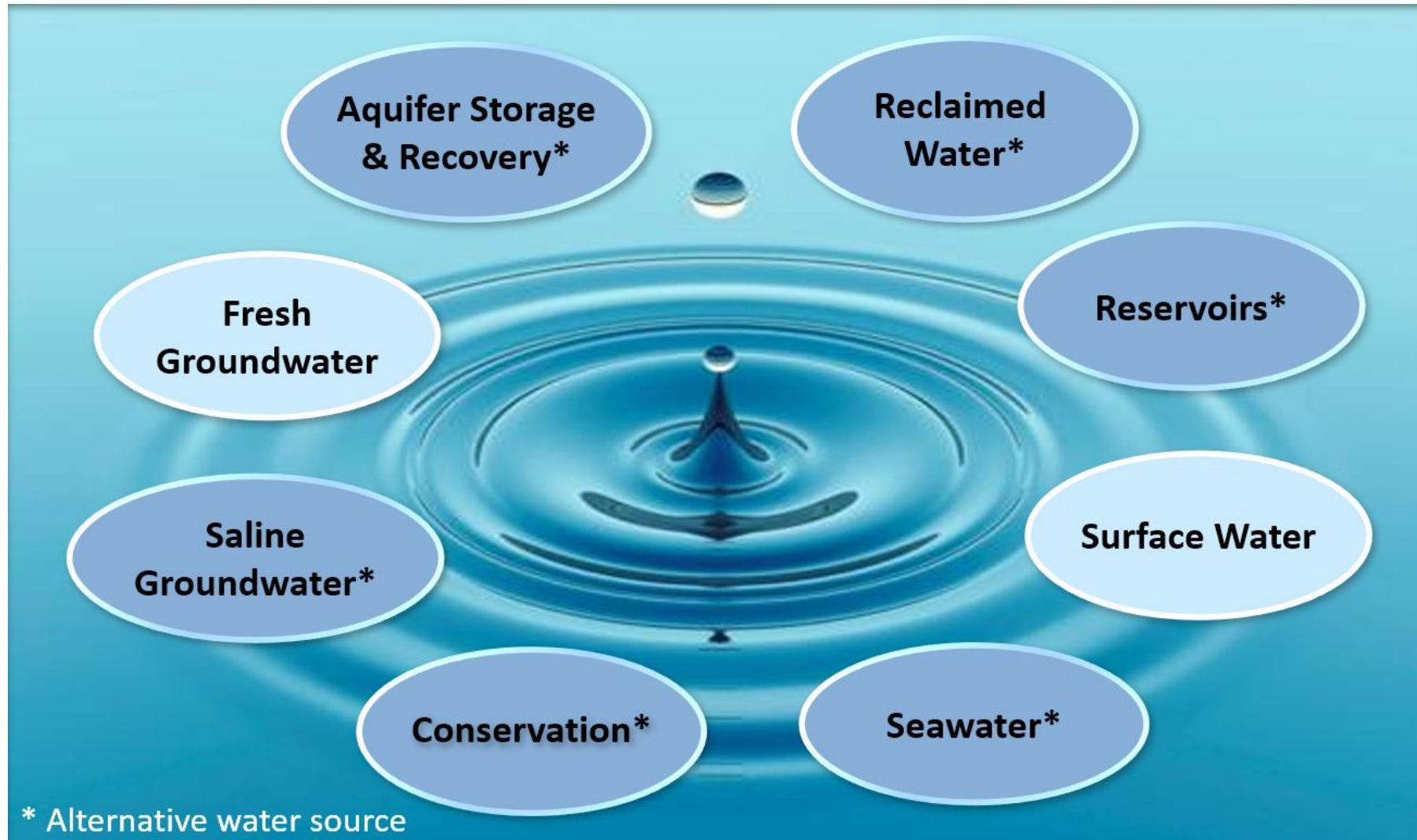
* Data from University of Florida (UF) Bureau of Economic and Business Research

**Data from Florida Department of Agriculture and Consumer Services- includes Coastal and EAA demands

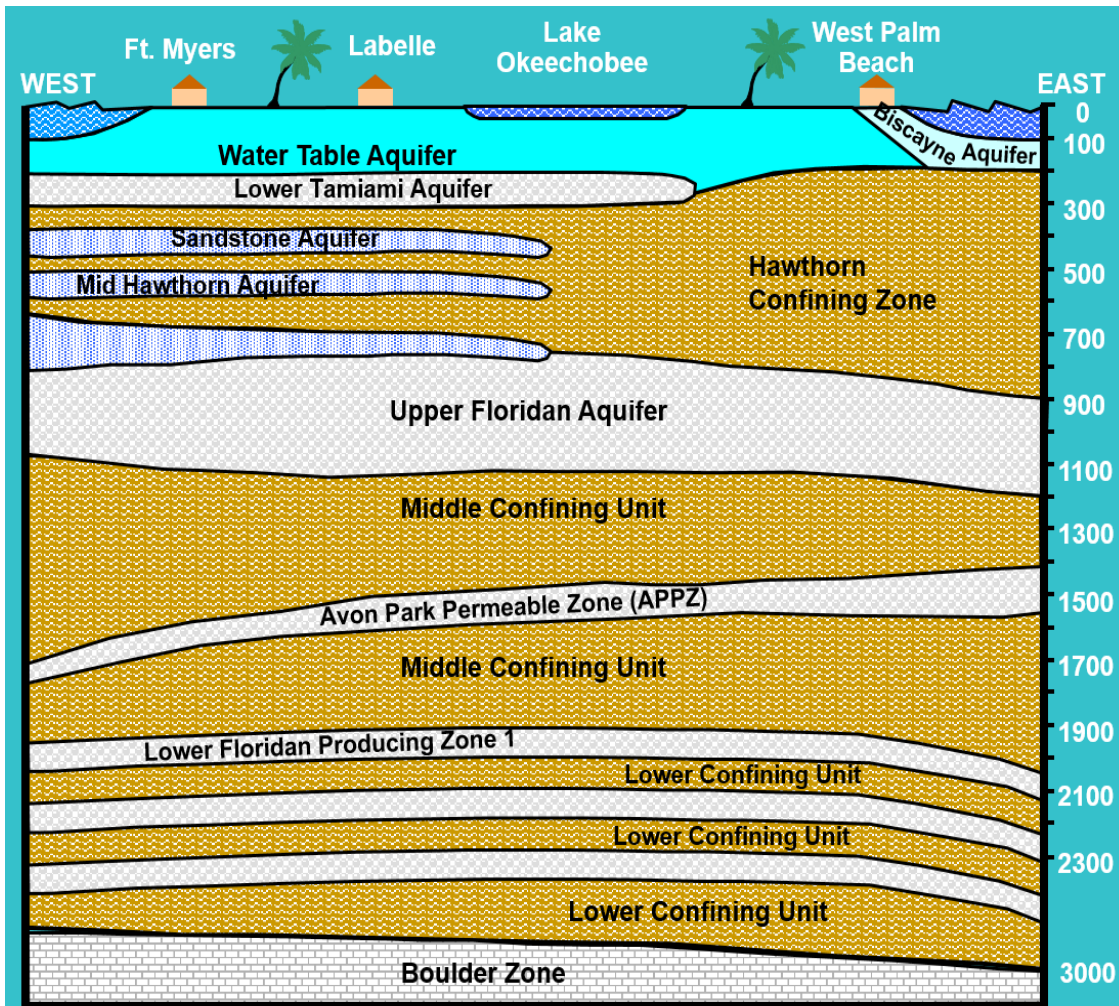
Major Water Utilities in PB County

	Palm Beach County Utilities	City of Boca Raton	City of West Palm Beach
2021 Potable Water Demand	64.66	38.97	31.37
2045 Projected Demand	80.35	42.72	36.96
Current Water Treatment Capacity	103.28	70.00	46.00
Current Water Use Permit Allocation	104.40	51.54	41.20

Water Source Options and Alternatives



Groundwater Sources



- Fresh Groundwater (Surficial Aquifer System)
 - Water Table aquifer
 - Biscayne aquifer
 - Lower Tamiami aquifer
- Saline Groundwater (Floridan Aquifer System) (*chloride >250 mg/L*)
 - Upper Floridan aquifer
 - Avon Park Permeable Zone
 - Lower Floridan aquifer
- Seawater (*chloride >19,000 mg/L*)
 - Boulder Zone

Resource Evaluation and Analysis

➤ Data sources

- Water use permit information
- Regulatory limits
- Groundwater level and salinity monitoring data
- Demand estimates and projections

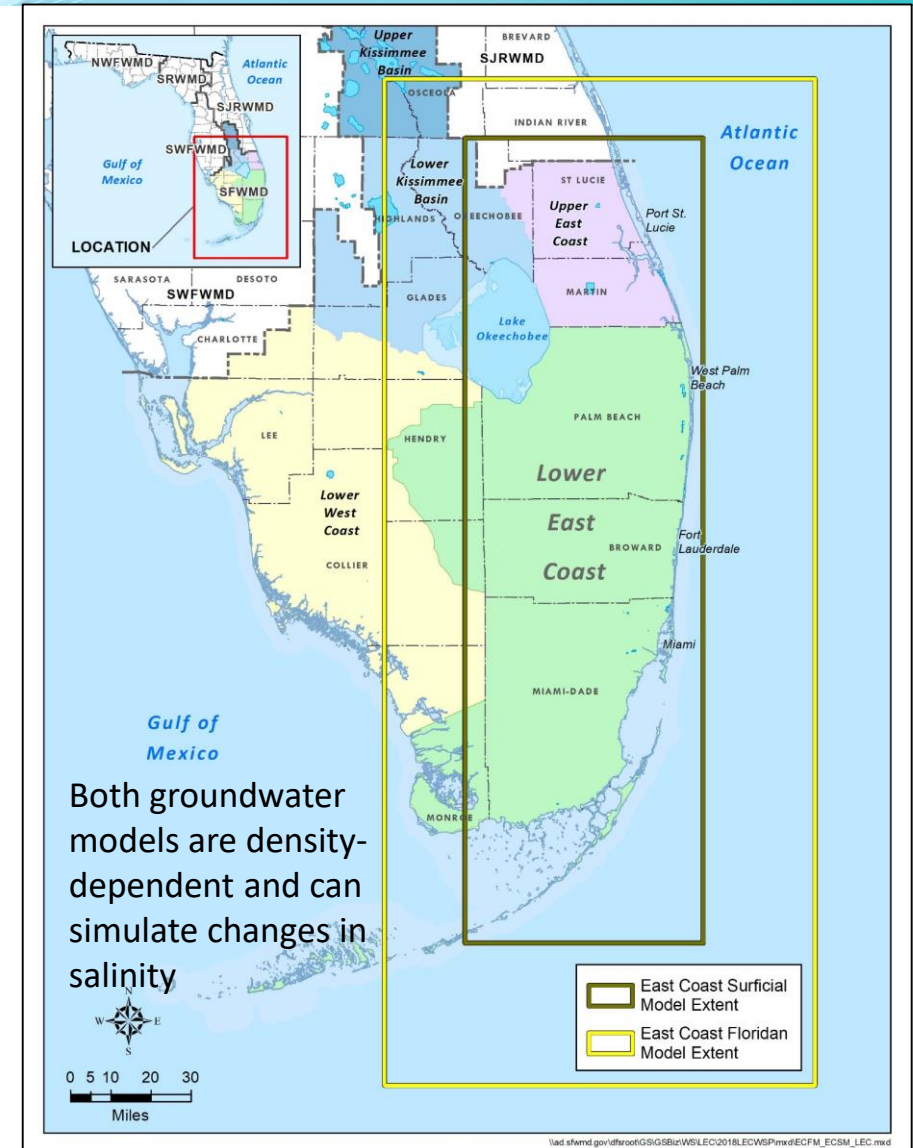
➤ Regional surface water simulation model (RSM)

➤ East Coast Floridan Model (ECFM)

- 2045 demands similar in magnitude to the 2040 demands in 2018 Plan Update
- Previous demand simulations still representative

➤ East Coast Surficial Model (ECSM)

- Under development
- Simulations results will be shared when completed



Water Resource Considerations

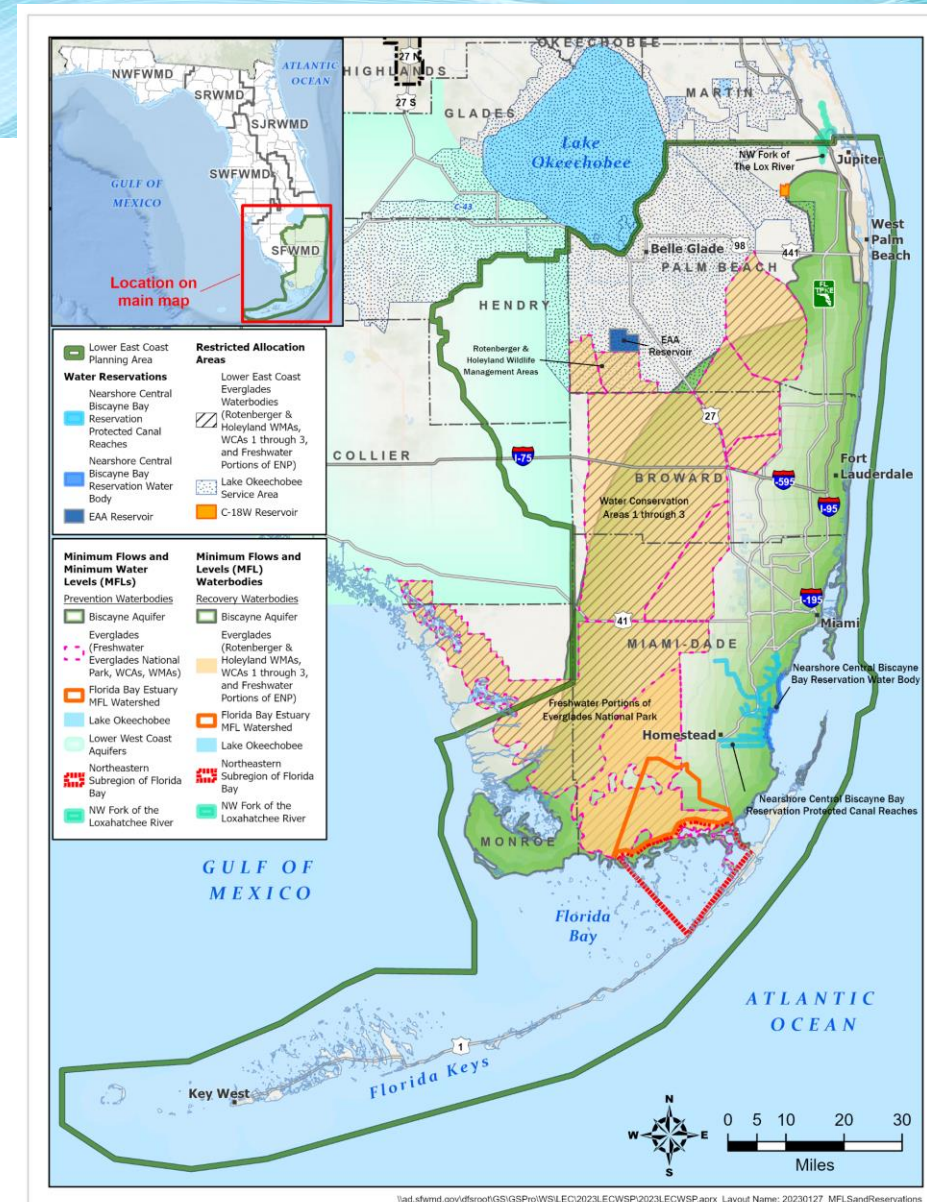
- Limited ability to increase surficial aquifer system use
- Regulatory limitations on surface water availability
- Environmental water needs
- Long-term availability of the Floridan aquifer system
- Climate change and sea level rise



Biscayne Bay, Bill Baggs Cape State Park

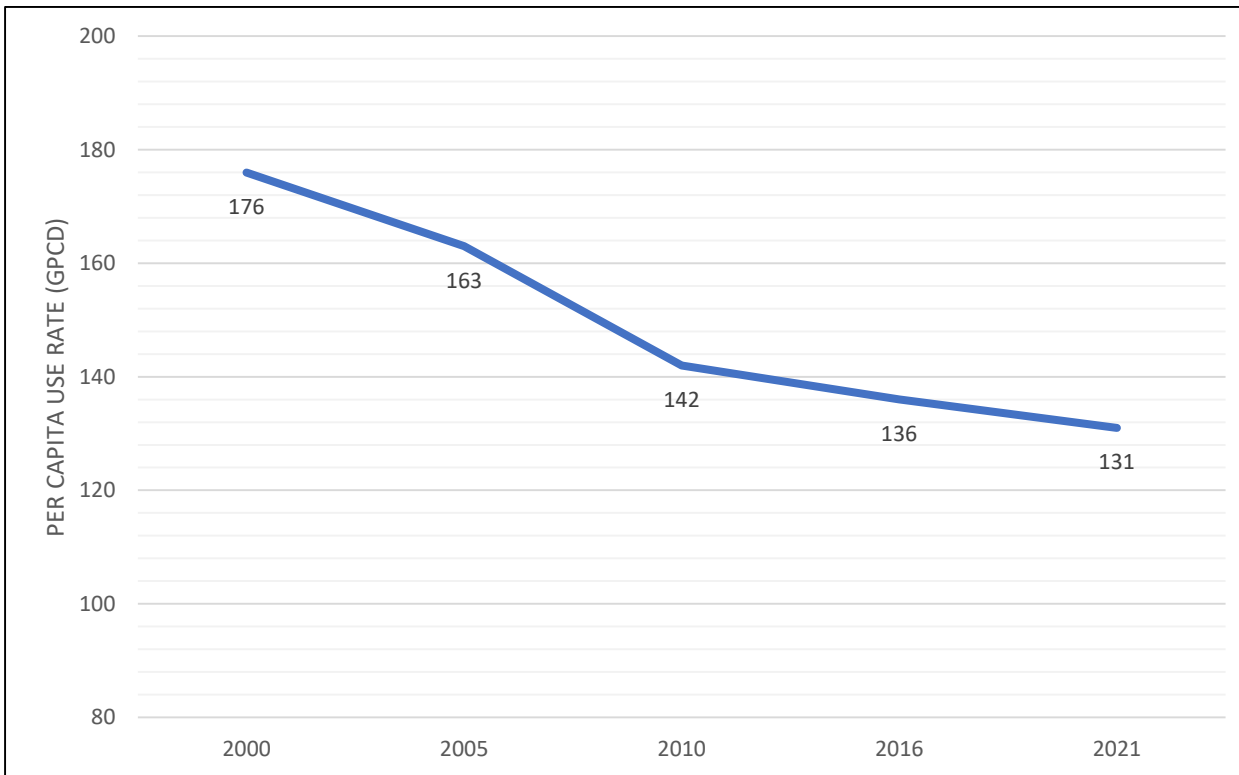
Water Resource Protection

- Water Use Permitting Criteria
- Restricted Allocation Areas (RAA)
 - L-1, L-2, and L-3 Canal System
 - North Palm Beach County/Loxahatchee River Watershed Waterbodies
 - Lower East Coast Everglades Waterbodies
 - Lake Okeechobee Service Area
 - ASR Storage Horizon Near the C-18W Reservoir
- Minimum Flows and Minimum Water Levels MFL)
 - Lake Okeechobee* (Recovery)
 - Everglades (Recovery)
 - Northwest Fork of the Loxahatchee River (Recovery)
 - Florida Bay (Prevention)
 - Biscayne aquifer (Prevention)
 - Lower West Coast aquifers (Prevention)
- Water Reservations
 - Nearshore Central Biscayne Bay/Canal Reaches
 - EAA Reservoir



*Revised recovery strategy

LEC Water Conservation



➤ Public supply

- Indoor and outdoor programs
- Conservation rate structures

➤ Public supply per capita use rate (gallons per capita per day)

2000	176	➤ 26% decrease
2021	131	

➤ Potential conservation savings of 62 mgd through 2045

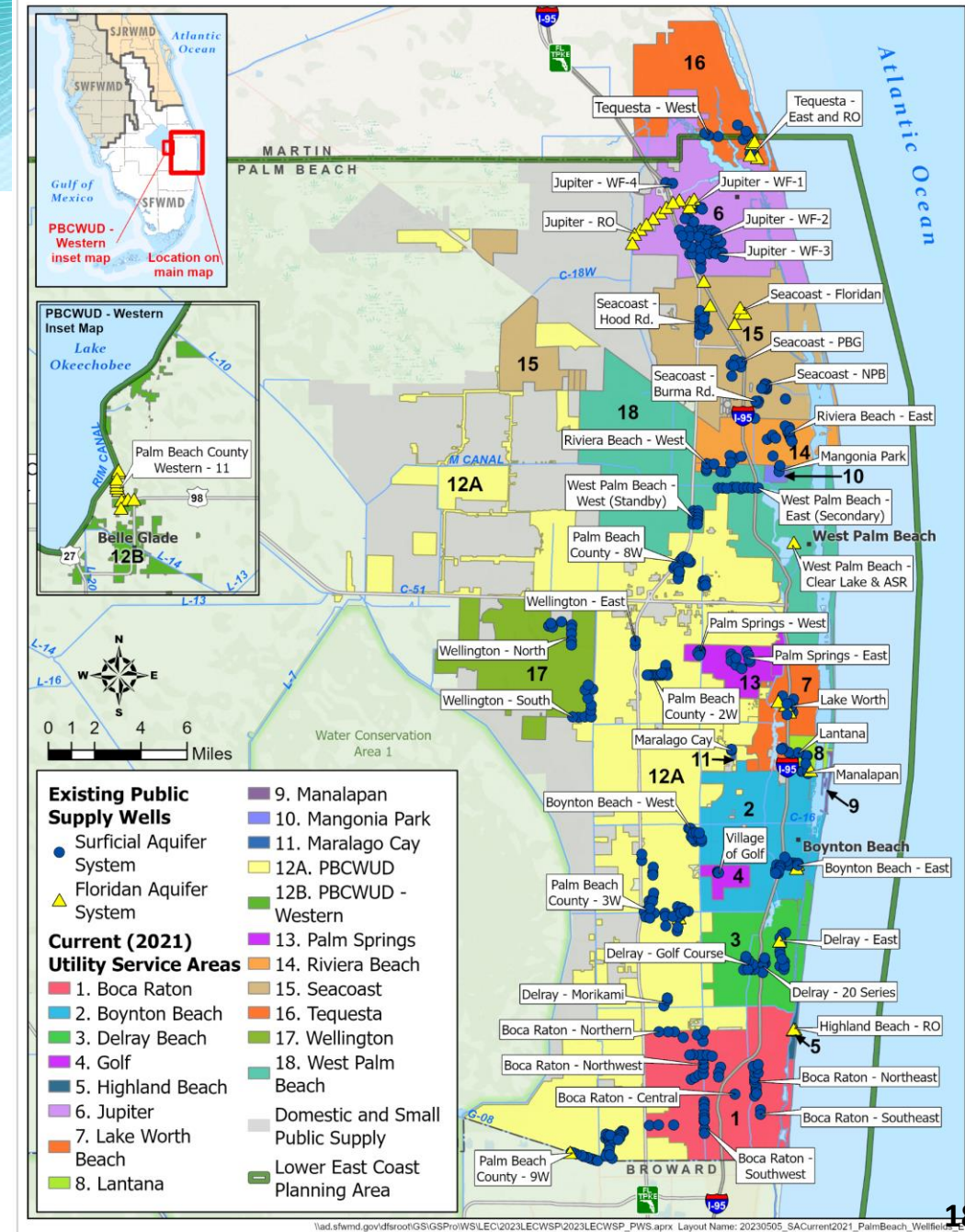
- Urban 46 mgd
- Agriculture 16 mgd*

*estimated by FDACS

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

PBC Utility Service Areas

- Current service areas (2021)
- Wellfield locations by aquifer system
- SAS contains fresh water
- FAS contains brackish water

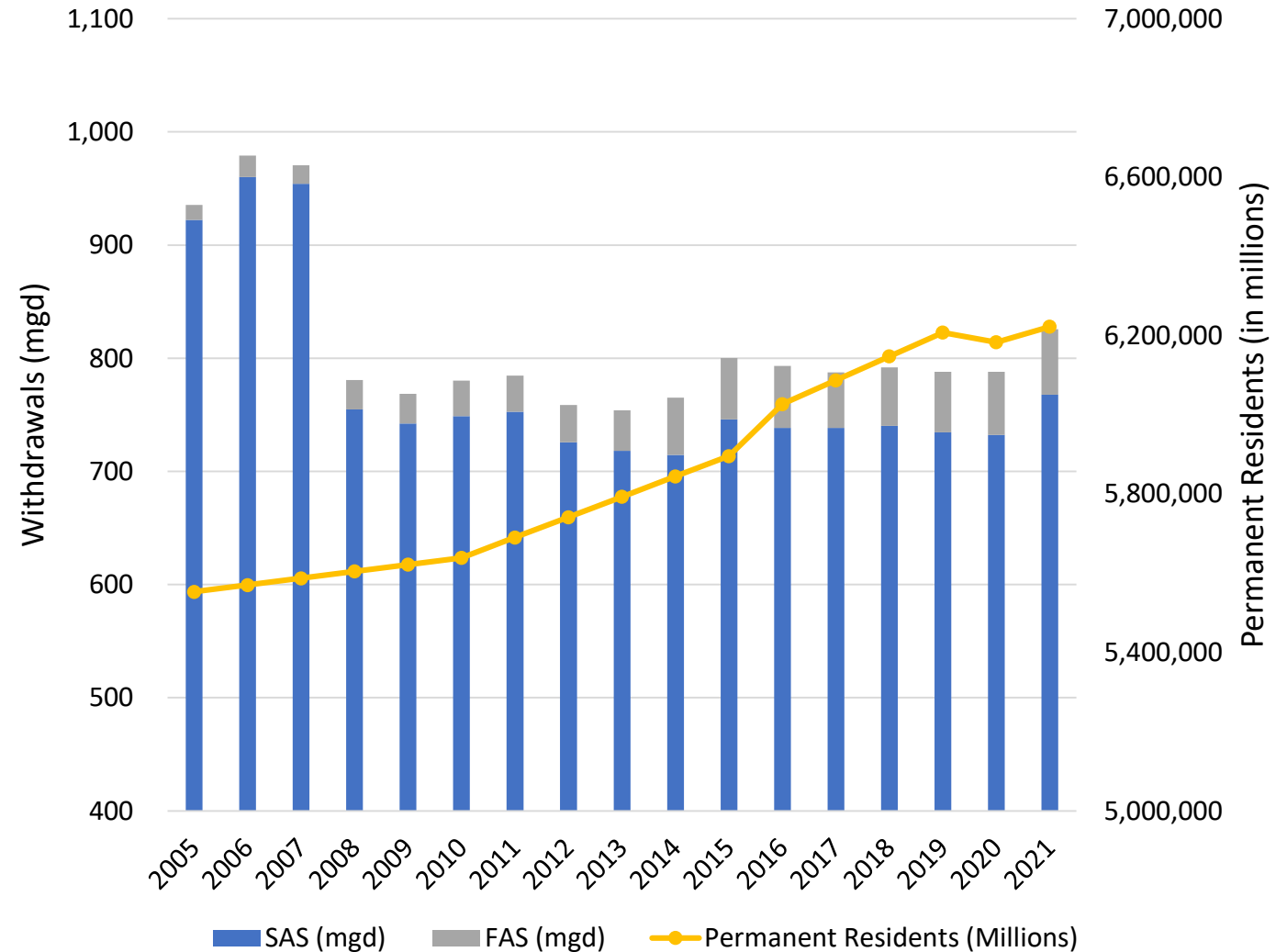


Public Supply Groundwater Use

Historic Trends:

- Conservation, reclaimed water and source diversification have been beneficial
- Surficial aquifer system (SAS) use has remained stable
- Floridan aquifer system (FAS) use has increased to supply population growth

**Population increased 11%
while withdrawals increased
only 6% since 2008**

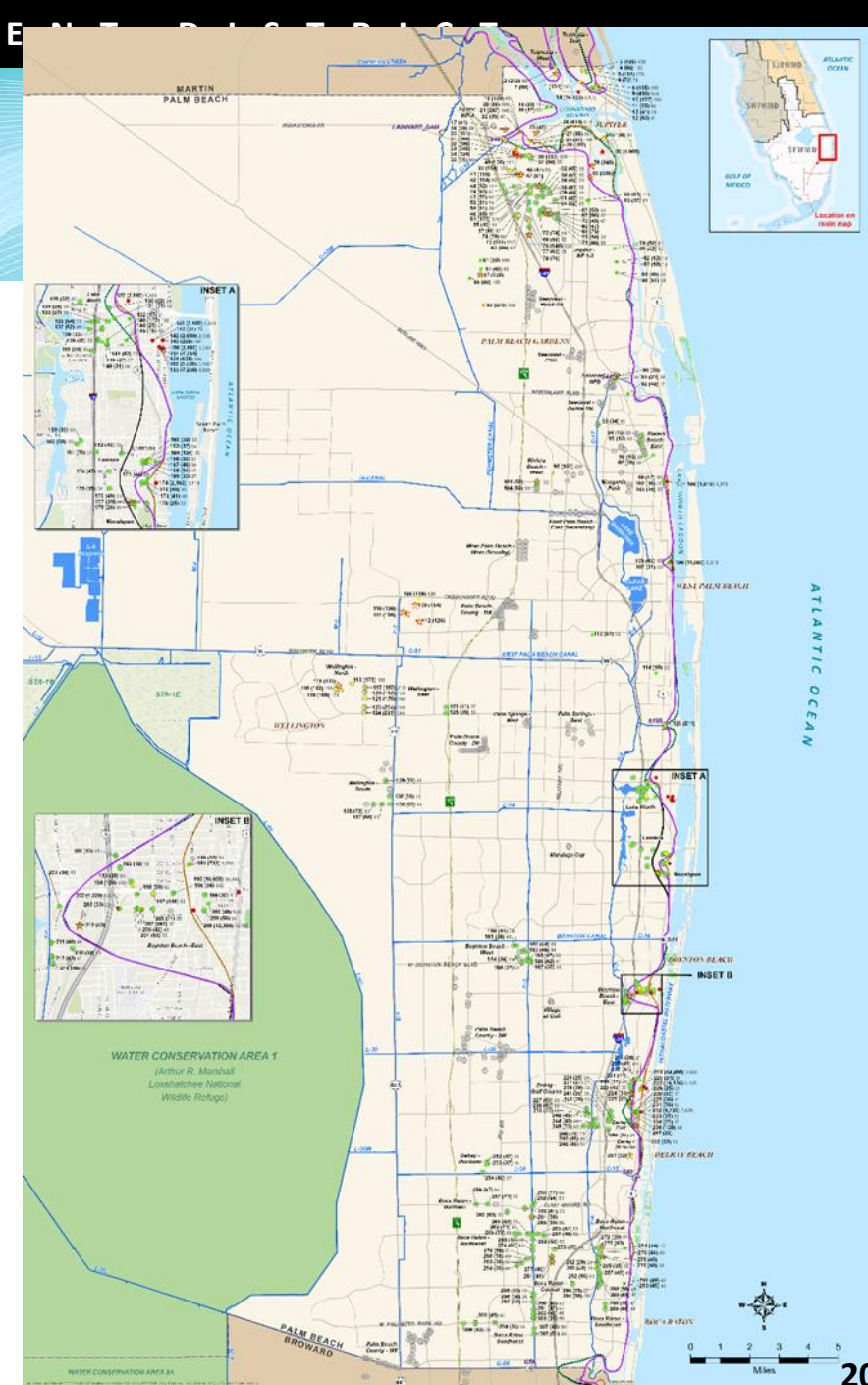


2024 Saltwater Interface Mapping

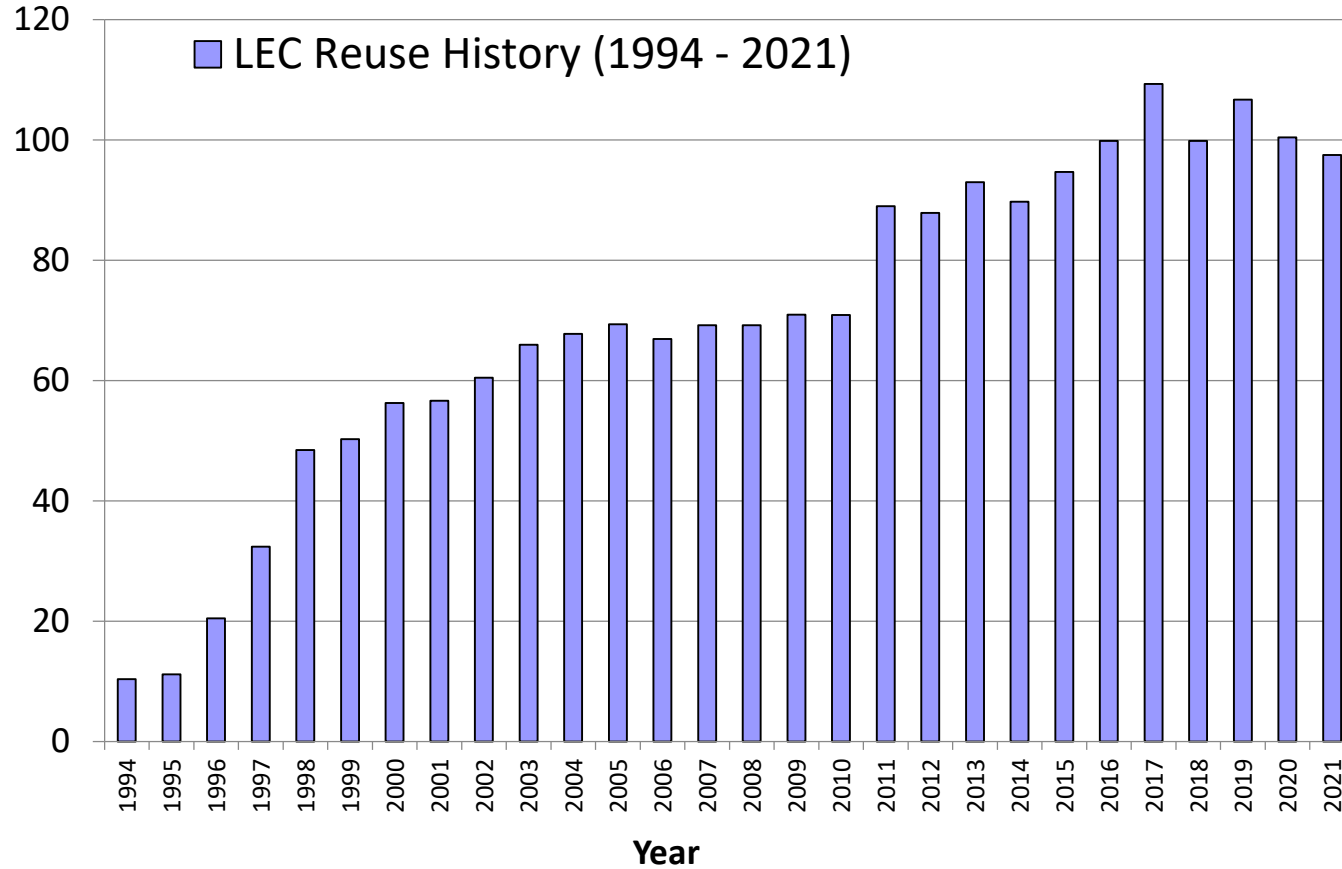
- Graphic shows saltwater interface within Surficial Aquifer System aquifer for 2009, 2014, 2019 and 2024
- Updated every 5 years: Next map update in 2029
- In general, interface close to the coast
- Older wellfields close to the coast are more vulnerable to saltwater intrusion and are areas of concern
- Lake Worth Drainage District maintains surface water control elevations in southern half of County that help maintain groundwater elevations to fend off saltwater intrusion
- Western wellfields (e.g., PBCWUD) at much less risk of saltwater intrusion
- Floridan aquifer wellfields (e.g., Jupiter, LWB, etc.) reduce water demands on coastal wellfields

2009, 2014, 2019 & 2024 maps available:

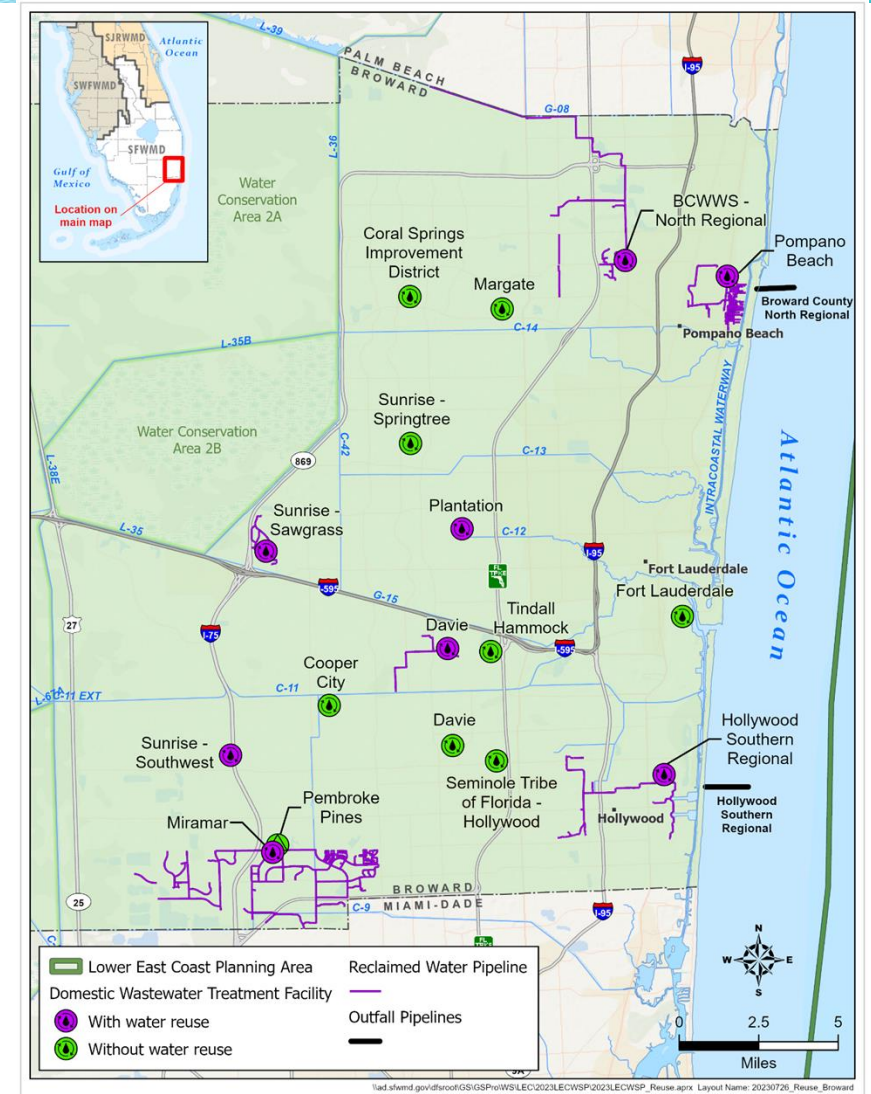
<https://www.sfwmd.gov/documents-by-tag/saltwaterinterface>



LEC Reclaimed Water Usage

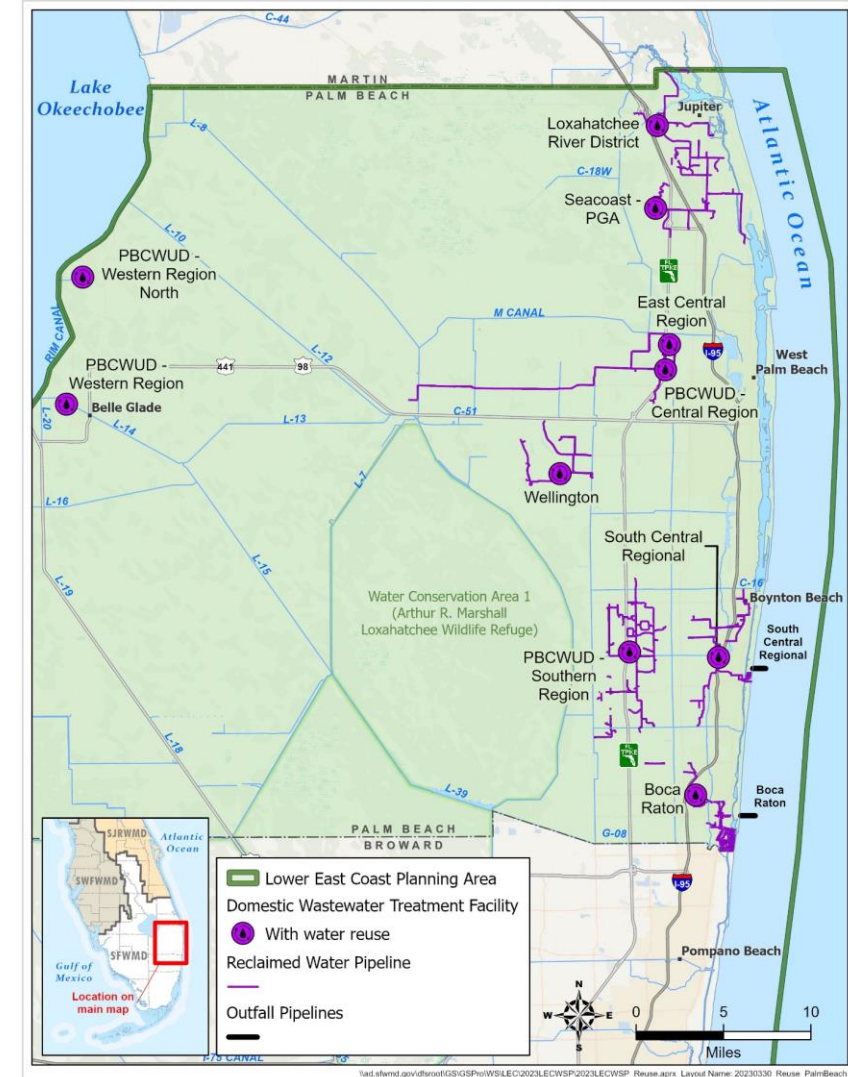


14% of wastewater in LEC was reused in 2021



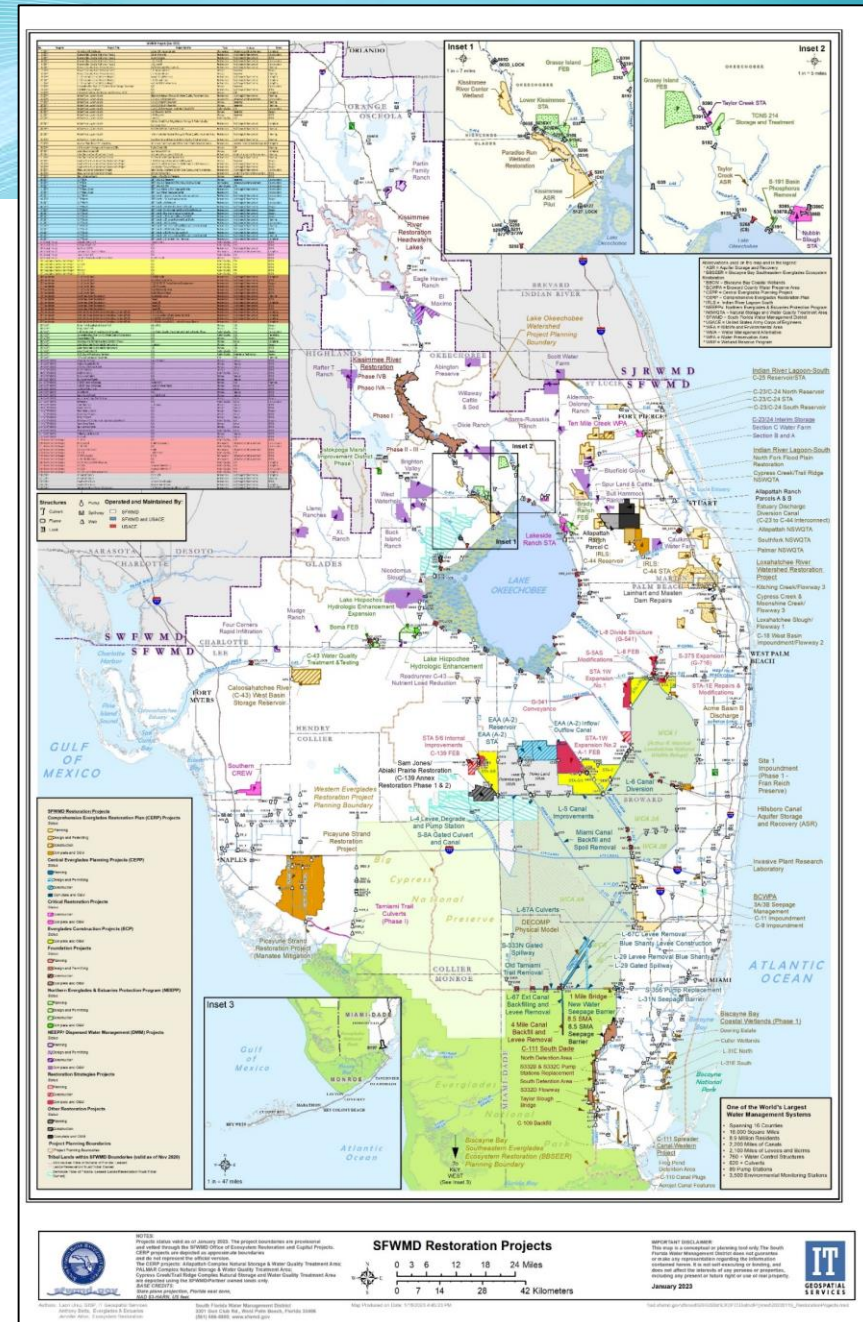
Reclaimed Water Usage in Palm Beach County

- County-wide about 60 million gallons per day reused (about 49% of all wastewater)
- For irrigation of residential lots, golf courses, parks and other green space
 - Residential lots 31,473
 - Golf Courses 78
 - Parks 80
 - Schools 36
- Projects under construction
 - PBC Green Cay Wetlands Ph II
 - Broward-Palm Beach Interconnect



Water Resource Development Projects

- Lake Okeechobee Watershed Restoration Project (LOWRP)
- Lake Okeechobee Component A Storage Reservoir (LOCAR)
- Central Everglades Planning Project Everglades Agricultural Area (CEPP-EAA)
- C-111 South Dade Project
- Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER)
- Biscayne Bay Coastal Wetlands L-31E Flow-way
- Western Everglades Restoration Project (WERP)
- Loxahatchee River (NW Fork & Watershed Restoration Project)



Water Supply Development Projects

➤ Potable

- 20 projects proposed by 13 utilities: 113.60 mgd
- Most utilities have sufficient capacity and permit allocations to meet 2045 demands
- 11 utilities need projects to meet 2045 demand projections or treatment requirements



➤ Nonpotable

- 22 projects proposed by 11 utilities: 70.35 mgd



2023-2024 Plan Conclusion

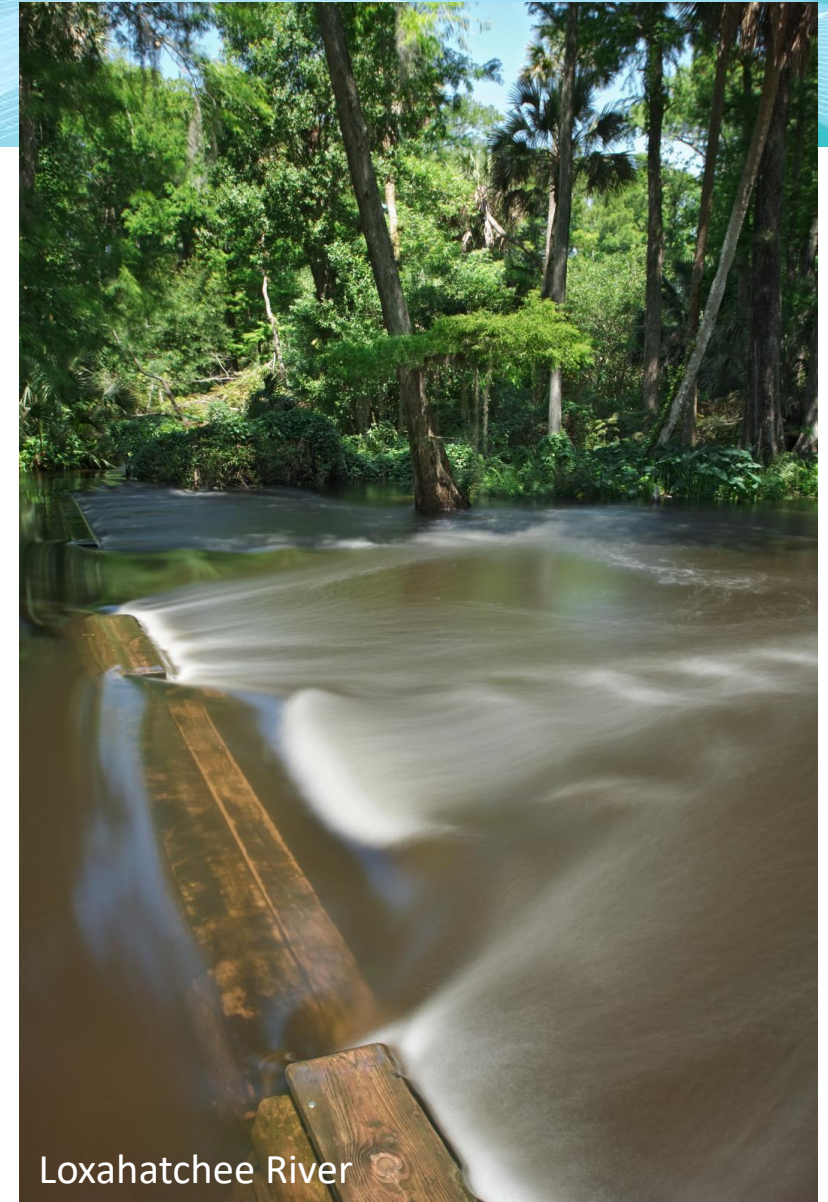


The future water supply and ecosystem needs of the region can continue to be met through the 2045 planning horizon with appropriate management, conservation, and implementation of projects in this plan.

- Construction of water supply development projects by Public Supply utilities
- Implementation of CERP storage and other ecosystem restoration projects including projects identified in MFL prevention and recovery strategies

Future Direction

- Continue implementation of:
 - Aquifer monitoring programs
 - Water conservation programs
 - Alternative water supply development projects
 - CERP and other ecosystem restoration projects
- Implement long-term management measures for the FAS in coordination with utilities
- Evaluate, monitor, and design solutions in response to sea level rise and climate trends
- Coordinate with other agencies, local and tribal governments, and utilities on water supply elements

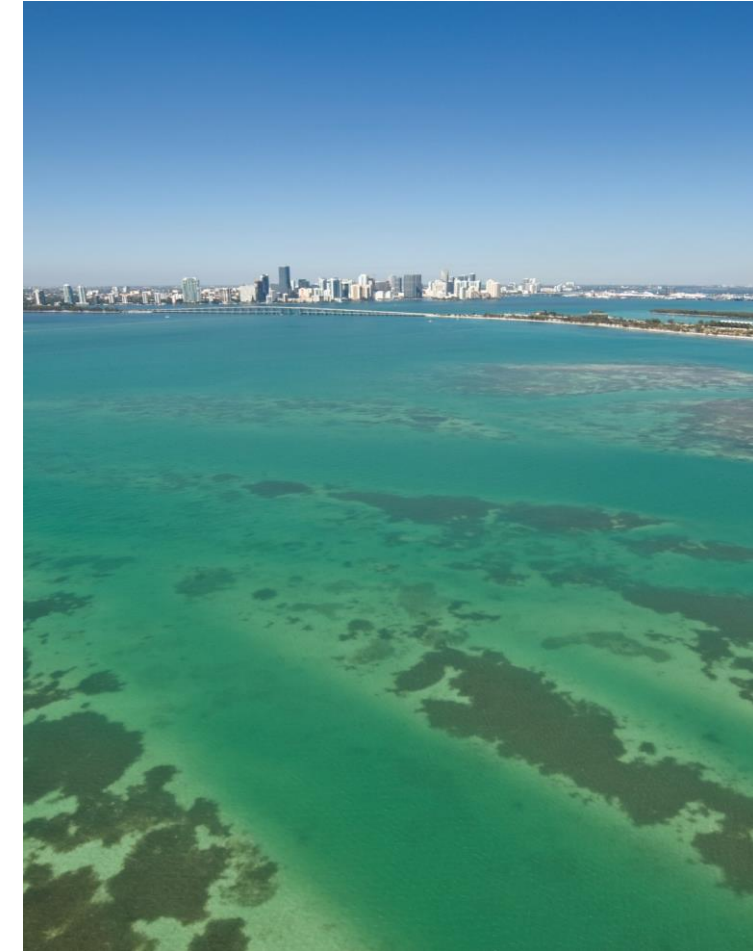


Loxahatchee River

Regional and Local Planning Linkage

After the District Governing Board approves the water supply plan update:

- Local governments must amend their Comprehensive Plan to update their Water Supply Facilities Work Plan within 18 months of the plan update's approval
- Local governments, in coordination with utilities, identify the projects to be developed
- Utility annual progress reports due in November

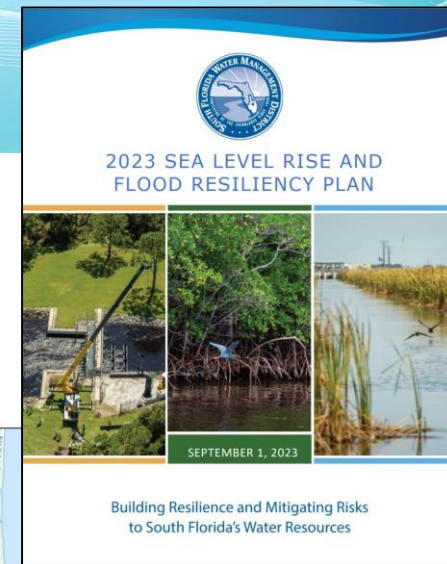
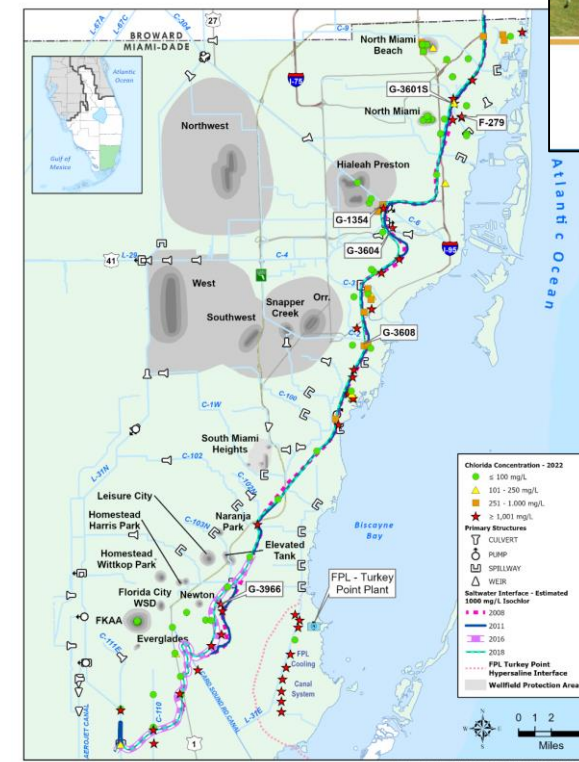


Miami - Biscayne Bay

Long-term Water Supply Vulnerability Assessment

- 50-year look ahead
- Changing conditions
 - Increased demands
 - Rainfall patterns & Evapotranspiration
 - Sea level rise
- The SFWMD is preparing by:
 - Conducting research
 - Developing ECSM groundwater simulations
- Identify overall water supply vulnerabilities including saltwater intrusion in coastal wellfields

Website: <https://www.sfwmd.gov/our-work/district-resiliency>



Questions?

- Plan information can be found at:
www.sfwmd.gov/lecplan
- **Nancy Demonstranti, Plan Manager**
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Thank You