2023 Lower East Coast Water Supply Plan Update

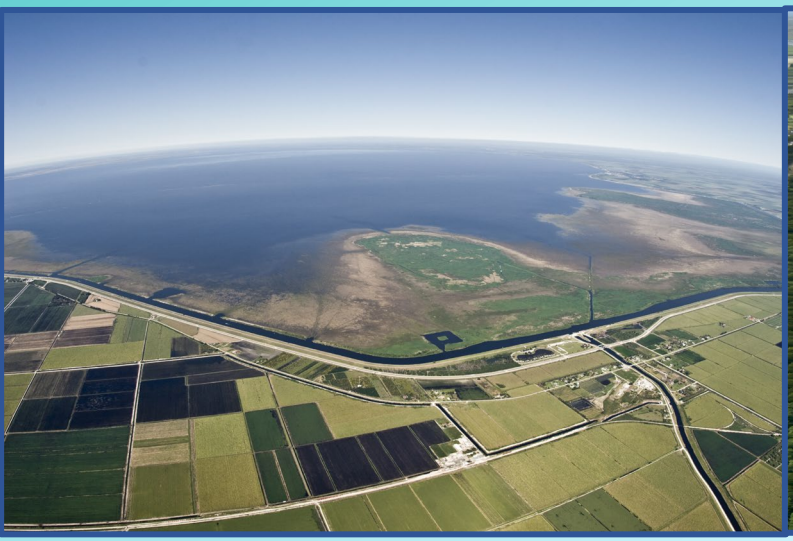
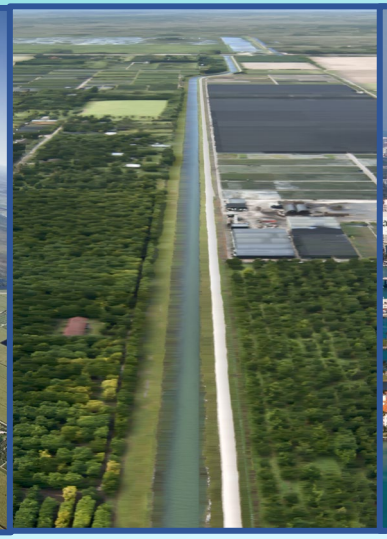
Stakeholder Kickoff Meeting

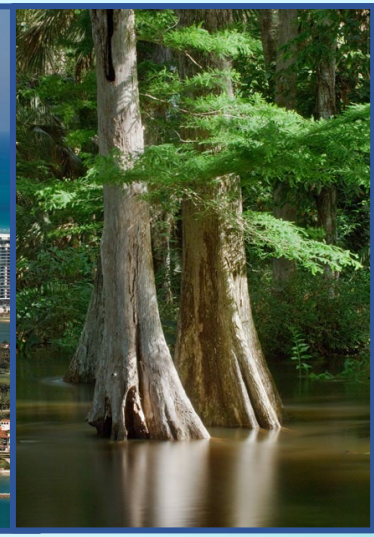
May 18, 2023

Agenda

- **Welcome and Opening Remarks** – *Tom Colios, SFWMD*
- **2023 LEC Plan Update Process and Summary of 2018 Plan** – *Tom Colios and Mark Elsner, SFWMD*
- **Progress Since 2018 and 2023 Goal and Objectives** – *Nancy Demonstranti, SFWMD*
- **Public Supply** – *Kevin Carter, Broward County Water and Wastewater Services*
- **Demand Estimates and Projections** – *Coleen Jordan, SFWMD*
- **Next Steps** – *Nancy Demonstranti, SFWMD*
- **Adjourn**

2023 LEC Plan Update Process
Summary of 2018 Plan



Tom Colios
Section Leader, Water Supply Planning

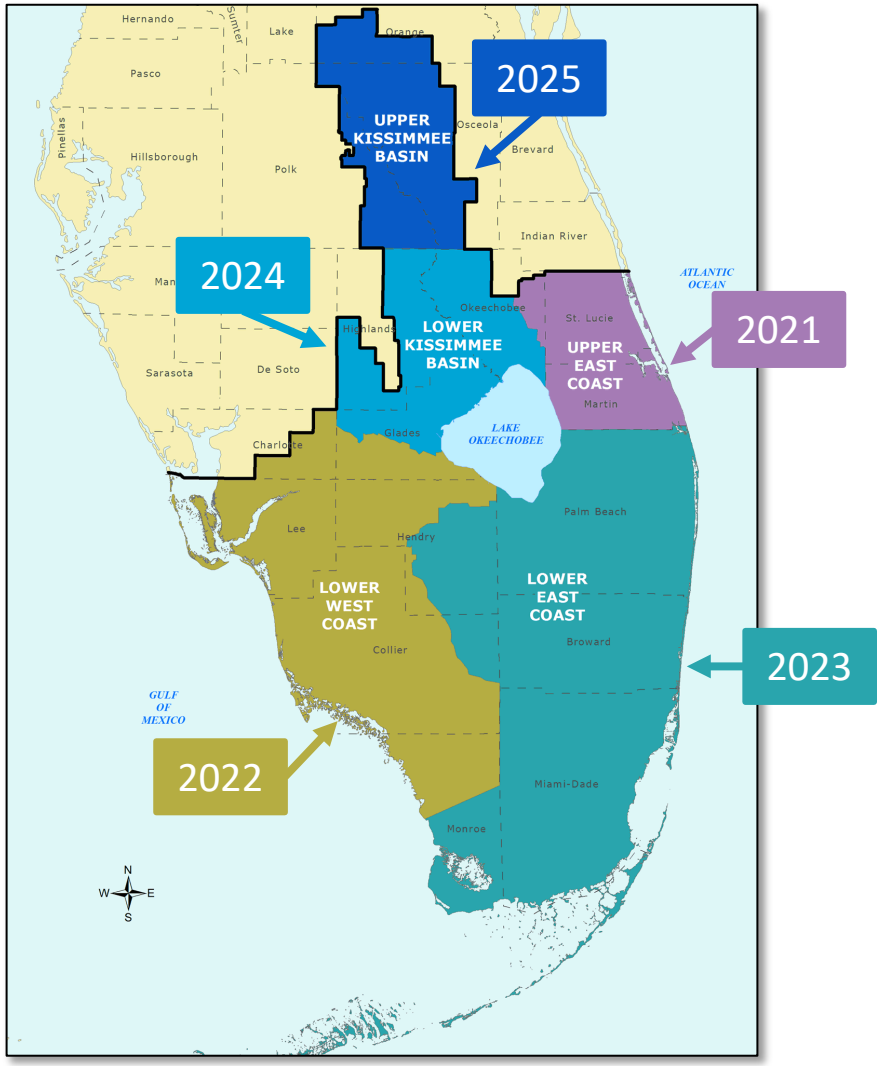
2023 LEC Stakeholder Meeting
May 18, 2023

Statutory Goal of Water Supply Plans (Section 373.709, Florida Statutes)

- *To identify sufficient water supply sources and future projects to meet existing and future reasonable-beneficial uses during 1-in-10-year drought conditions through **2045** while sustaining water resources and related natural systems.*

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)

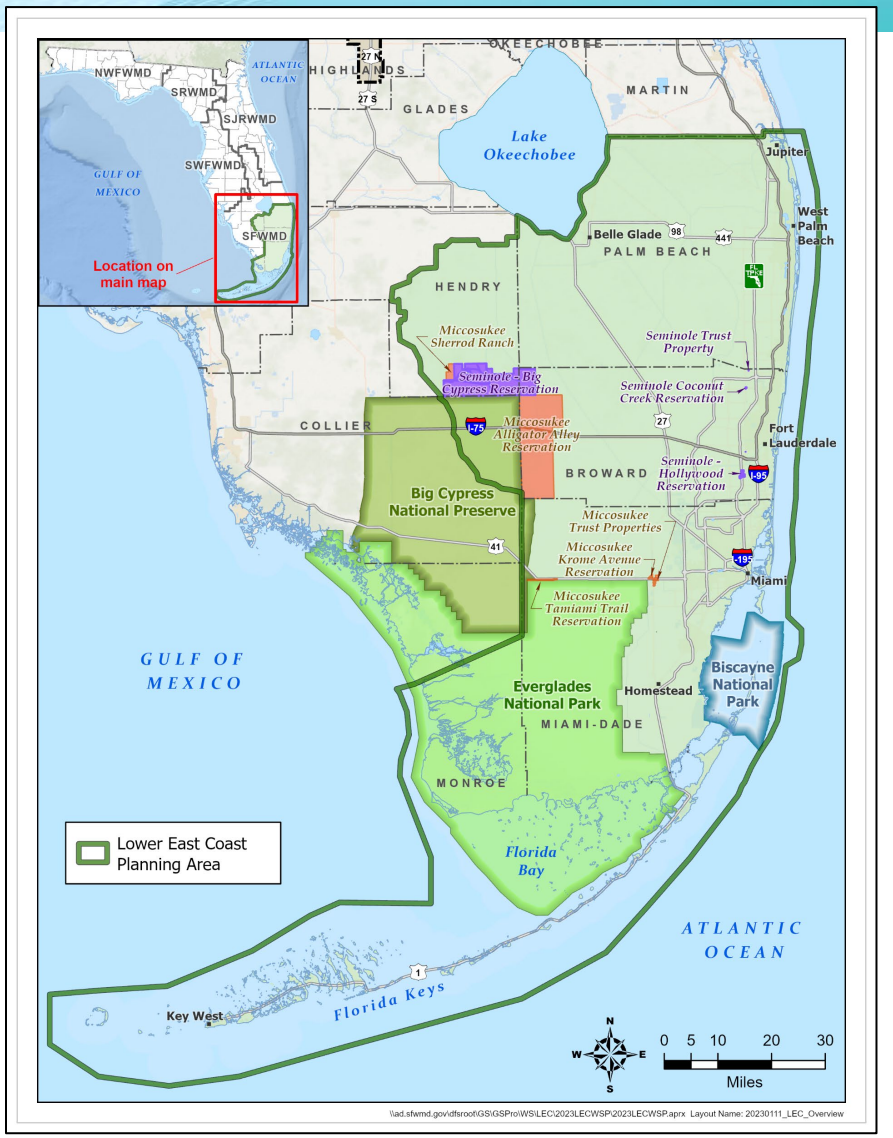


Presenter: Tom Colios

Lower East Coast Planning Area

- Includes:
  - Palm Beach, Broward, Miami-Dade, part of Monroe County, and part of the eastern portions of Collier and Hendry counties
  - Seminole Tribe of Florida reservations and Miccosukee Tribe of Indians of Florida reservations
- Population:
  - 2021 6,222,707
  - 2045 7,294,265*
- Major agricultural industry
- Significant environmental features

*University of Florida (UF) Bureau of Economic and Business Research estimate.



Presenter: Tom Colios

Regional Water Supply Plan

What It Does

- Provides a road map to meet future water needs while protecting water resources and natural systems
- Conducts a planning-level approach
- Projects future water demands
- Identifies and evaluates water source options

What It Does NOT Do

- Does not authorize consumptive use permits
- Does not establish MFLs
- Does not adopt rules
- Does not require water users to implement specific projects
- Does not address surface water quality issues (e.g., algal blooms)

Public Participation

- **Active participation to ensure plan reflects the needs of the planning area**
  - Agricultural interests
  - Public water suppliers
  - Environmental community
  - County commissions/city councils
  - County/city planning staff
  - Regional planning council
  - Governing Board member involvement
  - State agencies and special districts
  - Tribal governments

- **Opportunities for public participation**
  - Stakeholder meetings
  - Governing Board meetings
  - One-on-one meetings
  - Draft document review and comment

2018 Water Supply Issues

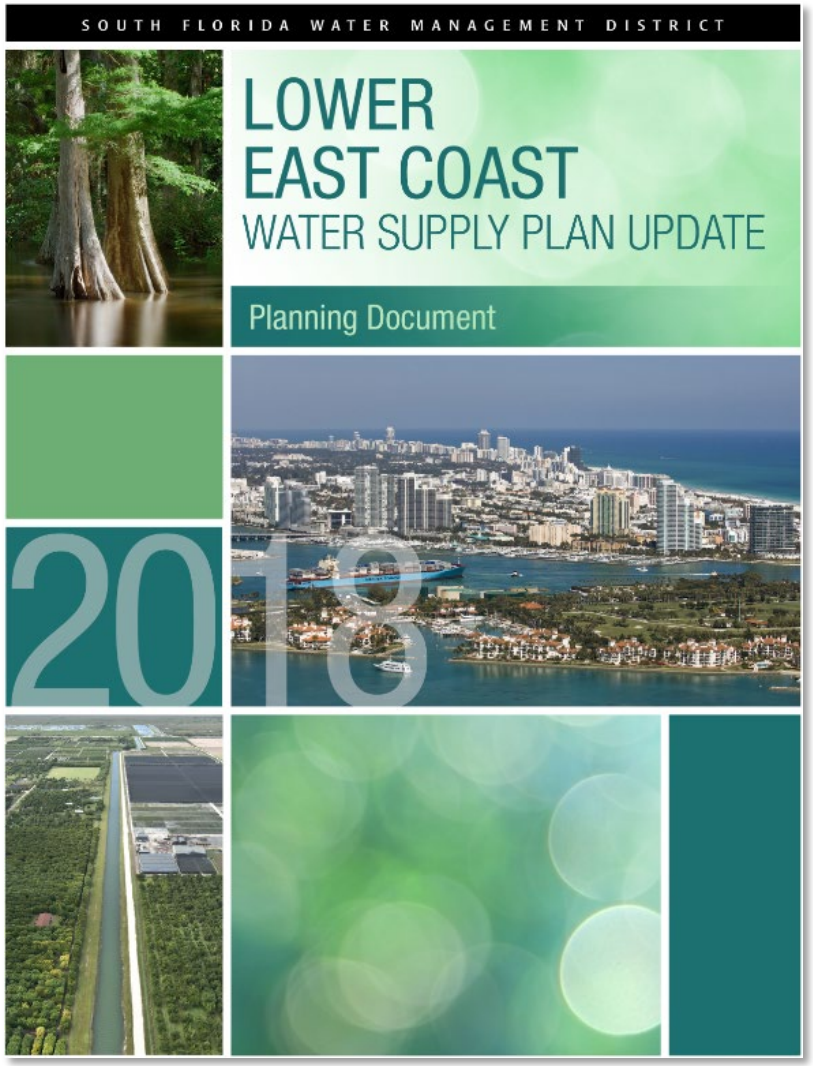
- Limited opportunity to increase surficial aquifer use
- Surface water availability (storage) is limited
  - Lake Okeechobee Regulation Schedule (LORS 2008)
  - Lake Okeechobee Service Area (LOSA) Restricted Allocation Rule
- Freshwater discharges are affecting the health of coastal resources
- Freshwater sources alone are inadequate to meet water needs
- Long-term sustainability of brackish groundwater sources

2018 Water Supply Plan Conclusion

The future water demands of the region can continue to be met through the 2040 planning horizon with appropriate management, conservation, and implementation of projects in the 2018 LEC Plan Update.

Dependent on completion of the following:

- Identified Comprehensive Everglades Restoration Plan (CERP) components and other projects to meet environmental needs
- Water supply development projects by 9 utilities
- Completion of repairs to the Herbert Hoover Dike and implementation of a revised Lake Okeechobee Regulation Schedule



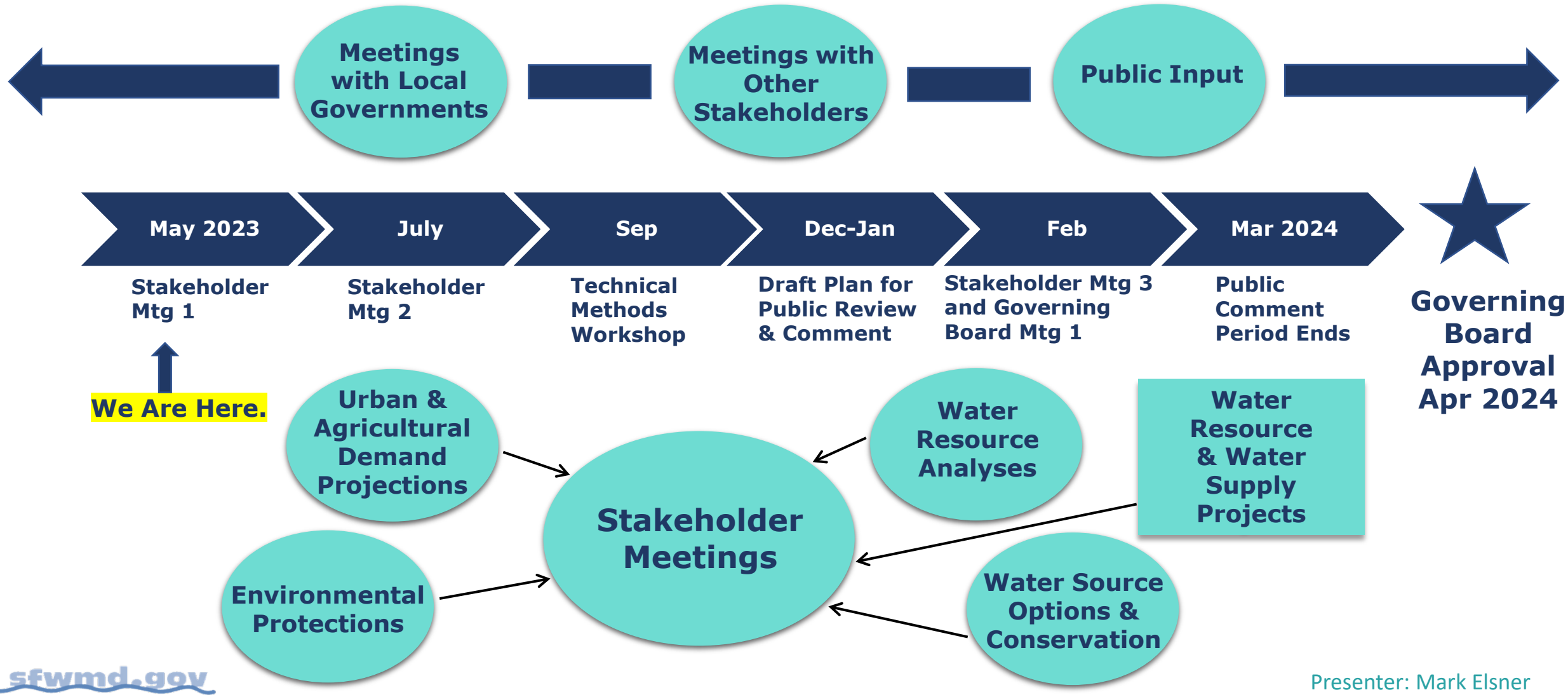
2023 LEC Plan Update Schedule

Mark Elsner, P.E.
Bureau Chief, Water Supply Planning

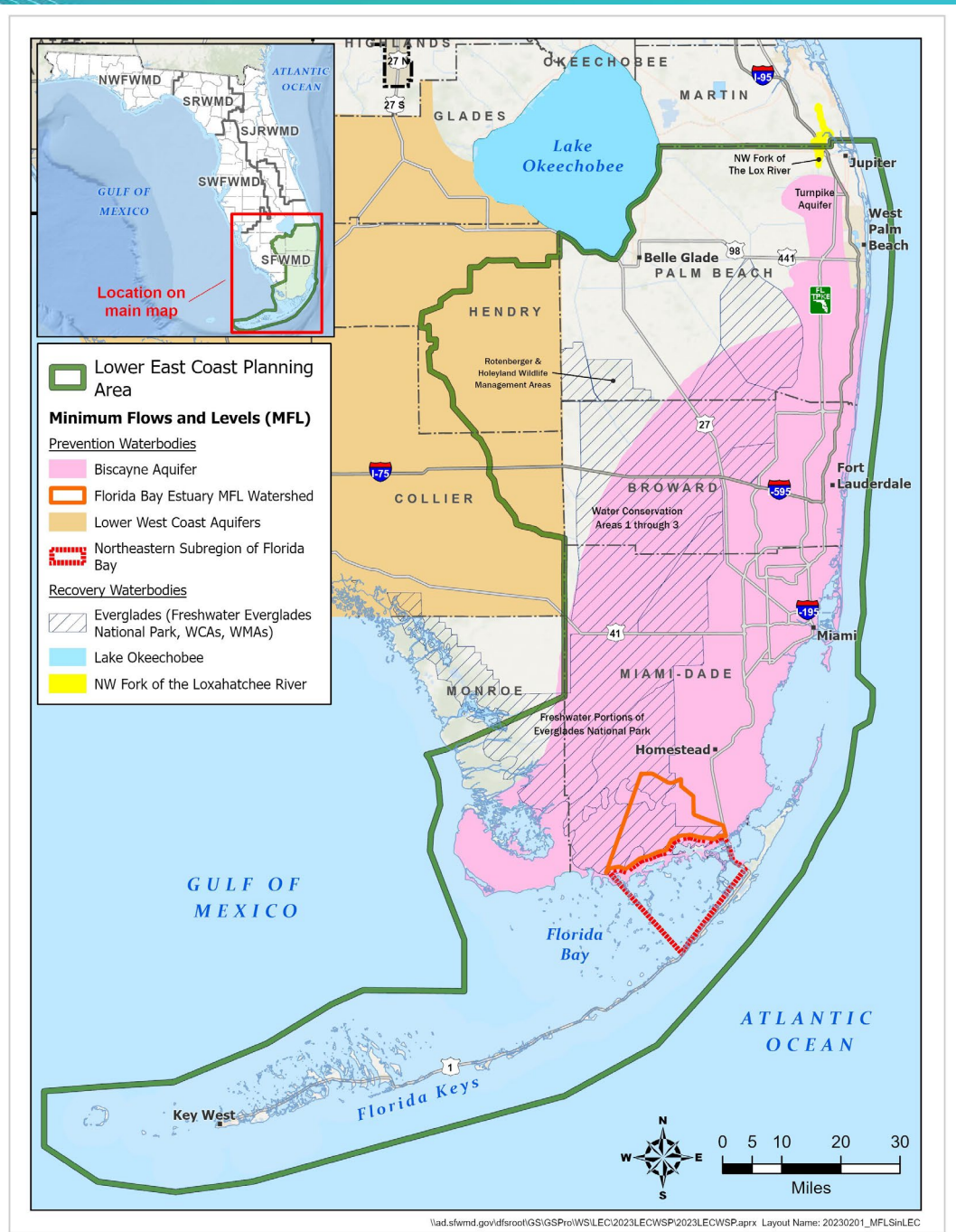
2023 LEC Stakeholder Meeting

May 18, 2023

Water Supply Plan Update Timeline



Presenter: Mark Elsner



Minimum Flows and Minimum Water Levels in LEC

With Prevention Strategies

- Biscayne Aquifer (2001)
- Lower West Coast Aquifers (2001)
- Florida Bay (2006)

With Recovery Strategies

- Everglades (2001)
- Lake Okeechobee (2008)
- Northwest Fork of Loxahatchee River (2003)

Presenter: Mark Elsner

Lake Okeechobee MFL Recovery Strategy in 2018 LEC Plan Update

Appendix C

The Lake Okeechobee MFL recovery strategy consists of four components:

1. Environmental enhancement projects to be implemented during extreme low lake stages
2. Regulatory constraints on consumptive use of Lake water
3. Water shortage restrictions
4. Capital projects in support of MFL recovery strategy
   - Lake Okeechobee Watershed Restoration Project (LOWRP)
   - Herbert Hoover Dike (HHD) repair and revised Lake regulation schedule

Considerations for 2023 LEC Plan Scope
Lake Okeechobee MFL Recovery Strategy

Allow sufficient time to develop a revised Lake Okeechobee MFL recovery strategy that considers:

- Record of Decision for LOSOM is pending
- Analysis of selected plan indicates LOSOM schedule does modestly improve water supply performance related to Lake Okeechobee MFL such that MFL will remain in recovery phase
  - No change in regulations for existing legal users is expected
- Additional capital projects are being planned and constructed

Considerations for Updating Lake Okeechobee MFL Recovery Strategy

EXECUTIVE ORDER 23-06

Achieving *Even More* Now for Florida's Environment

WHEREAS, on January 10, 2019, I signed Executive Order 19-12, which laid out a bold plan to achieve more now for Florida's environment, and in the last four years, we have made incredible progress, entering into a golden era for conservation and protection of our treasured natural resources; and

WHEREAS, we secured unprecedented funding for the protection of our natural resources, including over $3.3 billion in state funding for Everglades restoration and protection of our water resources, far surpassing our goal of $2.5 billion; and

WHEREAS, we expedited Everglades restoration to reduce harmful discharges and send more water south, with more than 50 Everglades restoration projects being completed, breaking ground, or hitting a major milestone, and helped Florida Bay reach salinity goals for the first time in decades; and

WHEREAS, in 2020, I signed into law Senate Bill 712, which was the most consequential environmental legislation in decades and included a wide range of water quality protections aimed at minimizing the impact of known nutrient pollution sources, realigning the State's resources to better protect Florida's environment, and strengthening our environmental regulatory requirements; and

WHEREAS, we invested $1.6 billion in water quality improvements, created the Wastewater Grant Program to construct, upgrade, or expand wastewater facilities, provide advanced wastewater treatment, and convert septic-to-sewer, and dedicated historic funding to increase alternative water supply and restore and protect Florida's springs; and

WHEREAS, we dedicated funding to enhance our state's water quality monitoring and identify new and innovative ways to treat, predict, and respond to blue-green algal blooms, including more than $45 million to the Innovative Technology Grant Program and funding 20 different innovative technology projects to date; and

WHEREAS, the State, with the coordination of the Chief Science Officer, ensured that science is at the forefront of environmental protection and policy, with enhanced monitoring, innovative research, and modern data analytics to support water quality restoration and ensure that high quality, scientific data are readily available to citizens and state agencies; and

WHEREAS, we provided support to local governments for red tide cleanup efforts and established the Center for Red Tide Research within the Florida Fish and Wildlife Conservation Commission's (FWC) Fish and Wildlife Research Institute, which brings together state and local governments, universities, private sector partners, and community scientists to enhance statewide red tide monitoring and conduct applied research associated with tracking, predicting, and mitigating the effects of red tide; and

WHEREAS, the State, with the coordination of the Chief Resilience Officer, invested more than $1.1 billion in resilience projects to protect our communities from flooding and sea level rise; and

WHEREAS, we established the Florida Wildlife Corridor and committed more than $600 million to the Florida Forever Program and acquired more than 170,000 acres for conservation, nearly four times that acquired in the previous four years; and

WHEREAS, while the achievements of the first four years are historic, protecting our water resources, investing to make our communities more resilient, and preserving our conservation lands are essential to our economy and way of life, and we must continue the momentum of the last four years to achieve even more now for Florida's environment and ensure that we leave Florida to God better than we found it.

- Executive Order 23-06, Achieve Even More Now for Florida's Environment
  - Directs SFWMD to develop additional storage north of Lake Okeechobee
    - District advancing Component A Reservoir (LOCAR) planning process under federal Section 203 authority
  - Target WRDA 2024 for authorization for all Lake Okeechobee projects
- Development of a numerical storage assessment tool
  - Storage north of Lake needs to be included
- Develop draft Lake O MFL updated recovery strategy

★Time to accomplish these tasks extends beyond 2023

Presenter: Mark Elsner

Questions and Public Comment

- If you are participating via Zoom:
  - Click the Reactions button to access the Raise Hand feature
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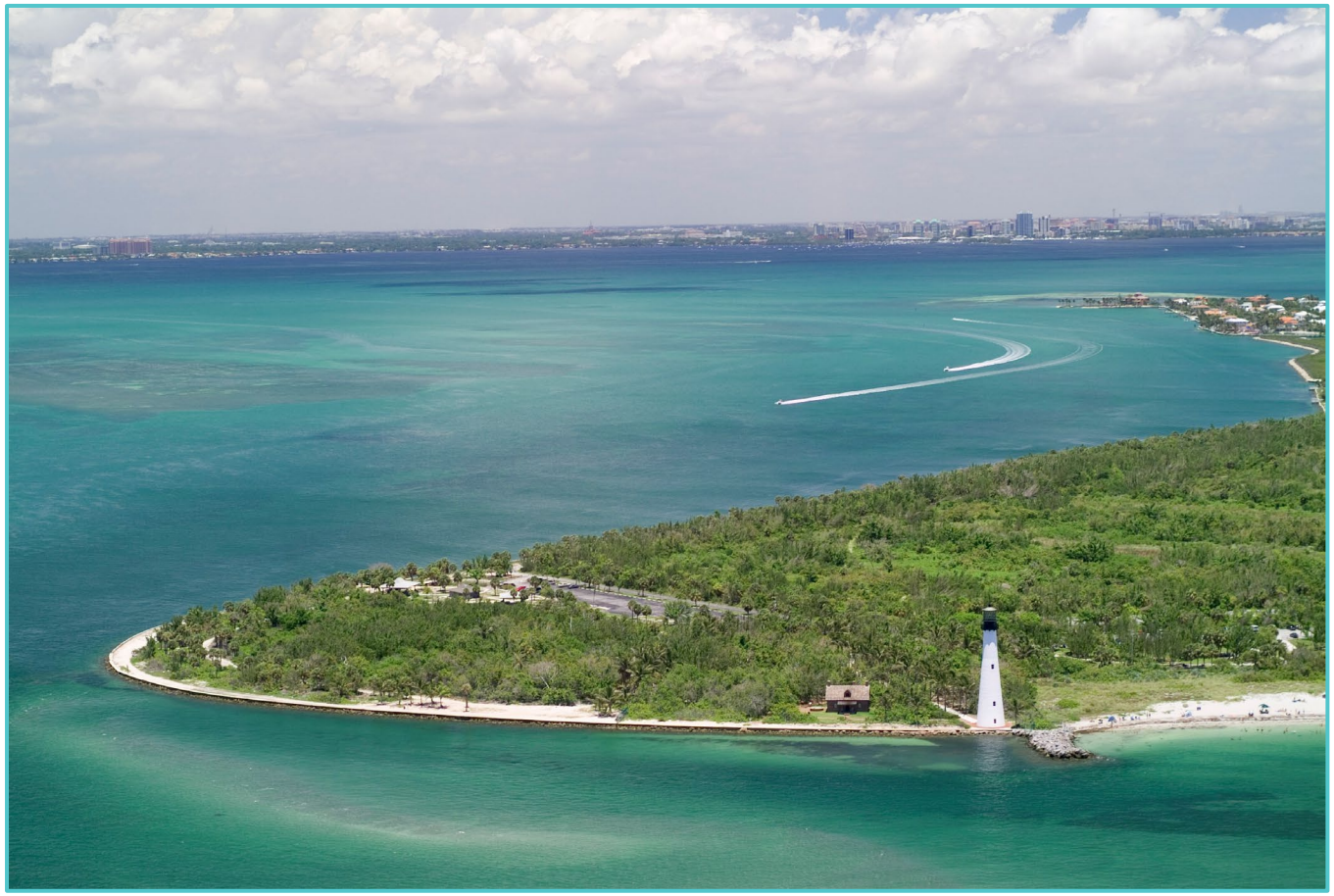
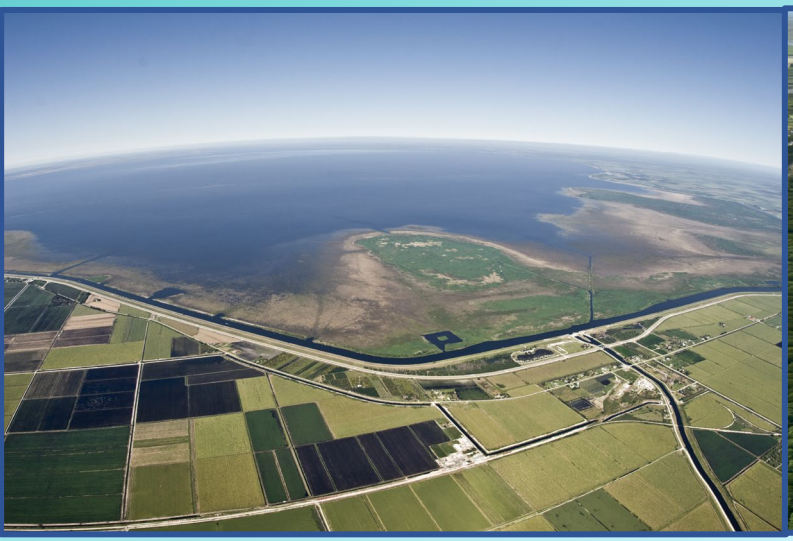
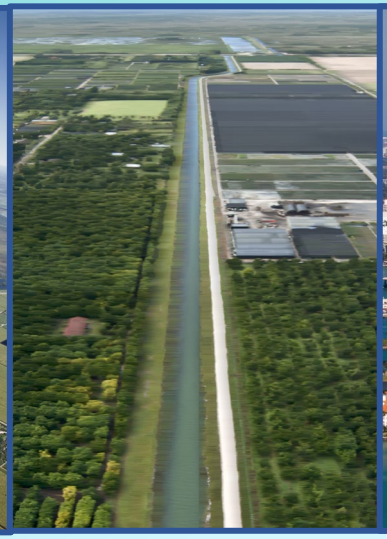
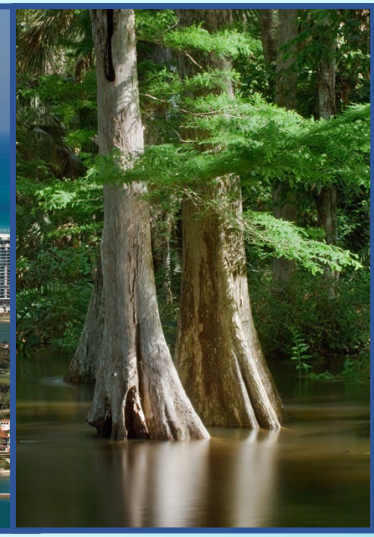


Biscayne Bay, Bill Baggs Cape State Park

Progress Since 2018
2023 LEC Plan Update Goal and Objectives



Nancy Demonstranti, P.G.
LEC Water Supply Plan Manager
2023 LEC Stakeholder Meeting
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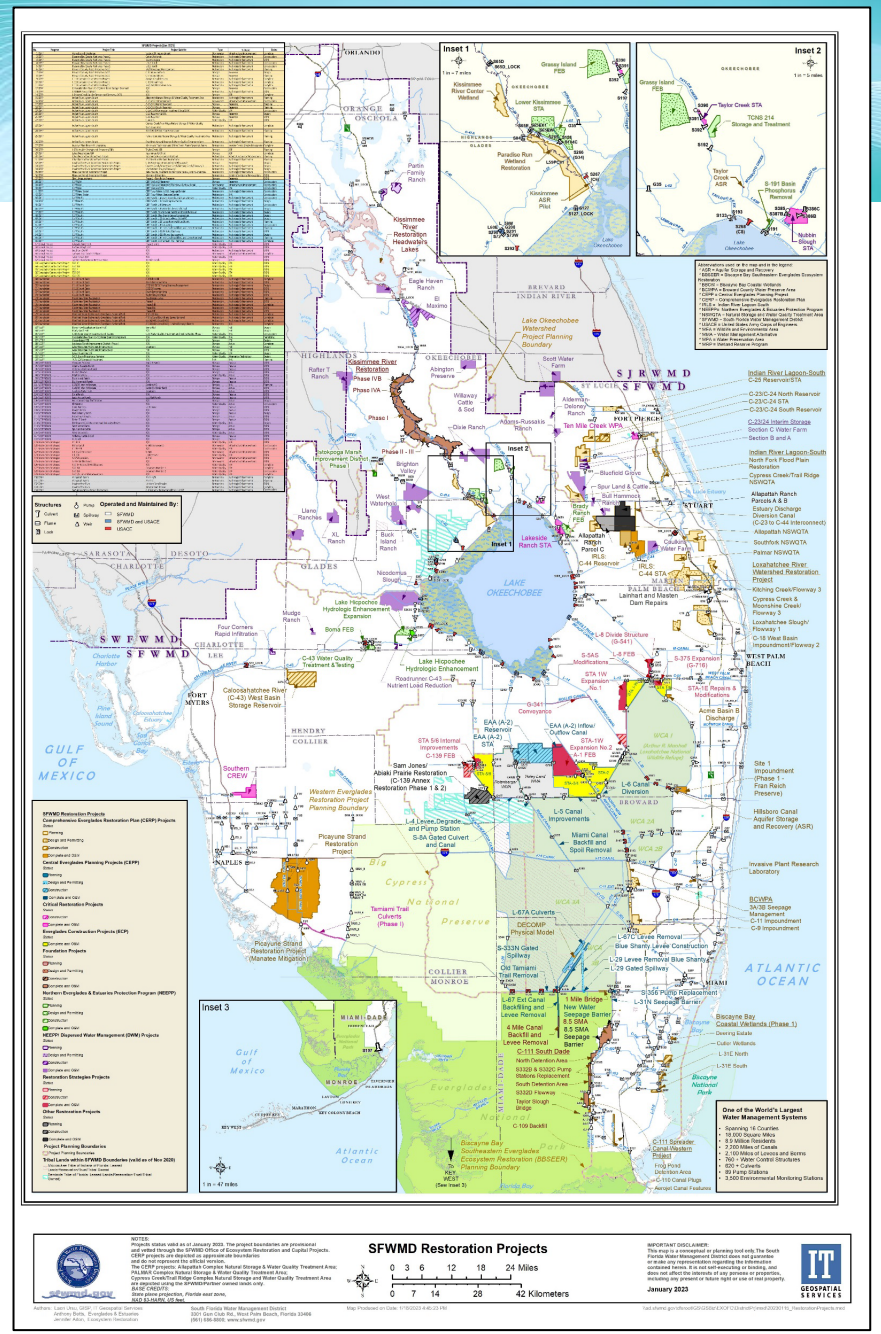
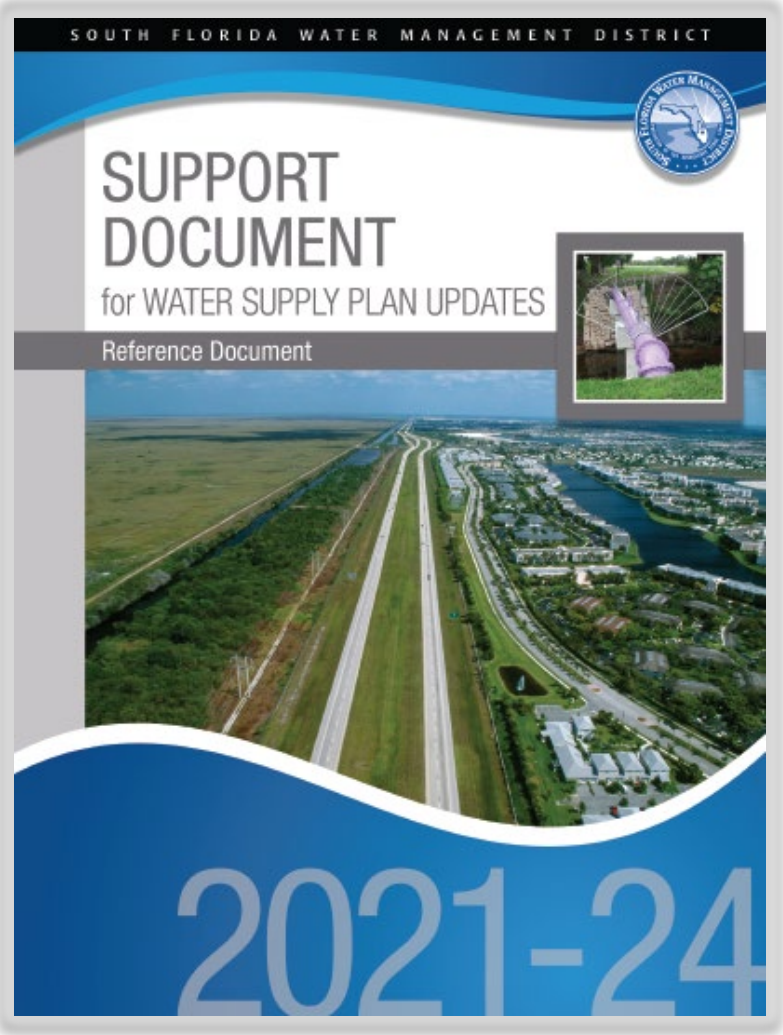
Water Resource Projects

- Lake Okeechobee System Operating Manual (LOSOM) and Herbert Hoover Dike repair
- Lake Okeechobee Watershed Restoration Project (LOWRP)
- Central Everglades Planning Project Everglades Agricultural Area (CEPP-EAA)
- C-111 South Dade
- Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER)
- Biscayne Bay Coastal Wetlands L-31E Flow-way
- Western Everglades Restoration Project (WERP)

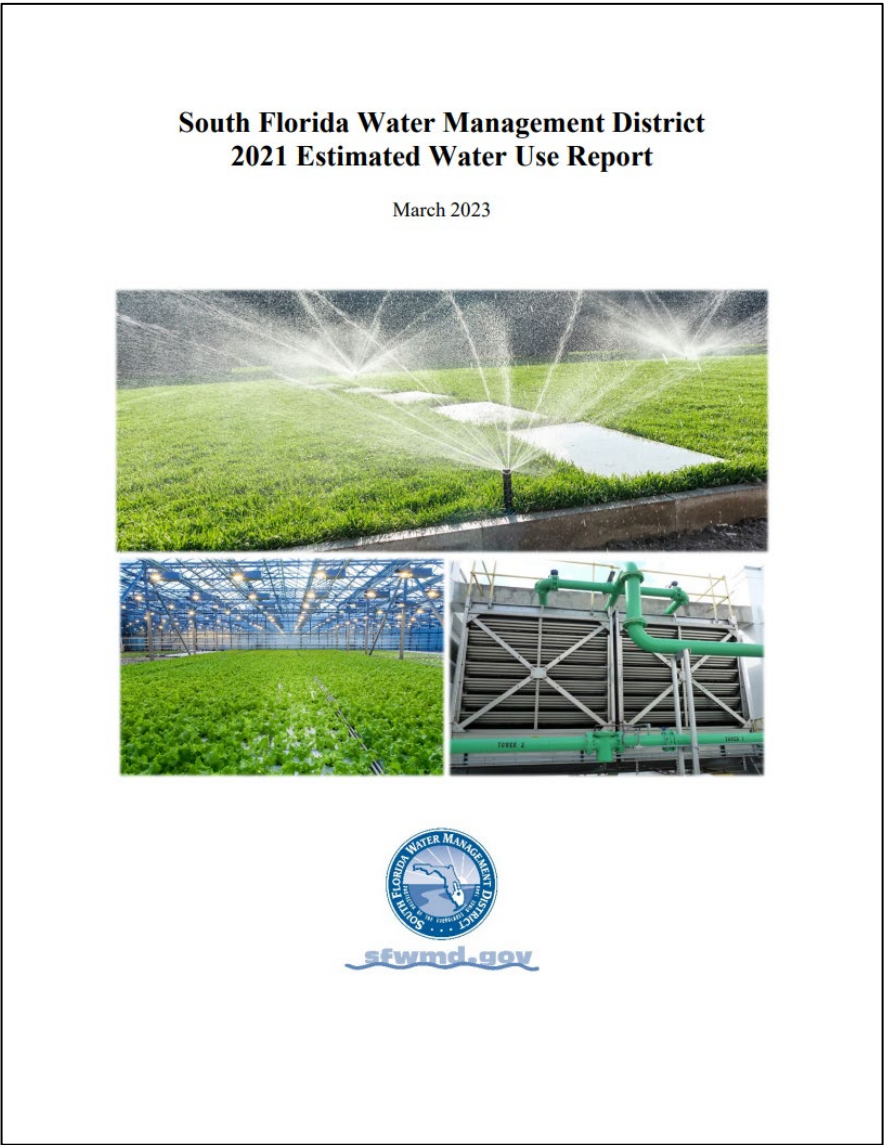


2021-2024 Support Document

- Supplements the regional water supply plans
- Legal authority and linkage to local plans
- Comprehensive conservation support
- Water use permitting process/coordination
- Water resource (natural systems) protections
- Ecosystem restoration and District-wide water resource development projects
- Water sources options and treatment processes/costs
- Available at www.sfwmd.gov/lecplan

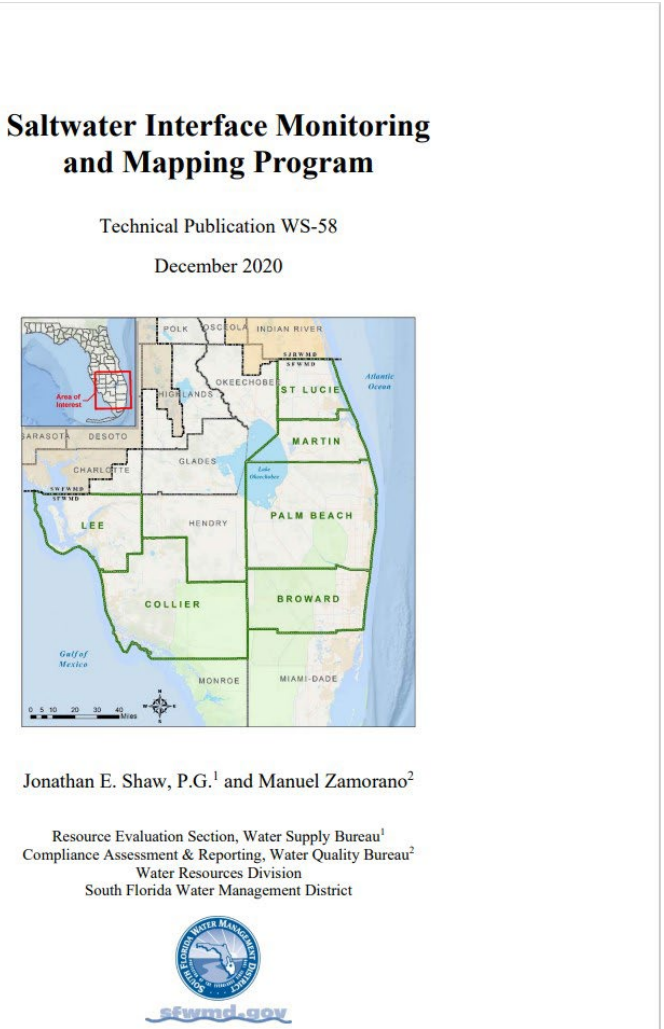


Water Use Estimation Report



- The District began producing this document with 2014 data
- Produced annually for the past 8 years
- Includes actual pumpage data and estimated use
- Link to the 2023 report: 2021_Water_Use_Estimation_Report_Final_03_22_23.pdf (sfwmd.gov)

Regional Hydrogeological Studies



Saltwater Interface Monitoring and Mapping Program

Technical Publication WS-58

December 2020

Jonathan E. Shaw, P.G.[1] and Manuel Zamorano[2]

Resource Evaluation Section, Water Supply Bureau[1]
Compliance Assessment & Reporting, Water Quality Bureau[2]
Water Resources Division
South Florida Water Management District

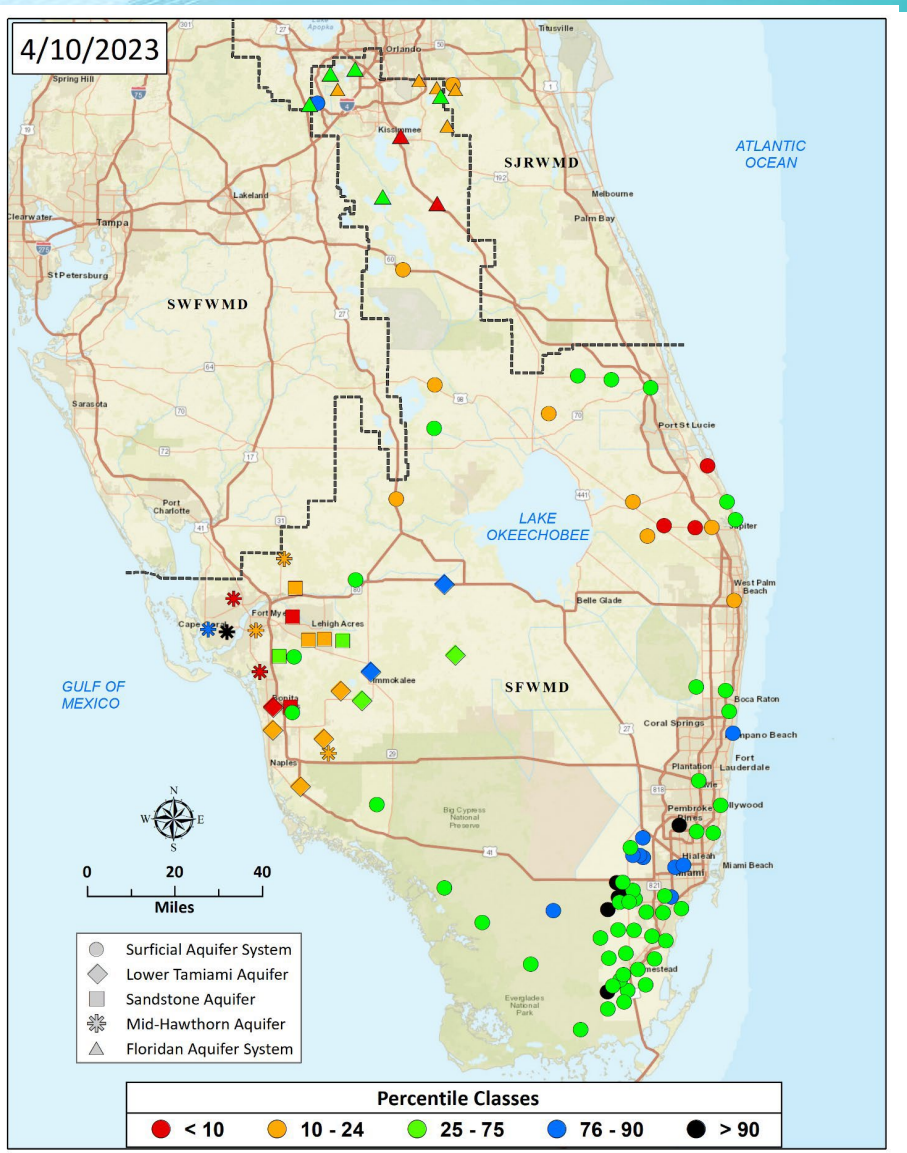
sfwmd.gov

- Saltwater interface monitoring and mapping program (Shaw and Zamorano 2020)
- Groundwater chemistry of the Lower Floridan aquifer – upper permeable zone in Central and South Florida (Geddes et al. 2020)
- Hydrogeology and groundwater salinity of Water Conservation Area 2A (Janzen and Baker 2020)
- Hydrogeologic investigation and aquifer performance testing at Morikami Park, southeastern Palm Beach County, Florida (Lindstrom 2020)
- Cycle test summary report Hillsboro Canal aquifer recharge, storage, and recovery system (Verrastro 2018)
- Geochemistry of the Upper Floridan aquifer and Avon Park permeable zone within the South Florida Water Management District (Geddes et al. 2018)
- Installation of Biscayne aquifer monitor wells at three sites in Miami-Dade County (Smith 2018)
- Installation of a Biscayne aquifer monitoring well cluster at the S-356 pump station in Miami-Dade County (Smith 2018)

Presenter: Nancy Demonstranti

Groundwater Monitoring

- USGS/SFWMD Cooperative Monitoring Network
- FAS Monitoring Network
- Long-term data stored in DBHYDRO database
- Weekly Water Conditions Report
  - Focused on changing water levels due to rainfall conditions and canal water levels



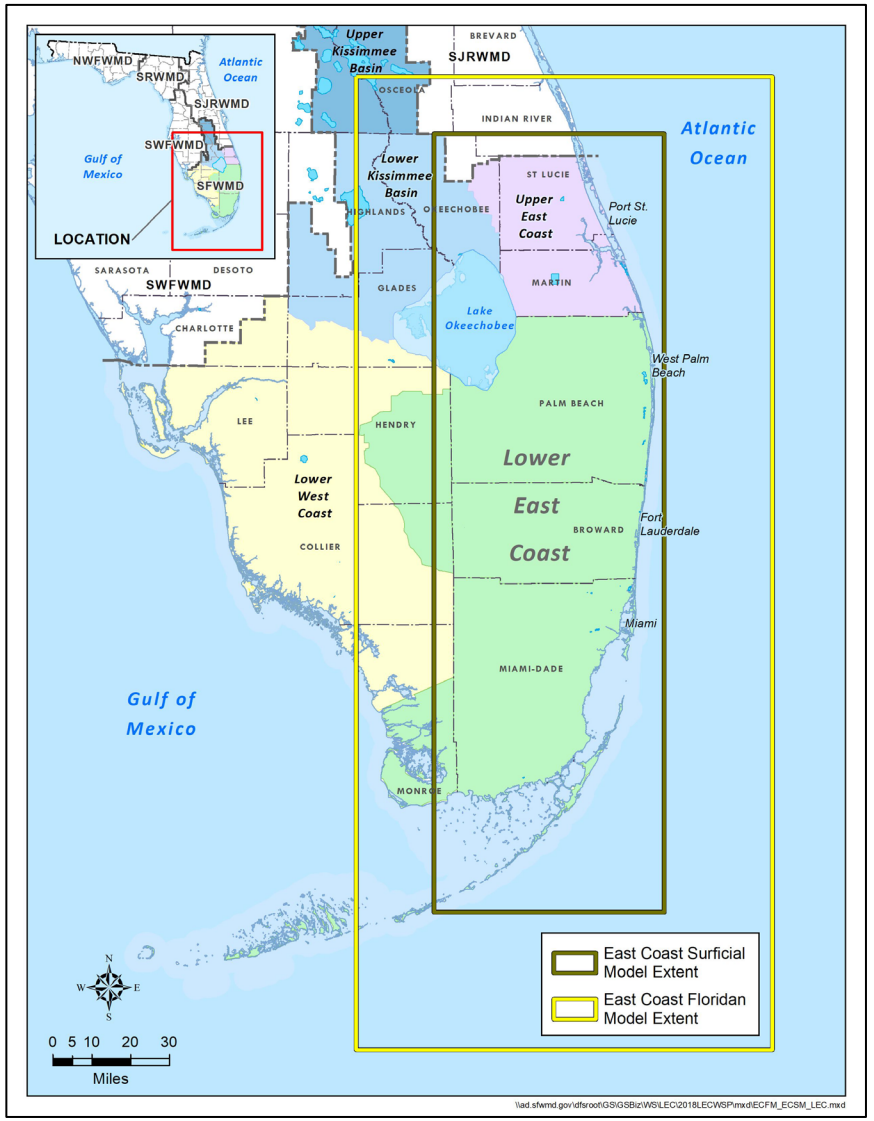
Groundwater Models

East Coast Floridan Model (ECFM):

- Updated in 2021 for the Upper East Coast Water Supply Plan
- Density dependent - used to estimate changes in water quality
- 2045 demands for LEC similar in magnitude to the 2040 demands in 2018 Plan update
- Previous demand simulations still representative

East Coast Surficial Model (ECSM):

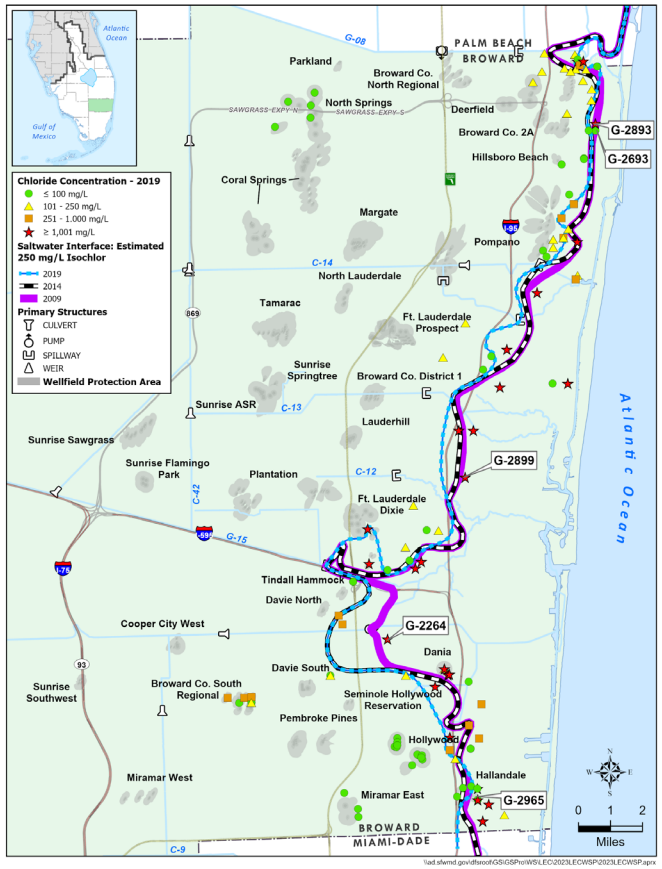
- Currently under development
- Simulate current and future demands
- Used to identify areas of cumulative impacts
- Density dependent - used to estimate movement of saltwater interface



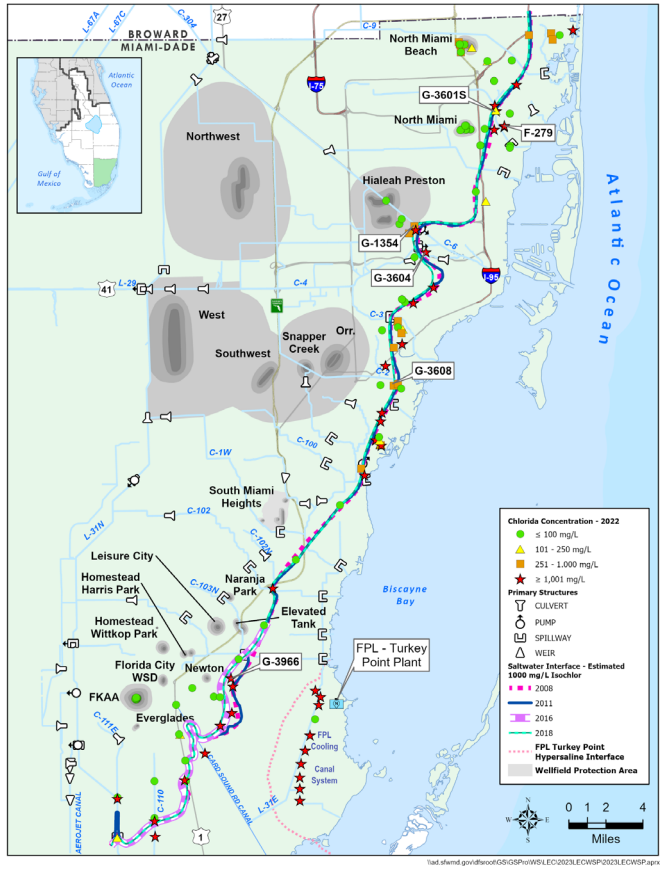
Saltwater Interface Mapping

- 2009, 2014, and 2019 maps - https://www.sfwmd.gov/documents-by-tag/saltwaterinterface
- Technical Report - https://www.sfwmd.gov/sites/default/files/documents/ws-58_swi_mapping_report_final.pdf

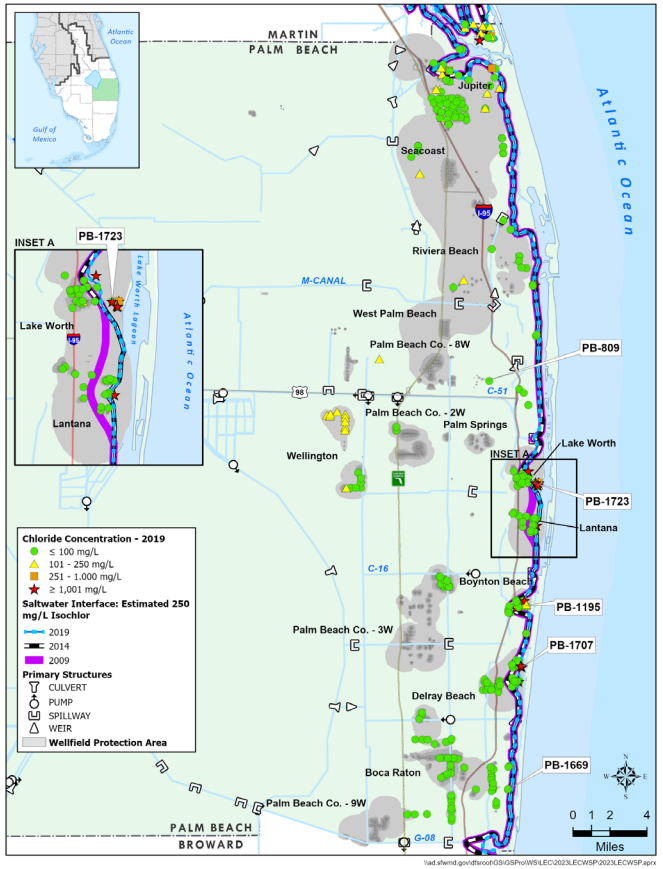
Broward



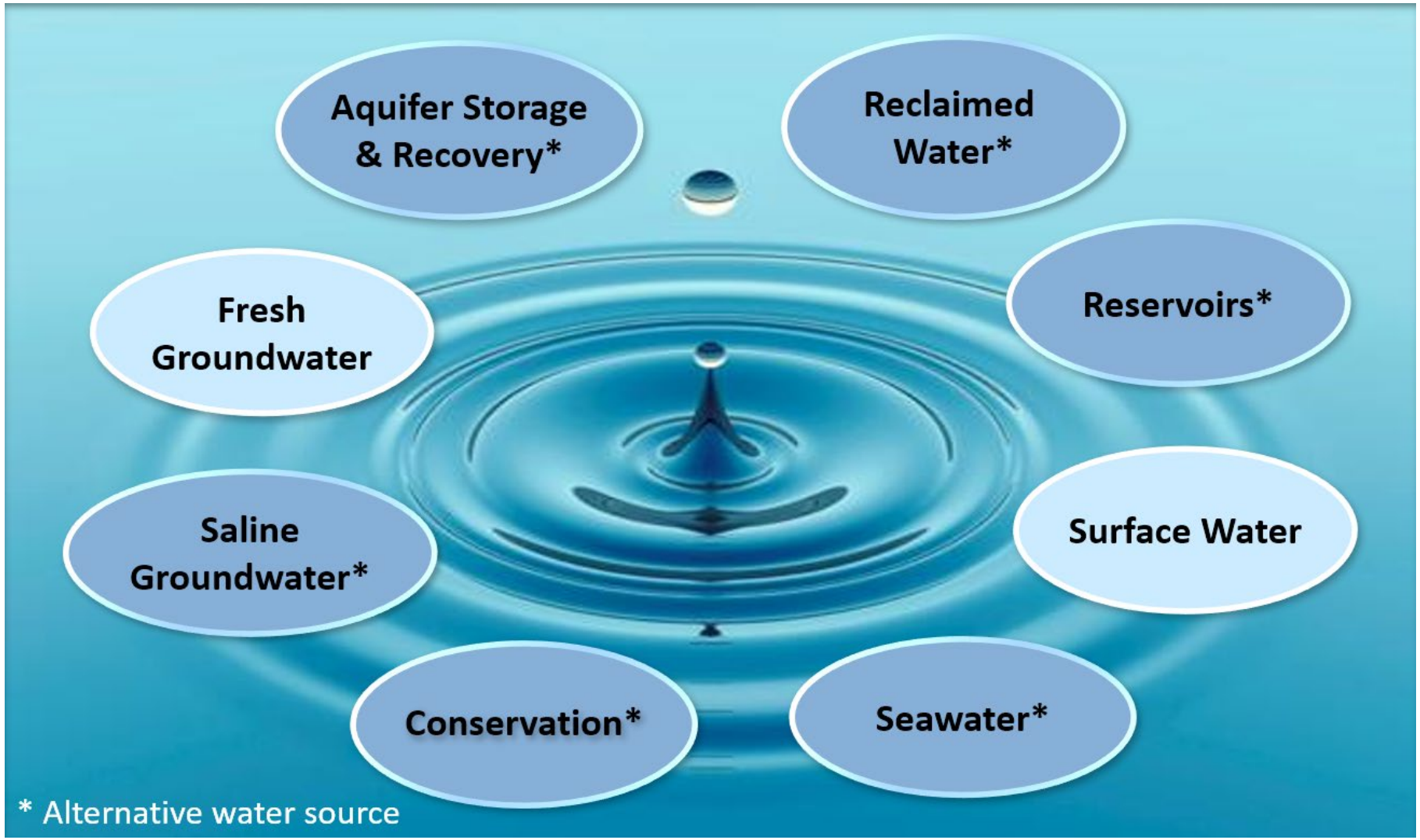
Miami-Dade



Palm Beach



Water Source Options and Alternatives

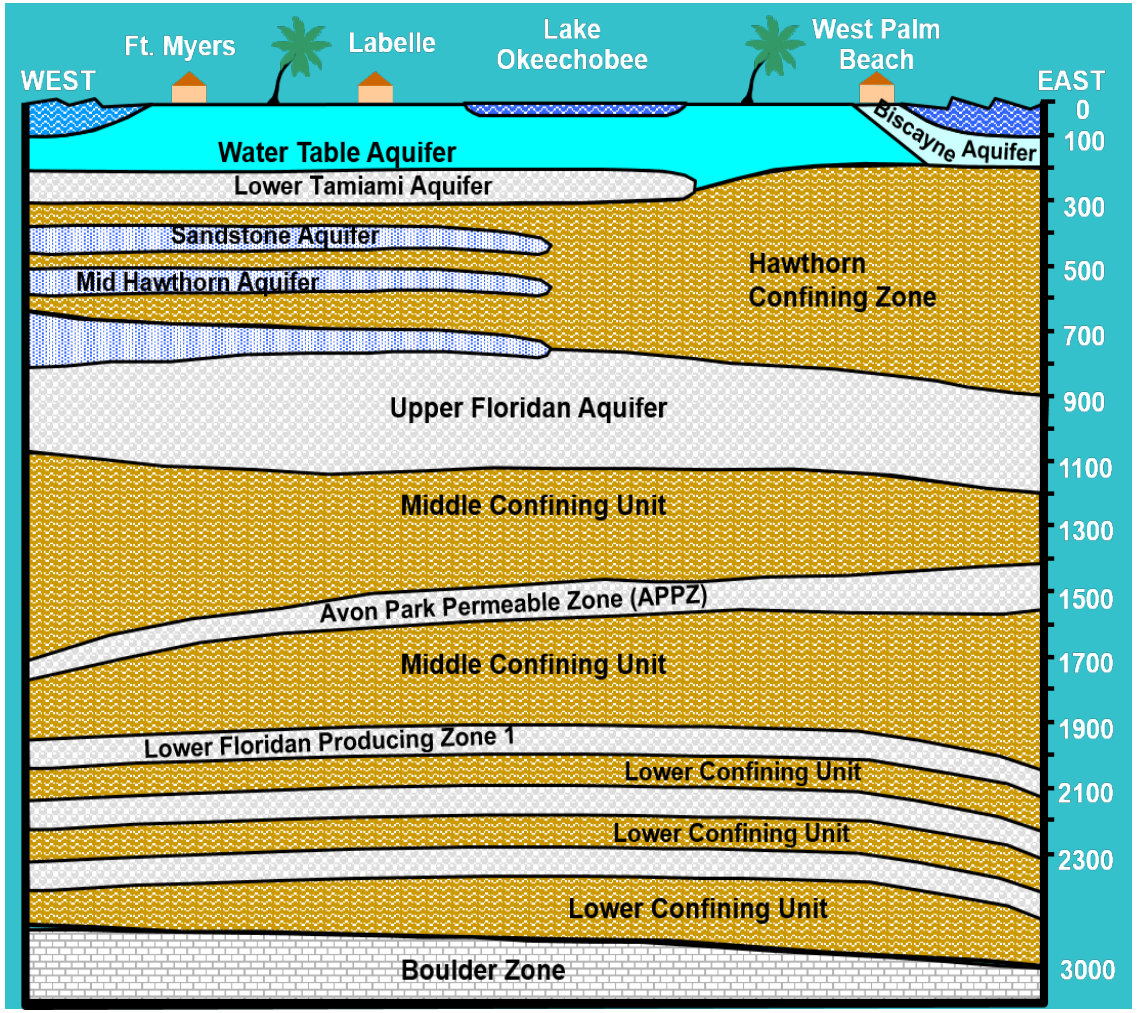


Water Supply and Conservation Project Support

2018-2022 Alternative Water Supply Funding (8 projects; 18.63 mgd in capacity $7.8 million)		
County	**Entity Name**	**Project Name**
Broward	Broward County Board of County Commissioners	Broward-Palm Beach Reclaimed Water Main Interconnect
Broward	Pompano Beach, City of	Reclaimed Water Expansion: NE 16th Street to NE 24th Street and NE 23rd Avenue to Intracoastal waterway
Broward	Broward County Environmental Planning and Community Resilience Division & Broward County Parks and Recreation	TY Park Reclaimed Water Main Expansion
Broward	Davie, Town of	Reclaimed Water Main Extension - Bamford Sports Complex and along University Dr between SW 36th Street and SW 30th Street
Broward	Davie, Town of	Reclaimed Water System Extension along SW 92nd Ave from SW 36th Ave to Griffin Rd
Broward	Davie, Town of	Reclaimed Water System Extension along SW 30th St from 75th Ave to College Ave
Palm Beach	Delray Beach, City of	Reclaimed Water Main Construction along SW 4th Street
Palm Beach	Delray Beach, City of	Reclaimed Water Main Extension - Area 10 Phase 2

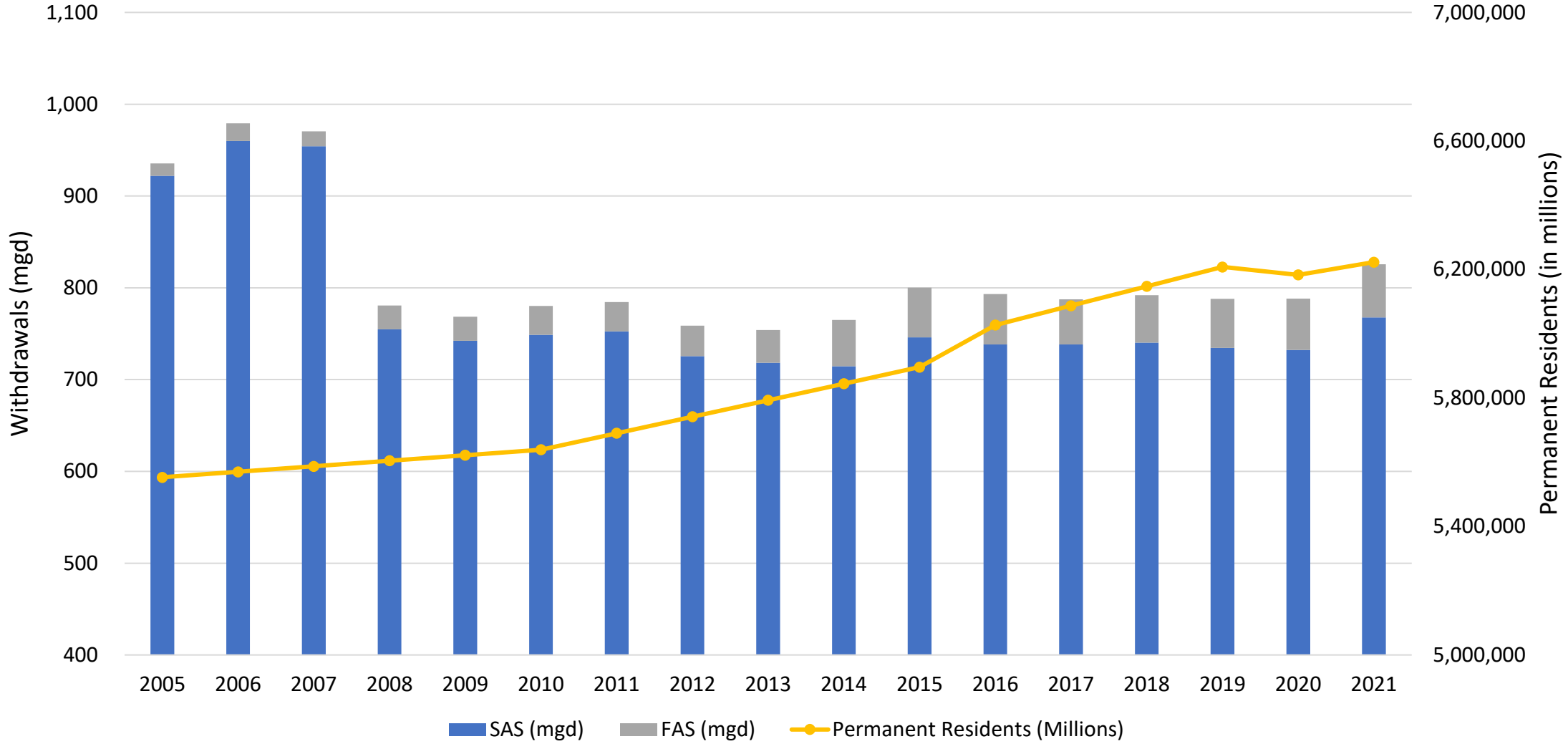
- Conservation Project Funding (20 projects; 1.13 mgd savings $1.04 million)

Groundwater of the LEC



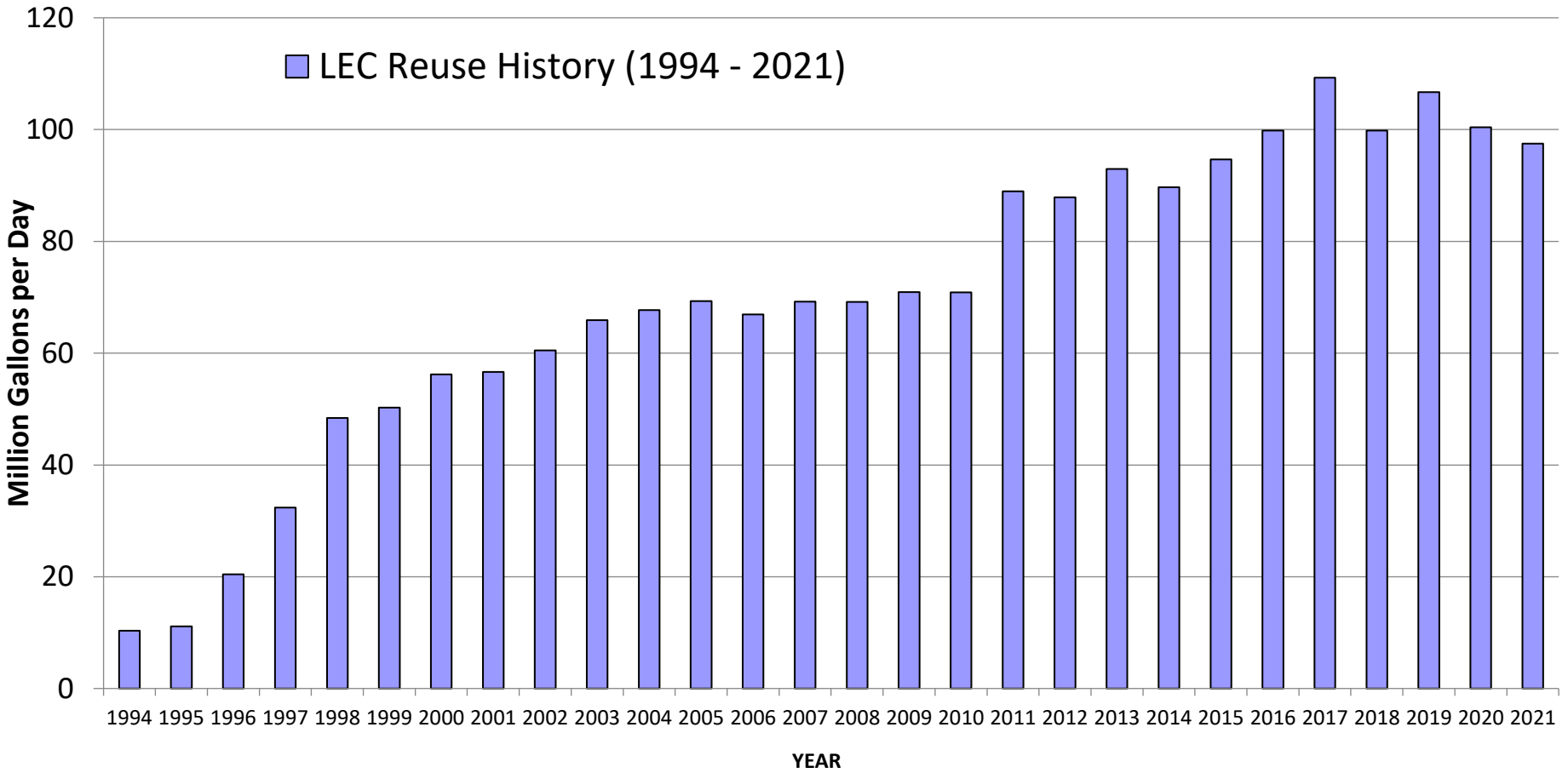
- Fresh Groundwater
  - Water Table aquifer
  - Biscayne aquifer
  - Lower Tamiami aquifer
- Saline Groundwater
  (chloride >250 mg/L)
  - Upper Floridan aquifer
  - Avon Park Permeable Zone
  - Lower Floridan aquifer
- Seawater
  (chloride >19,000 mg/L)
  - Boulder Zone

Public Supply Groundwater Demands (million gallons per day)



Reclaimed Water Usage

May 14-20 is reuse week!



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Biscayne Bay

Broward County
Water and Wastewater Services
Overview

(or what have we been up to the last 5 years?)

Kevin Carter, Broward County Water and Wastewater Services

kcarter@broward.org

954-831-0718 office, 954-856-3879 mobile

SFWMD Lower East Coast

Water Supply Plan Workshop

May 18, 2023

Broward County Water and Wastewater's Brief History

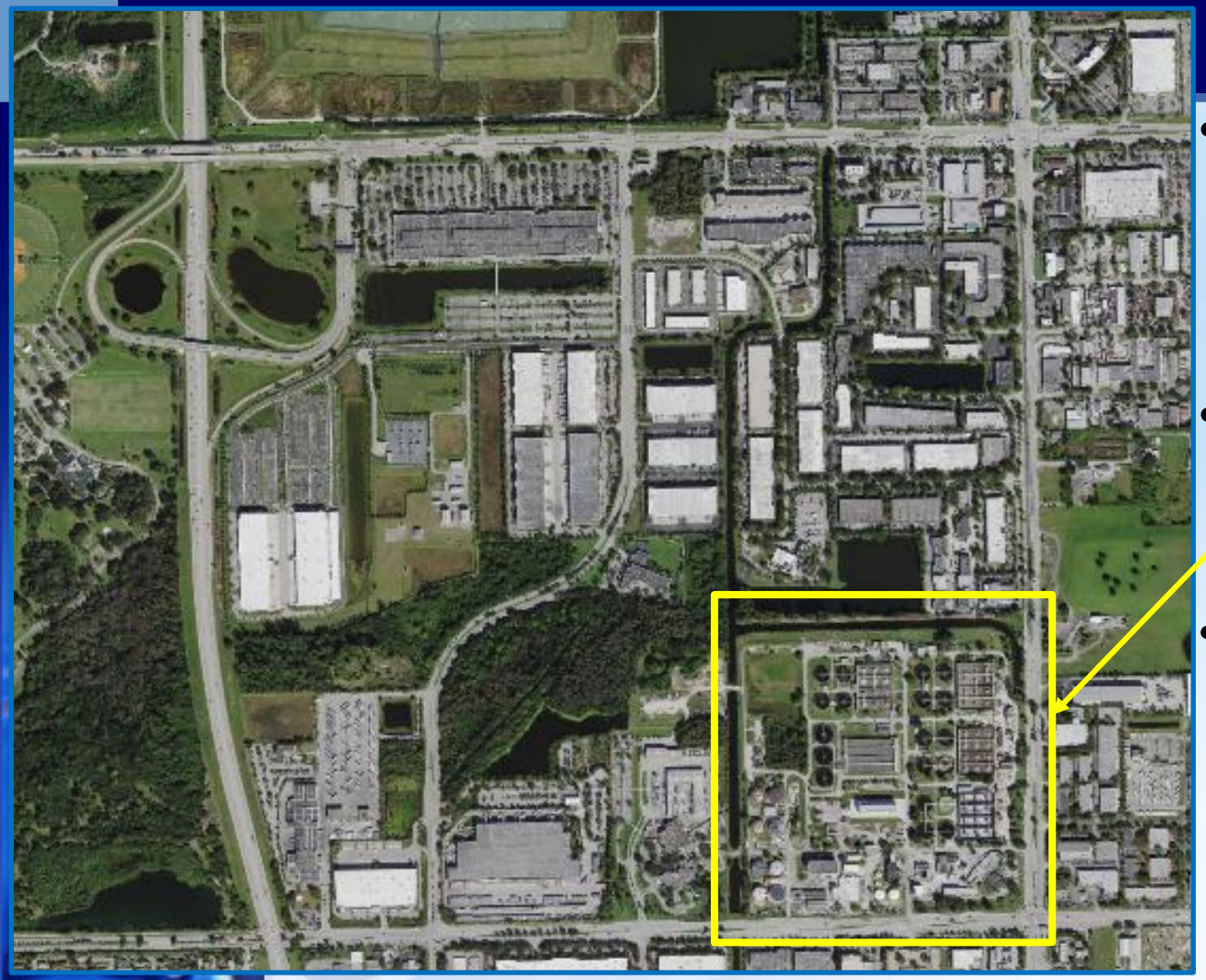
Broward County Aerial January 23, 1976

- Broward County purchased small, investor-owned water and wastewater utility in 1962 and other private utilities by 1975.
- North Regional Wastewater Treatment Plant (NRWWTP) construction began 1972.
- Wholesale wastewater service to Large Users begins in 1975 during countywide regionalization in part through U.S. EPA Clean Water Act Grants.
- 3 Retail Water and Wastewater Service Areas (Districts 1, 2 and 3) established uniform rates in 1976.

https://www.broward.org/Planning/Pages/GIS.aspx/BC_Maps/InteractiveMaps.htm

Broward County Aerial 2023

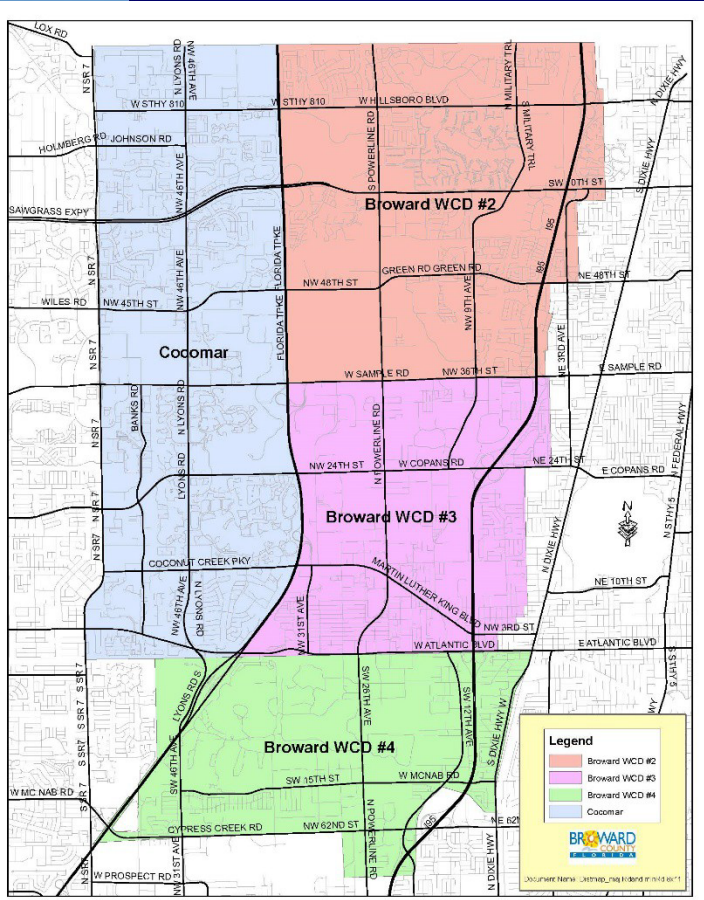
Today's Broward County Water and Wastewater Services



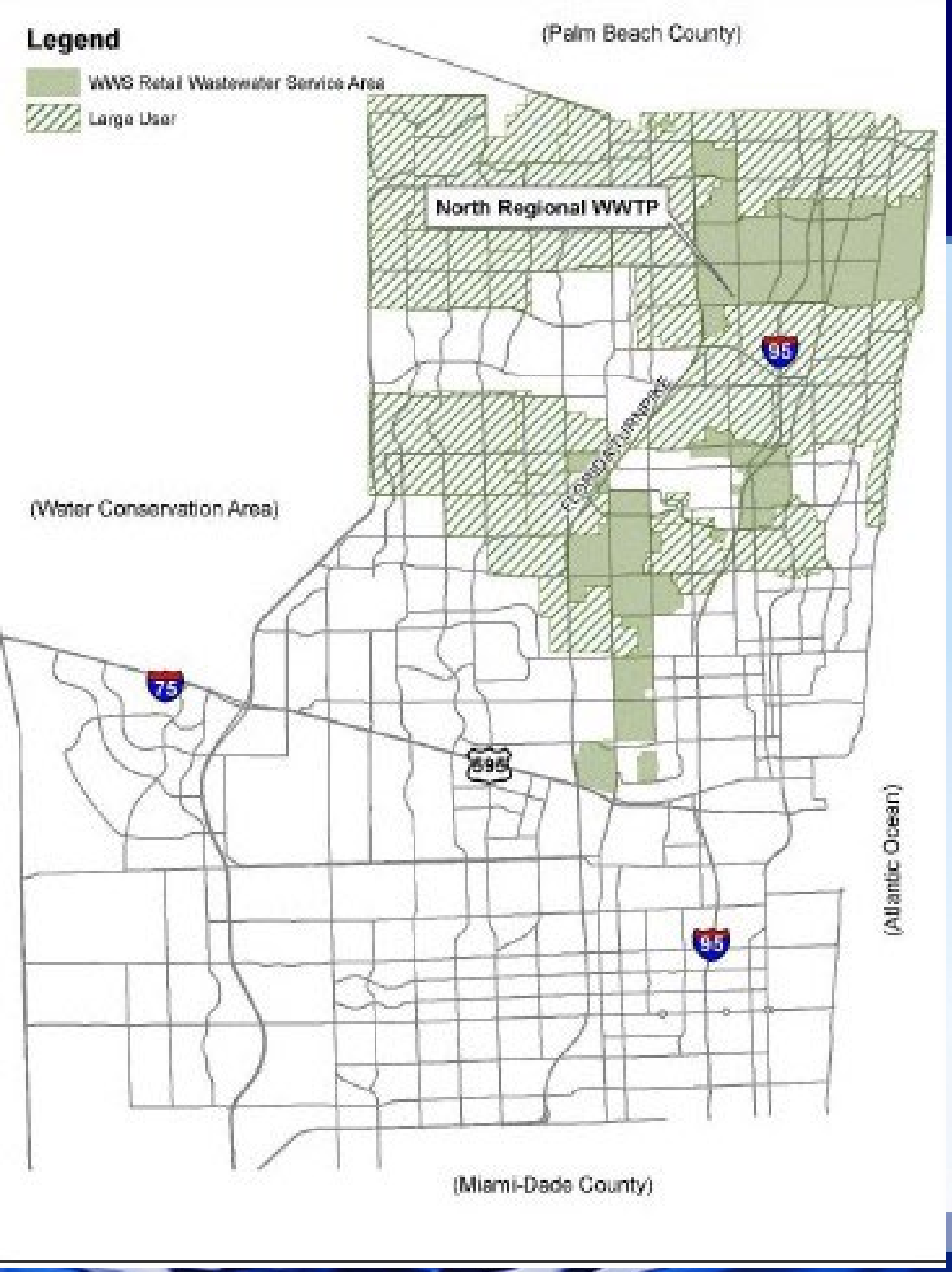
https://www.broward.org/Planning/Pages/GIS.aspx/BC_Maps/InteractiveMaps.htm

- Over 400 employees within 6 divisions: (Administration, Business Operations, Engineering, Information Technology, Operations, and Water Management).
- Over 600,000 residents served for wastewater treatment and over 300,000 residents receive our drinking water.
- Award winning team over the years and in 2022:
  - Florida Water Environment Association Collection System of the Year (Large Utility)
  - Florida Water and Pollution Control Operators Association Dr. A.P. Black Award to Michael Kelly
  - Florida Section of the American Water Works Association Outstanding Water Distribution System and Allen B. Roberts, Jr. Award (me).

Broward County:
Surface Water Management



- Water Management Division develops and manages the waterway operations and maintenance programs to provide:
  - Drainage and flood control
  - Recharge for potable water supply
  - Saltwater intrusion abatement
  - Surface water management
  - And for environmental purposes
- Manage 4 major Water Control Districts (WCD) in Northern Broward County:
  - WCDs 2-4, and Cocomar



Broward County: Regional Wastewater System

- NRWWTP has FDEP Permitted Capacity of 95 million gallons per day (MGD) with annual average daily flow rate typically near 70 MGD.
- Large Users are Cities of Coconut Creek, Coral Springs, Deerfield Beach, Lauderhill, North Lauderdale, Oakland Park, Pompano Beach and Tamarac as well as North Springs Improvement District, Parkland Utilities, and Royal Utilities.
- Current effluent management through ocean outfall and 8 onsite deep injection wells (66 MGD capacity):
  - ~~10~~ now 26 MGD Water Reuse capacity.

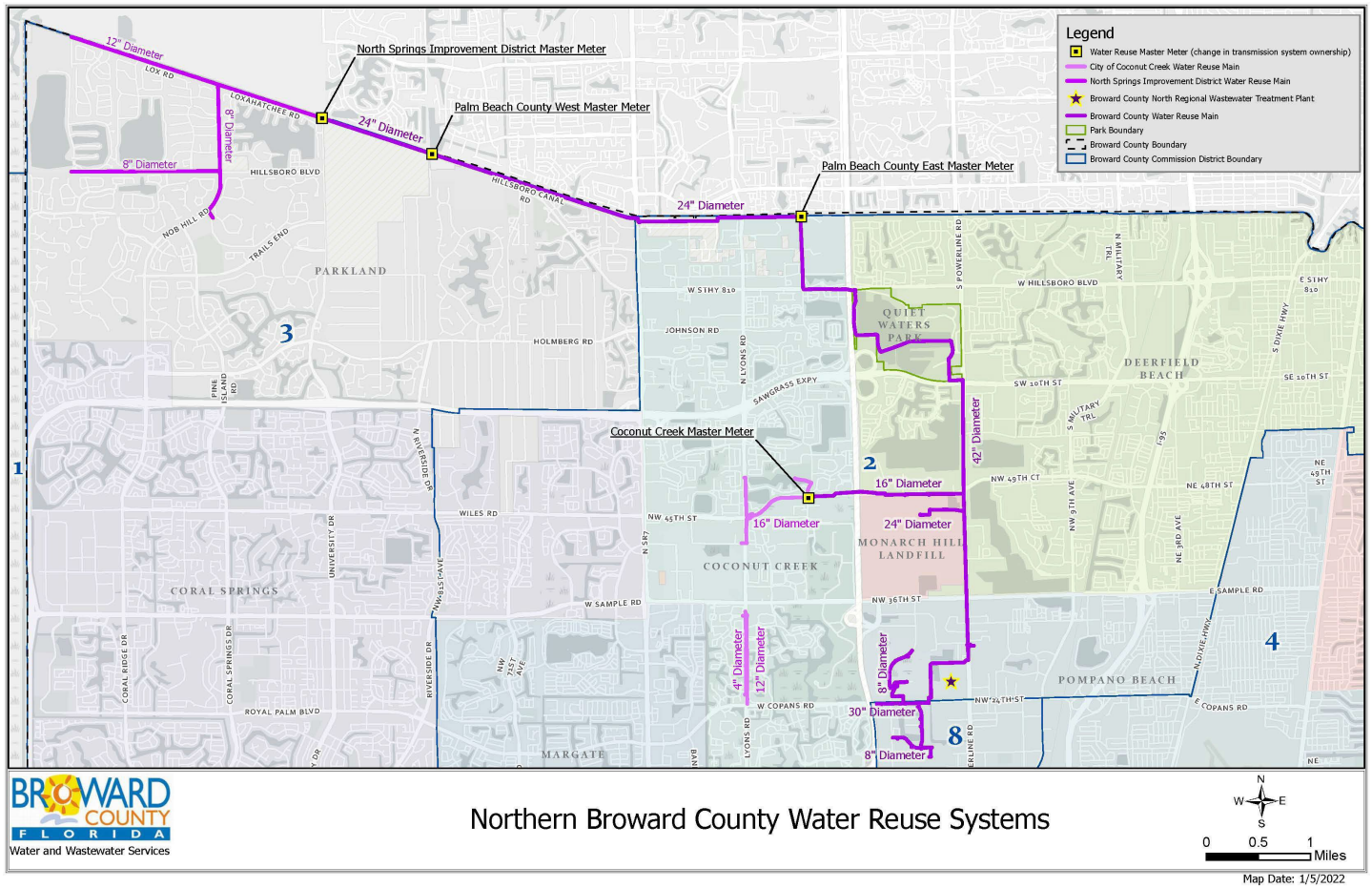
Broward County Resiliency:
NRWWTP Innovative Energy Project

- Wastewater Plant Cogeneration System that reduces almost 9,000 metric tons greenhouse gas emissions annually:
  - Equal to removing ~ 1,900 cars from road annually.
  - Offsets the wastewater treatment plant's power bill by 25% and provides ~$26 Million in savings over 17 years.
  - Two of (2019 and 2022) our four-time winners of the "The Utility of the Future Today Recognition Program."

https://engieservices.us/success-stories/success-story-broward-county-water-and-wastewater-division/

https://www.wef.org/utility-of-the-future/

Broward County Resiliency:
Increased Water Reuse Production



- 2008 Ocean Outfall State Law mandated increase to beneficial reuse to 26 MGD from 10 MGD:
  - Initial cost estimates near $500 million.
  - Finished construction at $90 million.
- Palm Beach County Water Utilities Department (PBC) needs water reuse supply in its southern region:
  - Over $50 million for PBC system to be paid by us upfront; repaid over time.
- PBC to receive majority of new water reuse; we are also partnering with North Springs Improvement District, Coconut Creek, and Deerfield Beach.

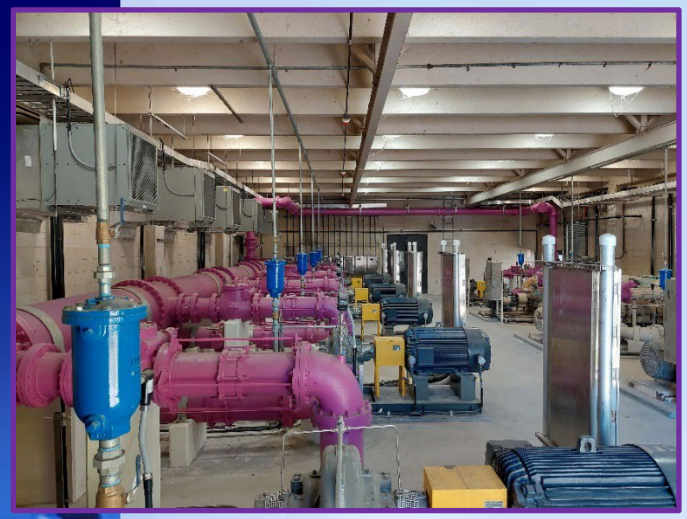
Broward County's NRWWTP Water Reuse Capacity Improvements and Filters Expansion

New Electric Distribution Building

Existing and New Effluent Filters and Chlorine Contact Tanks

New Chemical Building

Scenes from a Broward County Water Reuse Transmission Main Pipeline Project ($28 Million)



Pump Station

Pipeline Construction on Powerline Road

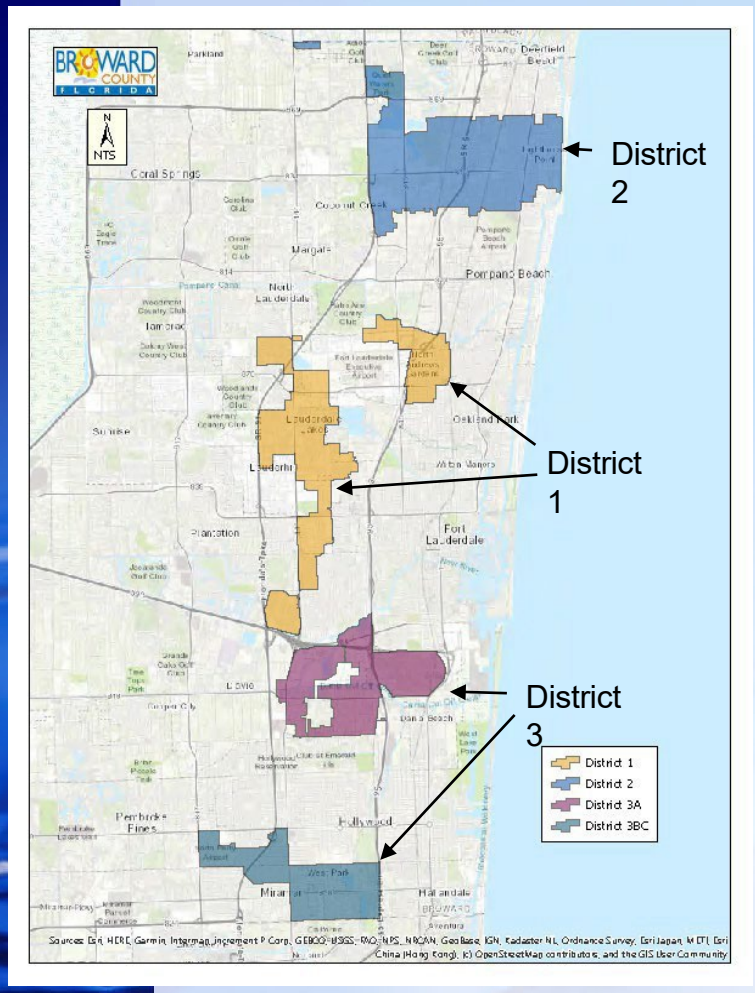
Night Shift

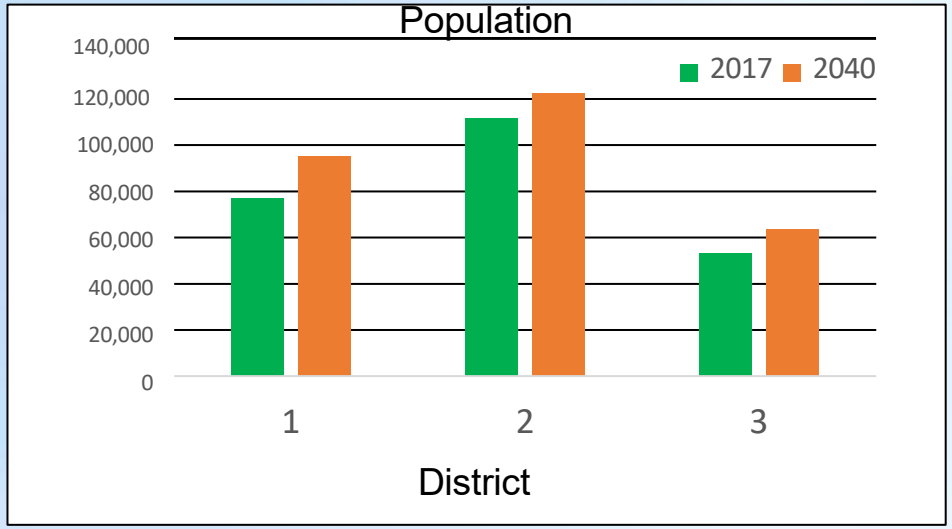
Thank you FDEP & SFWMD!!

- Many thanks to the **Florida Department of Environment Protection** and the **South Florida Water Management District** for a **$3 million alternative water supply (AWS) grant** used for the pipeline construction!
- Great example of State Legislative AWS appropriations being used back at regional and local level.

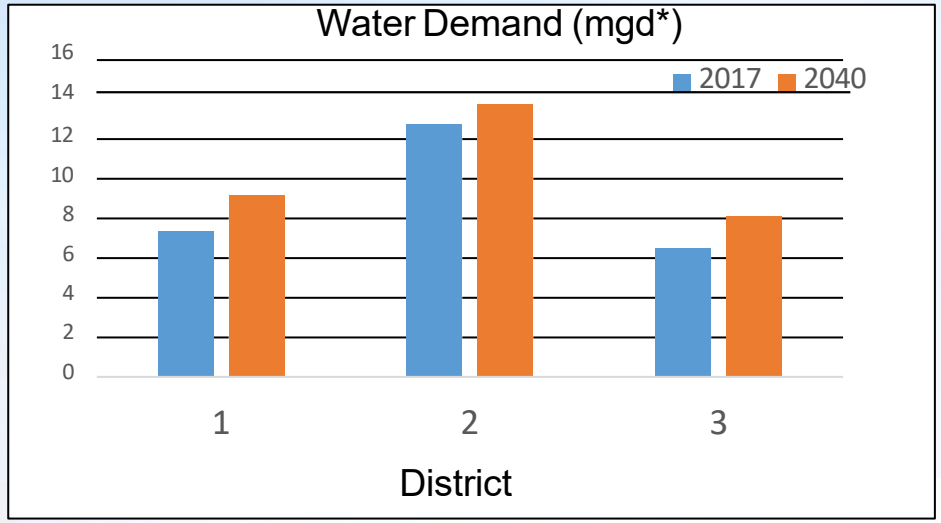
Water Reuse Pipeline Ribbon Cutting Ceremony 2/11/22

Looking back 5 years…WWS Service District's Population and Water Demand Projections for 2040





Total Population
All Districts
2017 = 241,730
2040 = 281,664



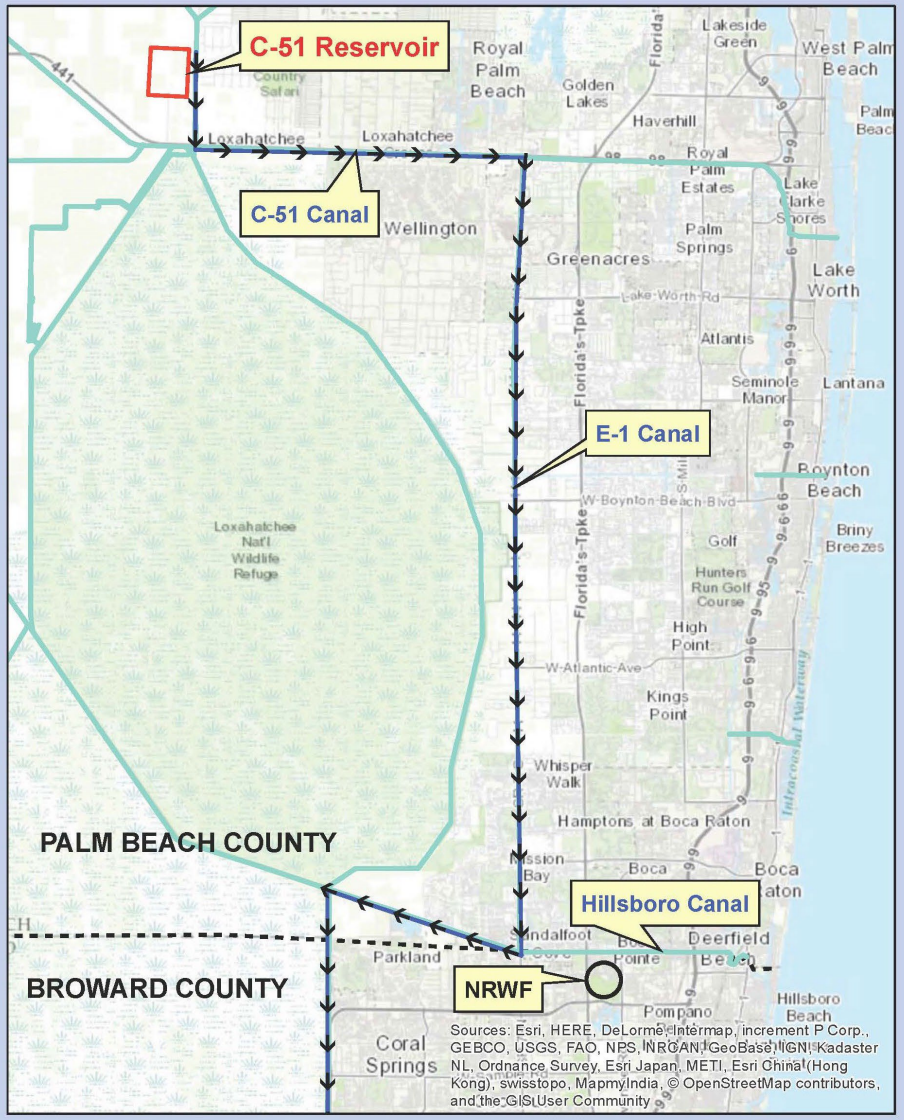
Total Water Demand
All Districts
2017 = 27 mgd
2040 = 31 mgd

* mgd = million gallons per day of finished water

Broward County Resiliency:
Stormwater Reuse via C-51 Reservoir Project

- C-51 Reservoir is in central Palm Beach County; owned and operated by Palm Beach Aggregates as rock mining facility.
- Broward County needed an alternative water supply to meet future needs due to the SFWMD's Regional Water Availability Rule.
- The capital cost is $27.6 million for 6 mgd = $4.6 million per mgd:
  - Broward County WWS first utility to sign agreement in May 2017.

C-51 Reservoir Project's Conveyance



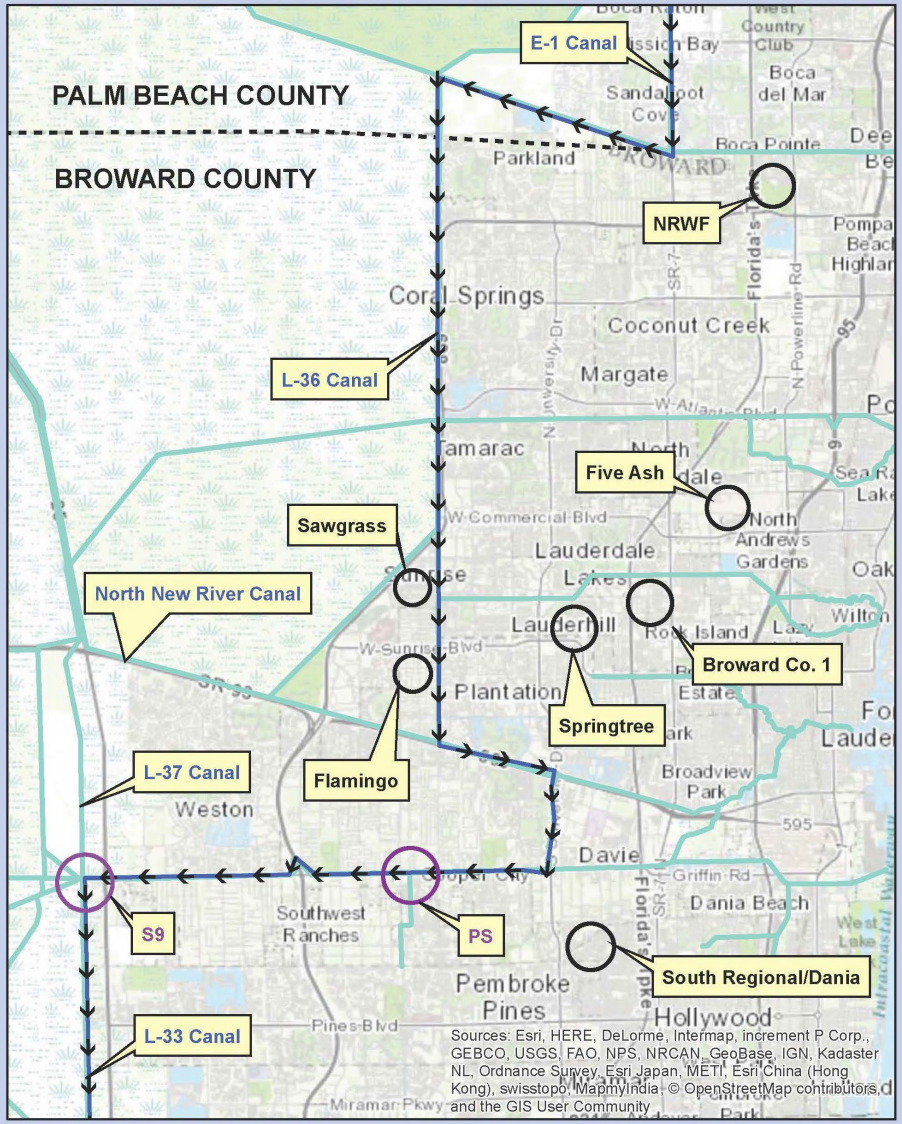
C-51 FLOW WAY SOUTH

Nova Consulting

- C-51 Reservoir
- C-51 Flow
- Canal Systems
- Well Fields
- County Line

6 3 0 6 Miles

N



C-51 FLOW WAY SOUTH

Nova Consulting

- C-51 Flow
- Canal Systems
- Well Fields
- Pump Station
- County Line

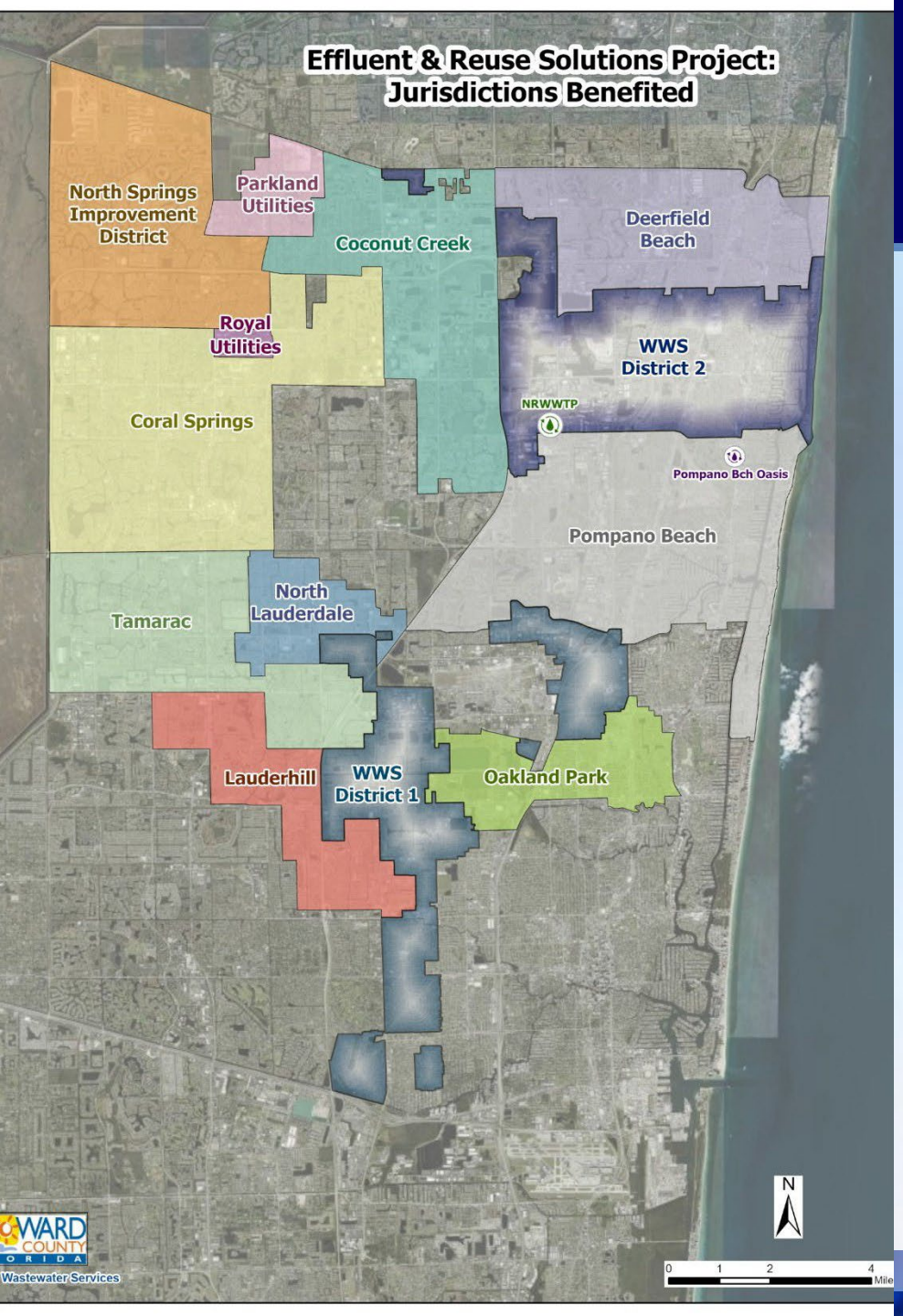
4.5 2.25 0 4.5 Miles

N

- SFWMD and Lake Worth Drainage District systems are pathway south.

- Participating Utilities: WWS, Pompano Beach, Margate, Sunrise, Lauderhill, Fort Lauderdale, Dania Beach, Hallandale Beach, Miami-Dade County.

Graphics from Ernie Cox, Palm Beach Aggregates



Broward County Resiliency: Regional Effluent and Reuse Solutions

- Thank you Florida Department Of Economic Opportunity administering Rebuild Florida Mitigation General infrastructure Program!*:
  - Funded through federal HUD Community Development Block Grant funds.
  - Designed "to make communities more resilient to future disasters by developing large-scale mitigation projects.
- Broward County awarded 50% match ($6.25 M) in first cycle (2020) for regional project:
  - Mitigate risks for hurricanes, droughts, and saltwater intrusion exacerbated by king tides and sea level rise.
  - Both effluent and water reuse lines will be constructed in parallel between Broward County and Pompano Beach.

*https://www.floridajobs.org/rebuildflorida/mitigation/rebuild-florida-mitigation-general-infrastructure-program

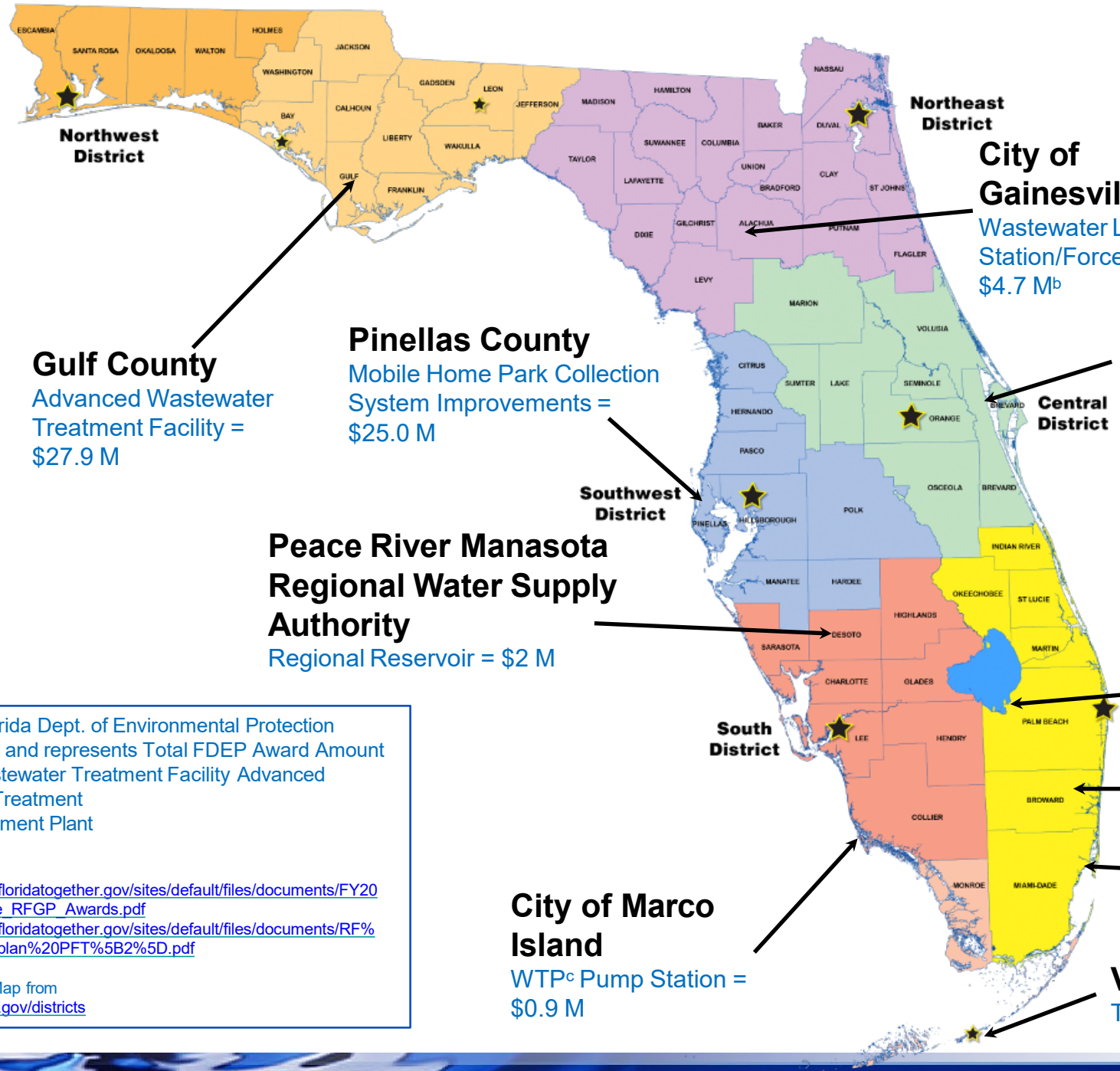
Broward County Resiliency:
Thank you FDEP!
$ Resilient Florida Grant Program $

Dania Cut-Off Canal Resilience Septic to Sewer Conversion Project Location

- In Jan. 2023, awarded 6 grants to build upon 1 from last year:
  - Canal Pump Station S-45 Resilience Improvements: Broward County (BC) = $600 K, DEP = $600 K
  - Canal Structure S-27 Resilience Improvements: BC = $0, DEP = $850 K
  - Dania Cut-Off Canal Resilience Septic to Sewer Conversion: BC = $4.75 M, DEP = $4.75 M
  - Groundwater Resilience Septic to Sewer Conversion: BC = $4.5 M, DEP = $4.5 M
  - Wastewater Master Pump Station (No. 300) Resilience Rehabilitation: BC = $2.9 M, DEP = $2.9 M
  - North New River Canal Resilience Septic to Sewer Conversion: BC = $1.5 M, DEP = $1.5 M

K = thousand, M = million

Examples of 2021-2022 Awardees, 2022-23 Project List Water/ Wastewater Projects funded by FDEP[a] Resilient Florida Grant Program



Gulf County
Advanced Wastewater Treatment Facility = $27.9 M

Pinellas County
Mobile Home Park Collection System Improvements = $25.0 M

City of Gainesville
Wastewater Lift Station/Force Main = $4.7 M[b]

City of Titusville
Lift Station = $2 M

Peace River Manasota Regional Water Supply Authority
Regional Reservoir = $2 M

Palm Beach County
WWTF[c] Operations Building Replacement = $7.7 M

Broward County
C-4 Canal Conveyance Improvements = $0.5 M

Miami-Dade County
Septic to Sewer = $27.5 M

City of Marco Island
WTP[c] Pump Station = $0.9 M

Village of Islamorada
Transmission Main Adaptation = $18 M

[a] FDEP = Florida Dept. of Environmental Protection
[c] M = Millions and represents Total FDEP Award Amount
[b] WWTF Wastewater Treatment Facility Advanced Wastewater Treatment
[d] Water Treatment Plant

FDEP Data from
https://protectingfloridatogether.gov/sites/default/files/documents/FY2021-22_Resilience_RFGP_Awards.pdf
https://protectingfloridatogether.gov/sites/default/files/documents/RF%20statewide%20plan%20PFT%5B2%5D.pdf

FDEP Districts Map from
https://floridadep.gov/districts

More Money for Your Future?

*Also consider conservation grants, Broward County thanks SFWMD for last year's $25.5 K award for toilet rebate program!

- The 2023 State Legislative Budget (still needs approval by Governor):
  - Resilient Florida Grant Program Projects = $300 M
  - Alternative Water Supply Grants* = $60 M
  - Water Quality Improvements (Total) = $1 B
- DEP's State Revolving Fund (SRF) team administering the Federal Bipartisan Infrastructure Bill Funds:
  - Emerging Contaminants (e.g., PFAS) or Lead Service Line Replacement (including for inventory) Projects "will receive an exception to these [certain SRF] rules so that the additional subsidization requirements from the law can be met."
- Inflation Reduction Act (IRA, Aug. 2022) includes major new funding for advancing clean energy, climate resilience, and environmental justice.
- FEMA's Building Resilient Infrastructure and Communities Grant Program.

FlaWARN

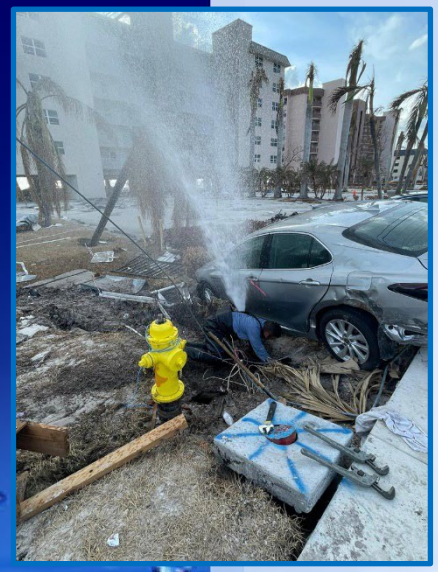
Thank You!
2022 Hurricane Ian
FlaWARN
Responding Utilities

*

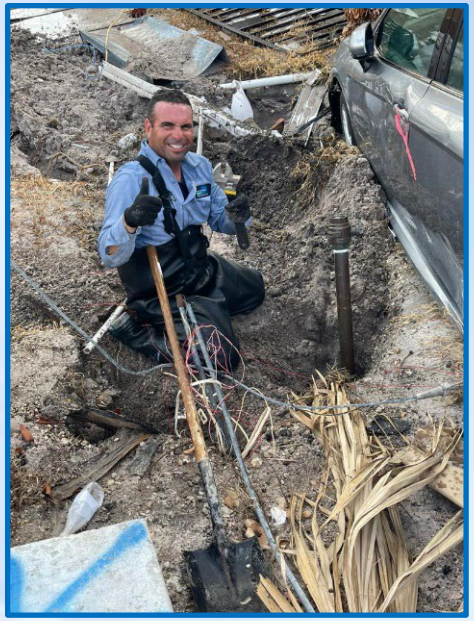
GA = Georgia
AL = Alabama
MS = Mississippi
KY = Kentucky

Map from https://floridadep.gov/districts

Conversations Lead to Solutions – Let's Talk!
Time For Discussion



Photos of our
2022 Hurricane Ian FlaWARN
Water Heroes!



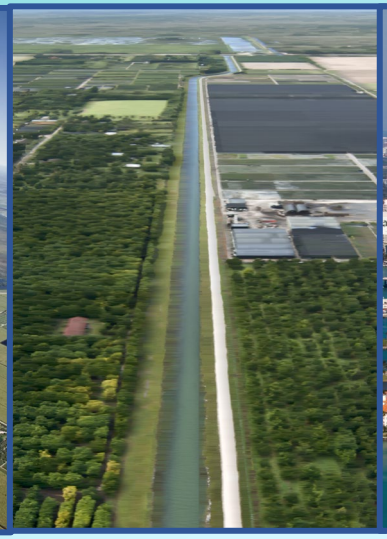
Kevin Carter, Broward County Water and Wastewater Services
kcarter@broward.org 954-831-0718 office 954-856-3879 mobile

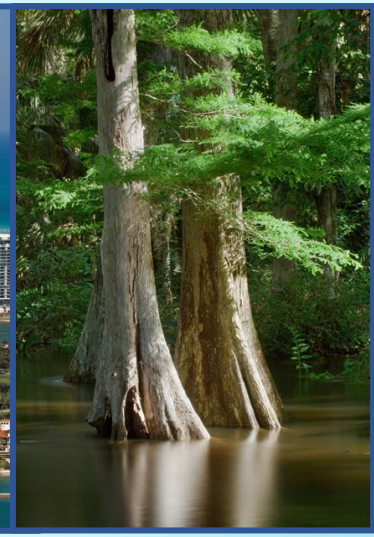
Questions and Public Comment

- If you are participating via Zoom:
  - Click the Reactions button to access the Raise Hand feature
- If you are participating via phone:
  - *9 raises hand
  - *6 mutes/unmutes your line
- When you are called on, please state your full name and affiliation prior to providing comments and/or questions

Fort Lauderdale Beach

Demand Estimates and Projections

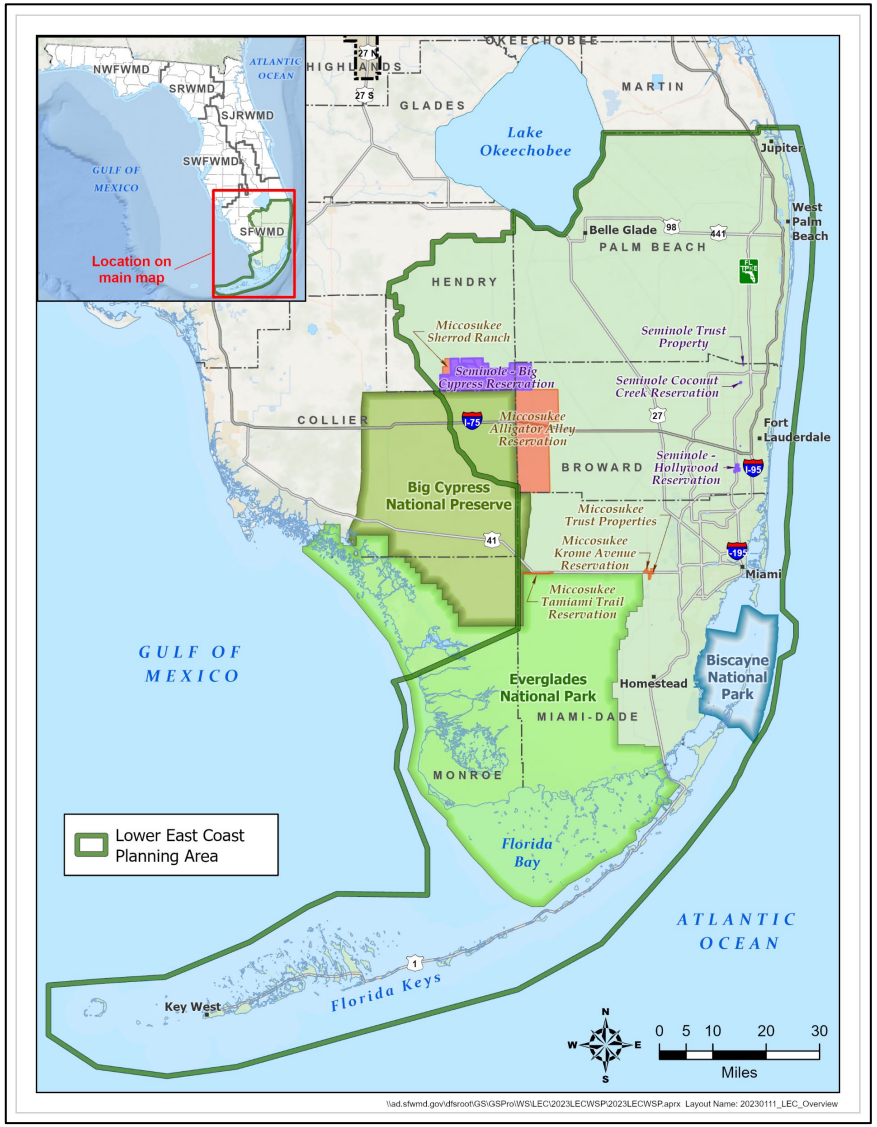



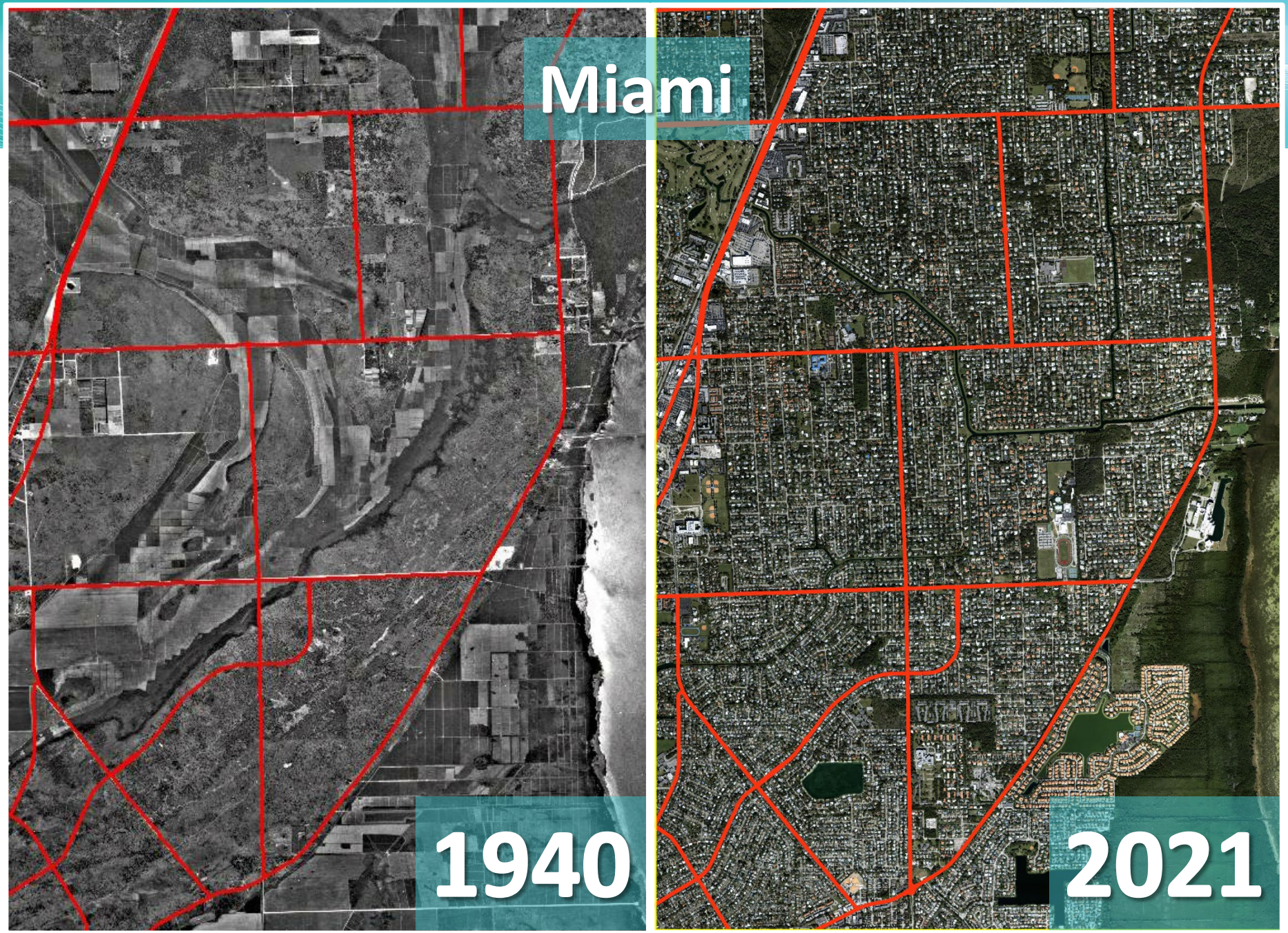


Coleen Jordan
Demographer, Water Supply Planning
2023 LEC Stakeholder Meeting
May 18, 2023

Observations Since the 2018 LEC Update

- Irrigated agricultural acreage projected to decrease slightly through 2045
- Sugarcane and Fresh Market Vegetables are the dominant crops
- Minimal change to utility service areas
- Population projections have decreased slightly due to 2020 Census data
- Minor increase in golf course development




Miami
1940
2021

Water Use Categories

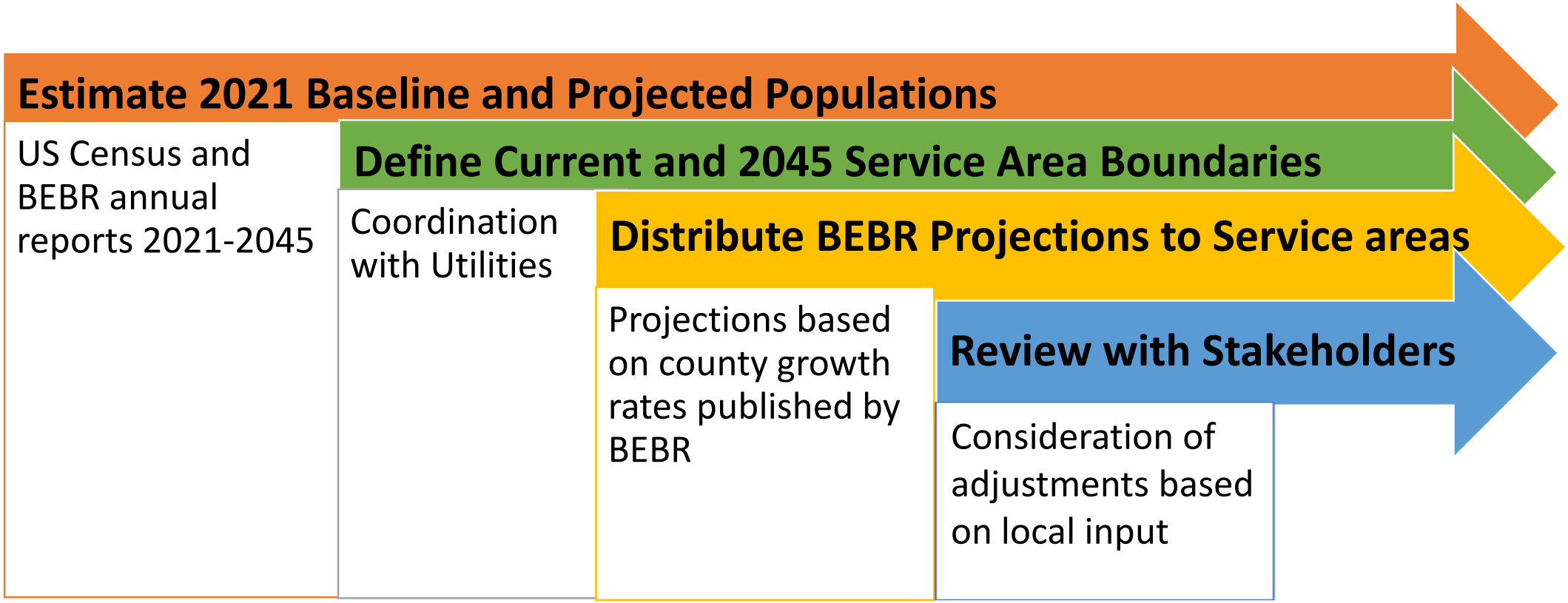
1. **Public Supply (PS) – Largest Category in the LEC**
2. **Domestic Self-Supply (DSS)**
3. Agriculture (AG)
4. Commercial/Industrial/Institutional (CII)
5. Landscape/Recreational (L/R)
6. Power Generation (PG)

Principles for Urban Demand Estimates and Projections

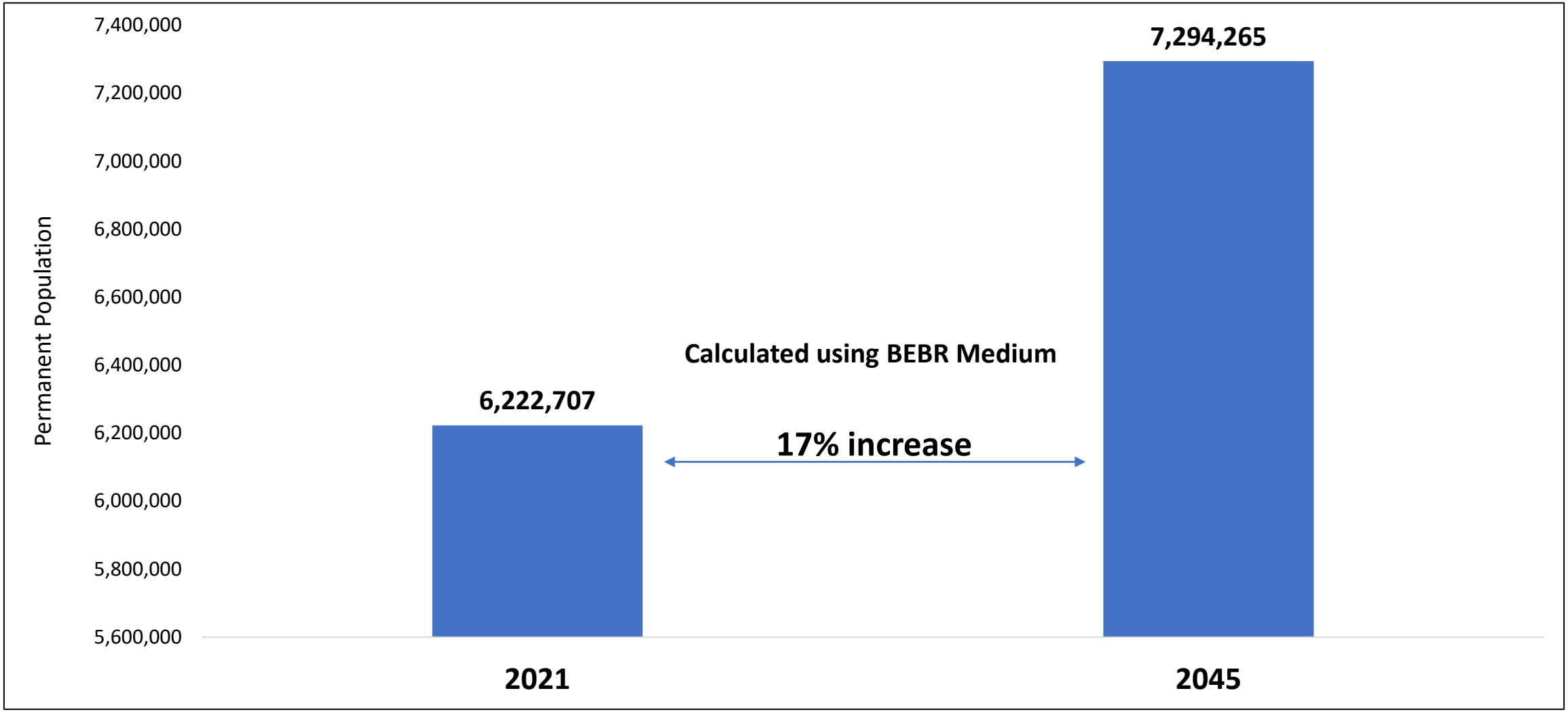
- Section 373.709, Florida Statutes
- Maintain *BEBR-medium county totals
- Accurately describe relative growth across the LEC
- Identify and use best available data
- Simple, reproducible, and transparent methodology
- Consistent with local government population planning estimates

* The University of Florida's Bureau of Economic and Business Research (BEBR) produces Florida's official state and local population estimates and projections.

Population Projections

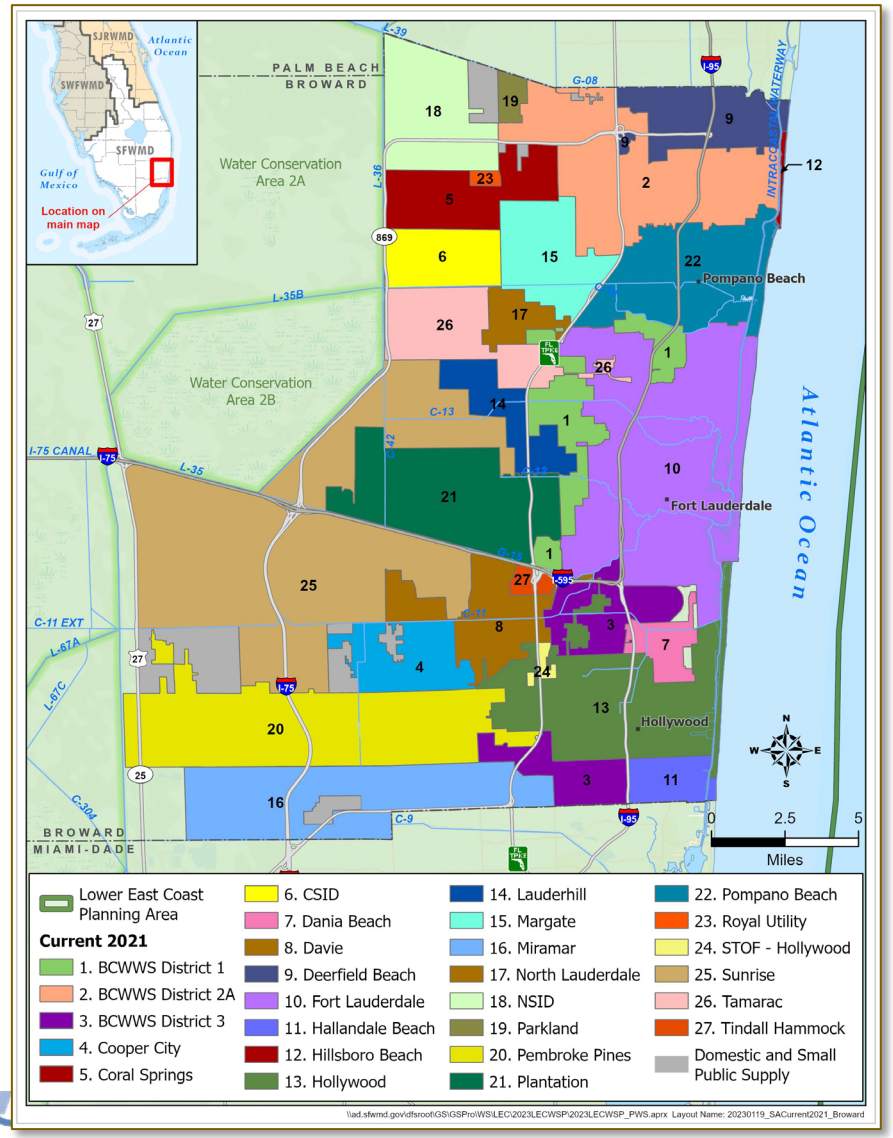


LEC Population Projections

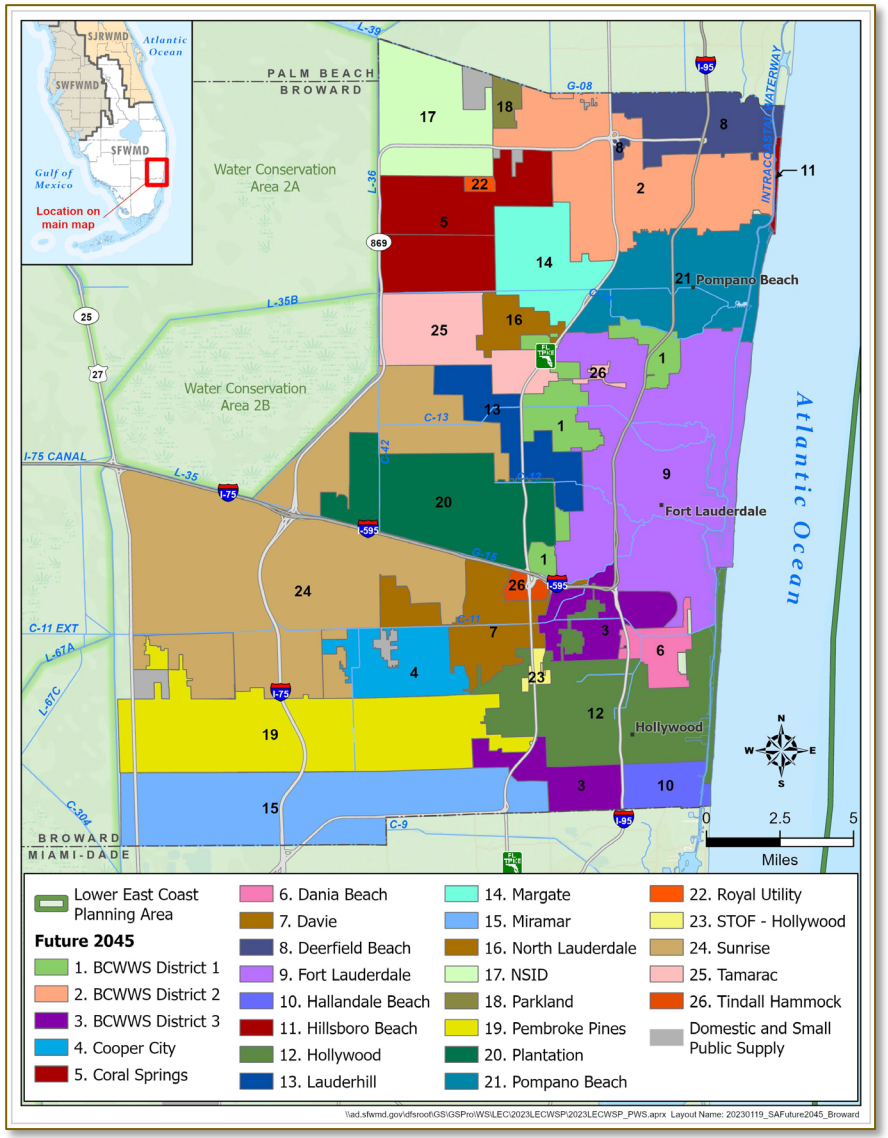


Utility Service Areas in Broward County

2021

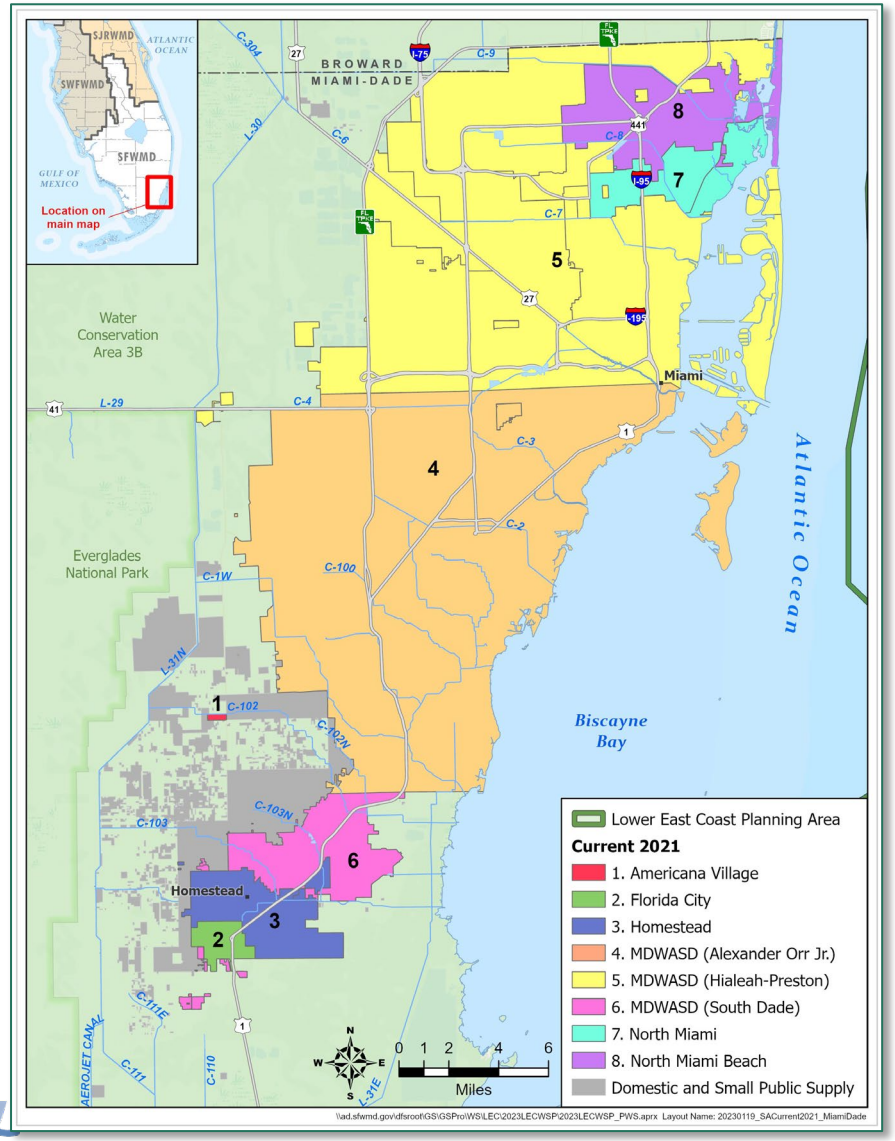


2045

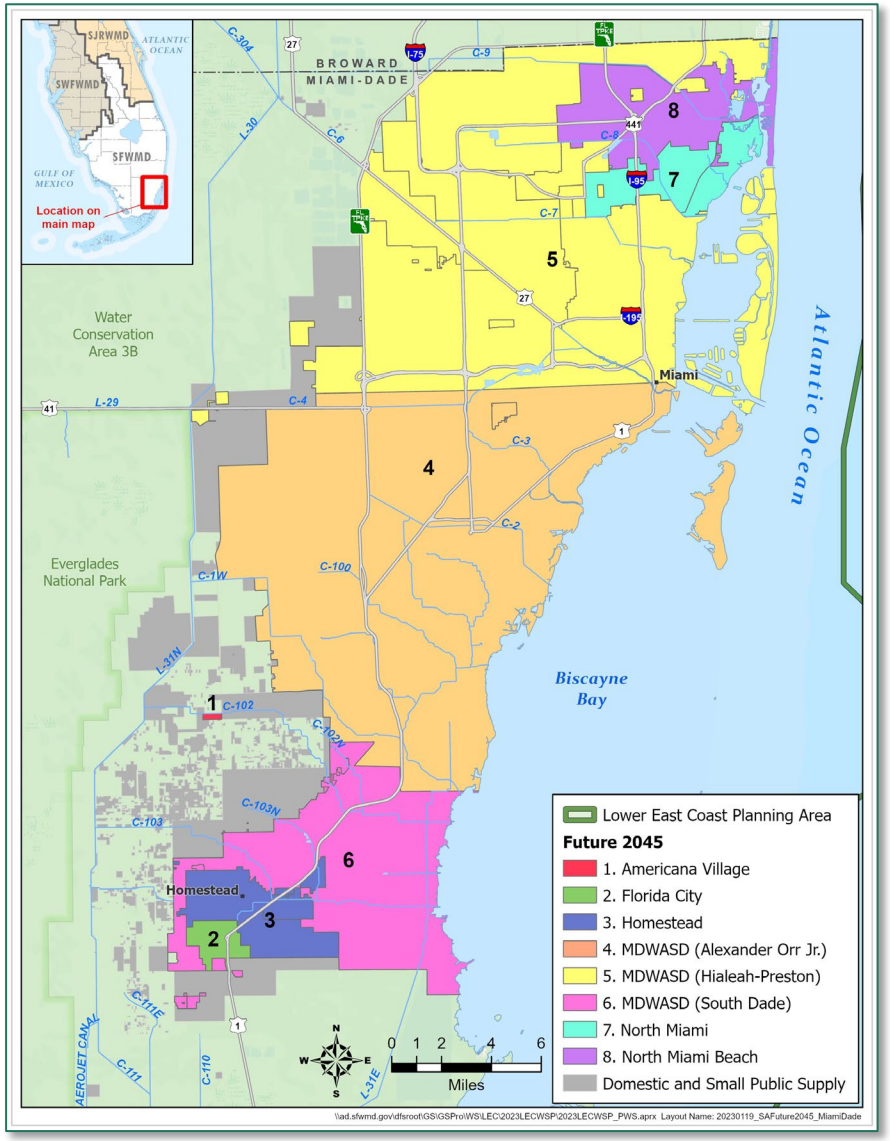


Utility Service Areas in Miami-Dade County

2021

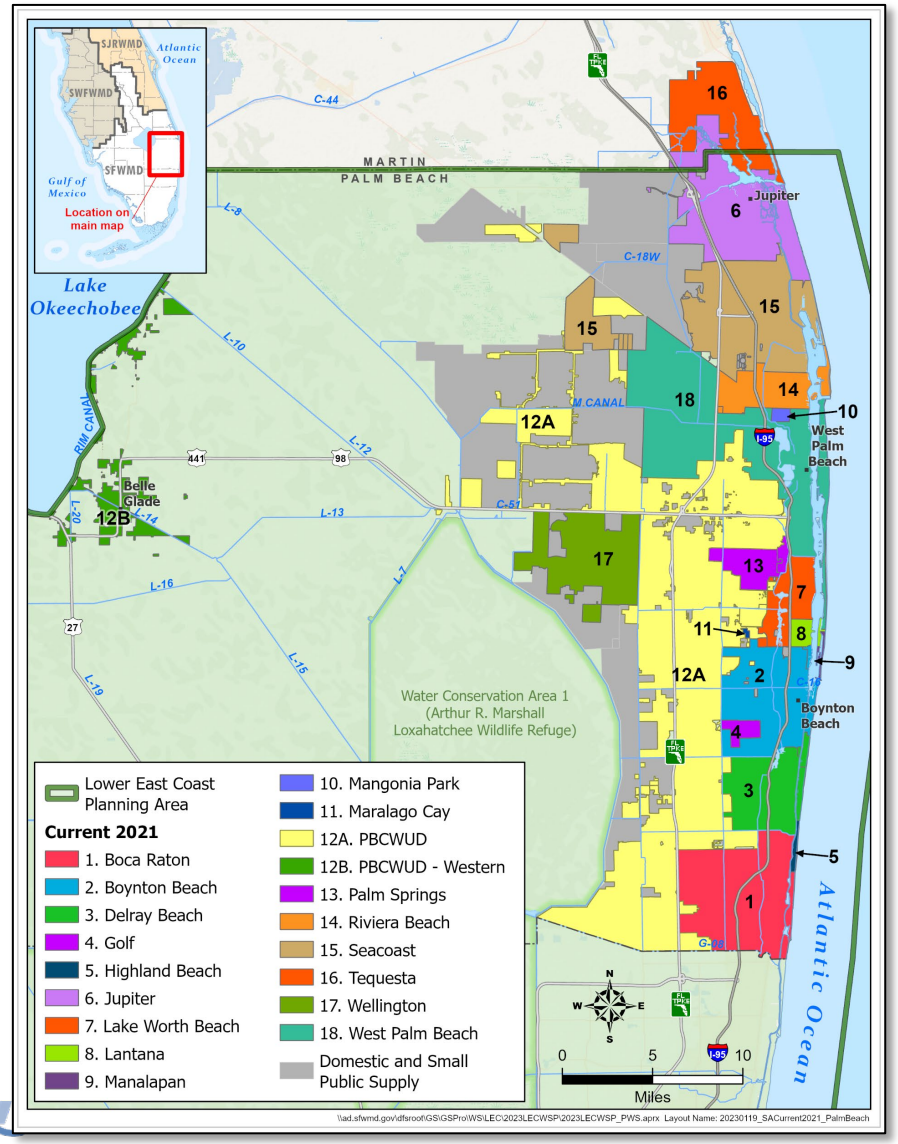


2045

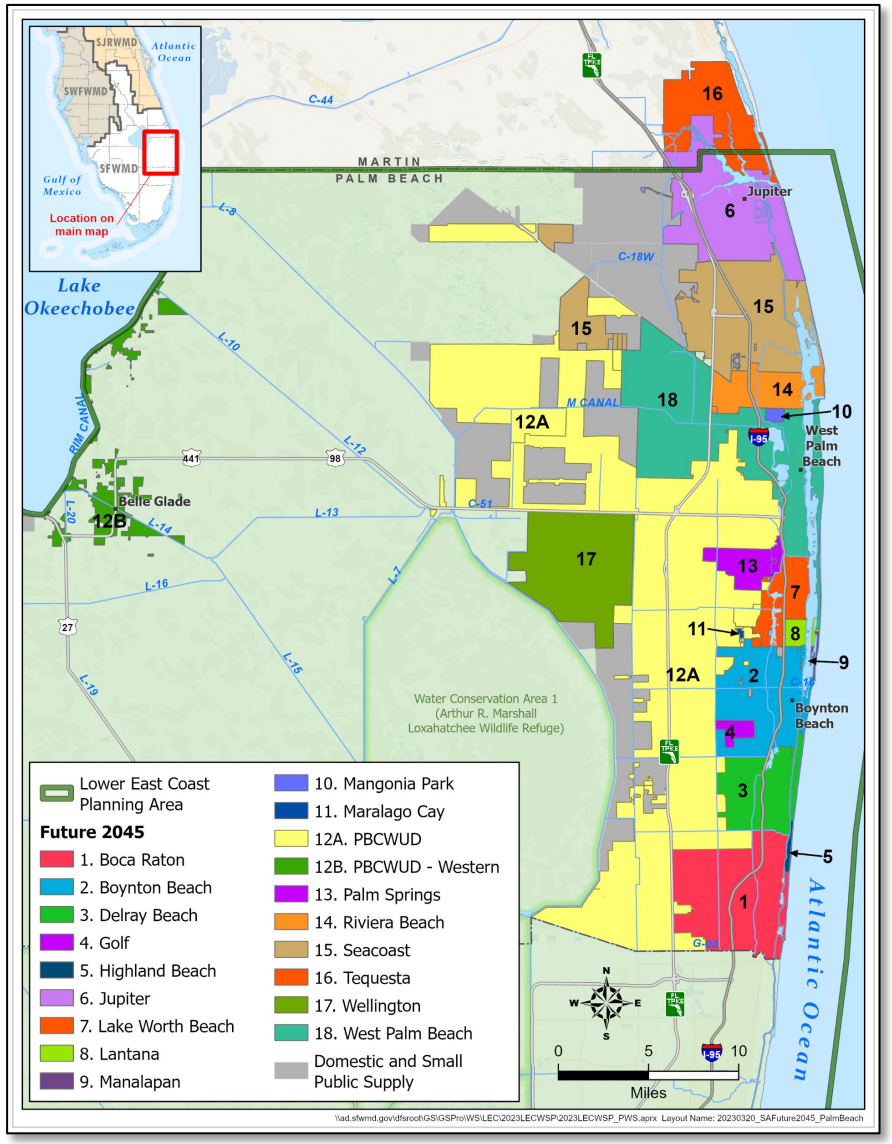


Utility Service Areas in Palm Beach County

2021



2045



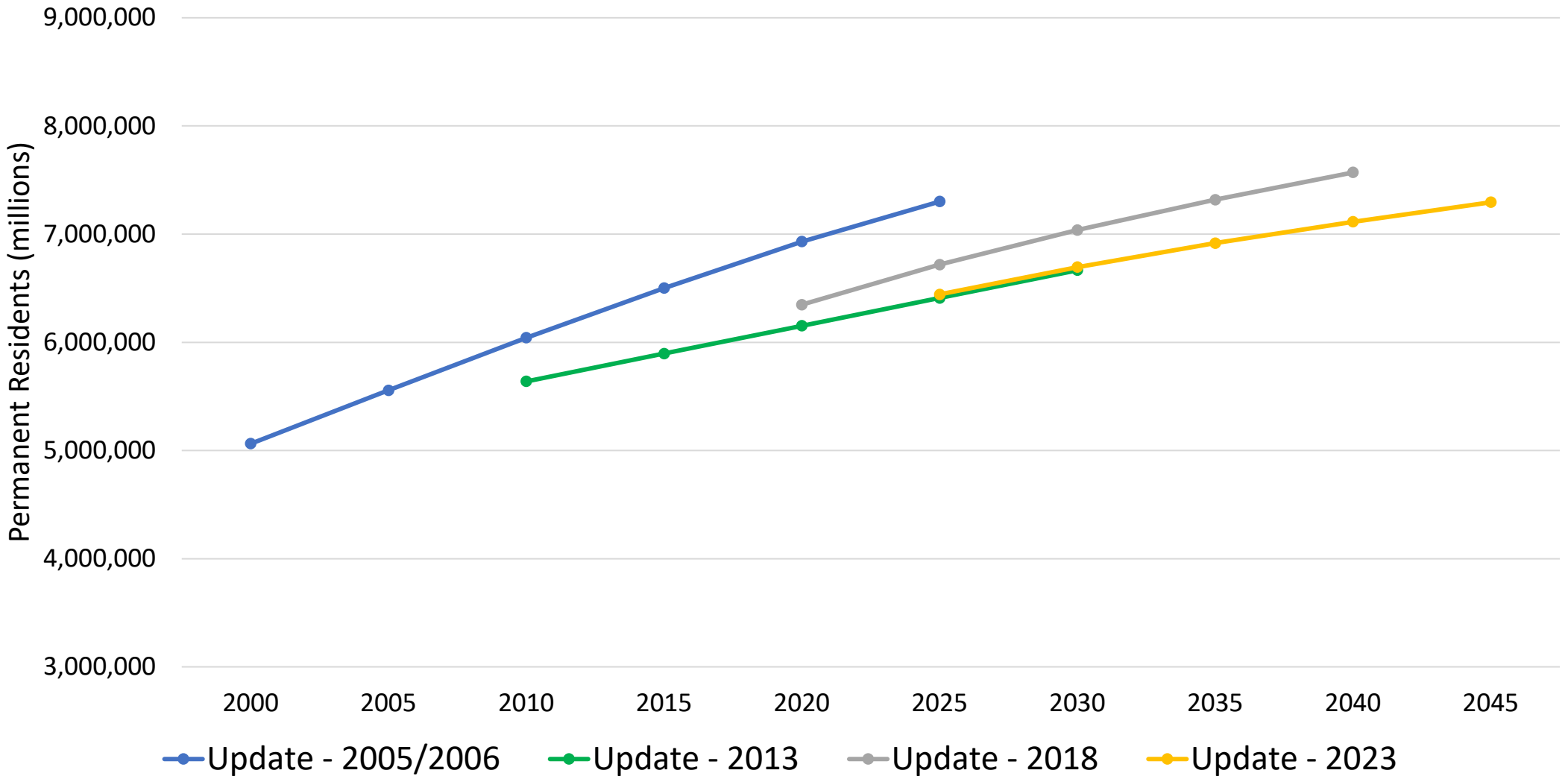
Draft LEC Population Projections

- **Public Supply (PS)** – Potable water supplied by water treatment plants with a current allocation of 0.10 million gallons per day (mgd) or greater.
- **Domestic Self-Supply (DSS)** – Potable water used by households served by small utilities (less than 0.10 mgd) or self-supplied by private well

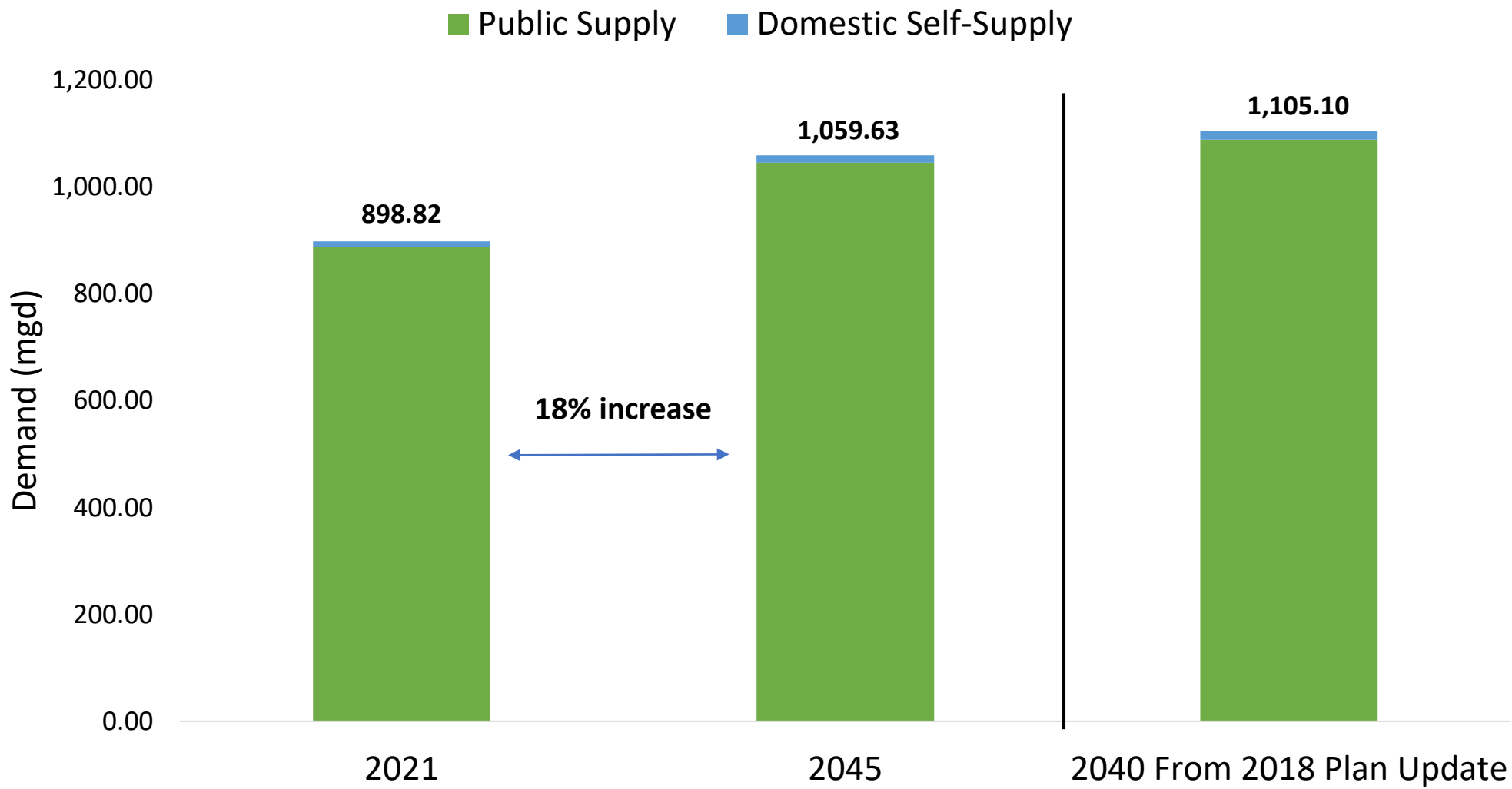
County		2021	2045	% Change
Broward	PS	1,944,306	2,232,016	15%
	DSS	7,331	5,784	-21%
	Total	**1,951,637**	**2,237,800**	**15%**
Hendry	PS	948	1,729	82%
	DSS	3,933	3,357	-15%
	Total	**4,881**	**5,086**	**4%**
Miami-Dade	PS	2,684,652	3,180,300	18%
	DSS	18,088	32,379	79%
	Total	**2,702,740**	**3,212,679**	**19%**
Monroe	PS	78,267	80,200	2%
	DSS	-	-	0%
	Total	**78,267**	**80,200**	**2%**
Palm Beach	PS	1,436,386	1,703,637	19%
	DSS	48,797	54,863	12%
	Total	**1,485,183**	**1,758,500**	**18%**
LEC Total	PS	6,144,559	7,197,882	17%
	DSS	78,149	96,383	23%
	Total	**6,222,707**	**7,294,265**	**17%**

Presenter: Coleen Jordan

Population Projections by Plan Updates



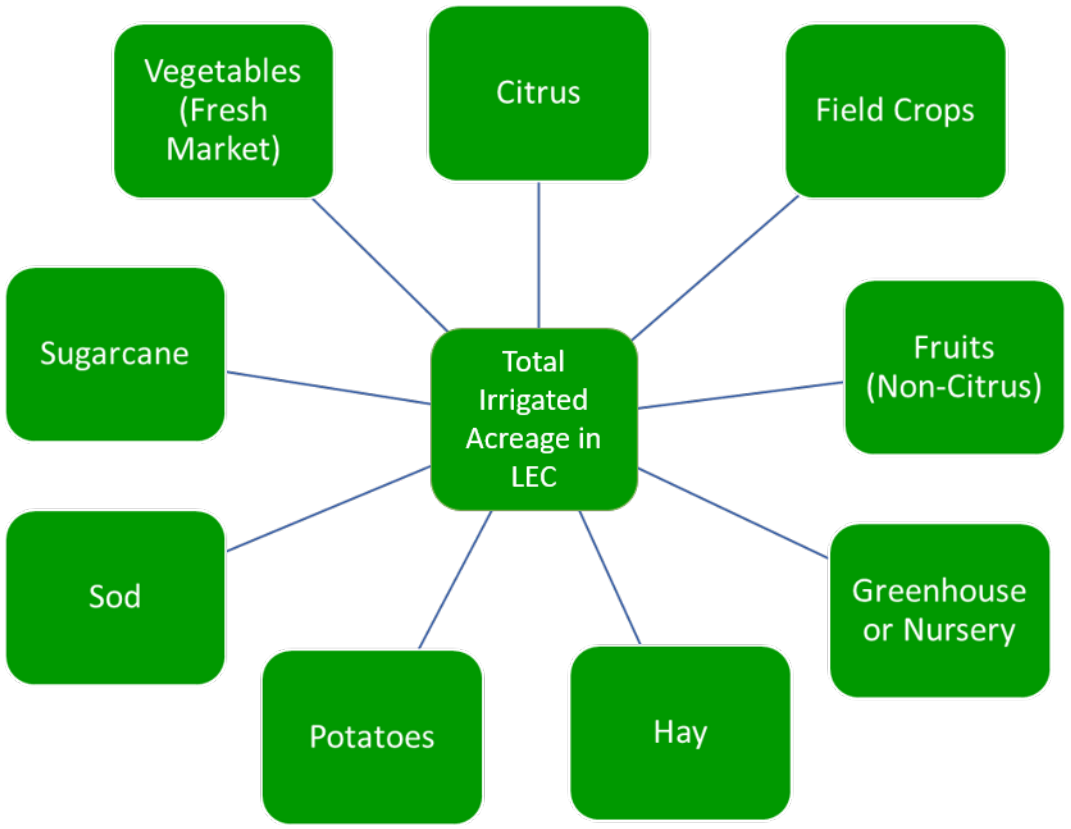
Draft Public Supply and Domestic Self-Supply Demands



Presenter: Coleen Jordan

Water Use Categories

1. Public Supply
2. Domestic Self-Supply
3. **Agriculture**
4. Commercial/Industrial/Institutional
5. Landscape/Recreational
6. Power Generation

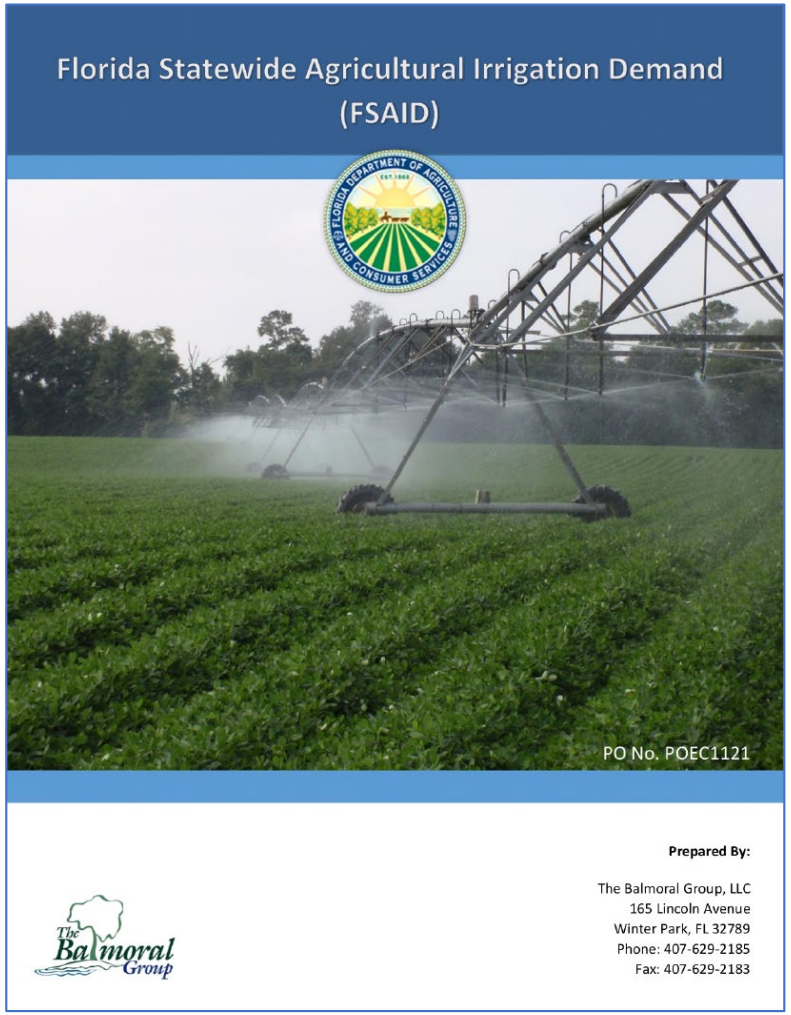


Nine Standard Crop Categories

Data Sources for Agricultural Projections

Presenter: Coleen Jordan

Statutory Basis for Projections



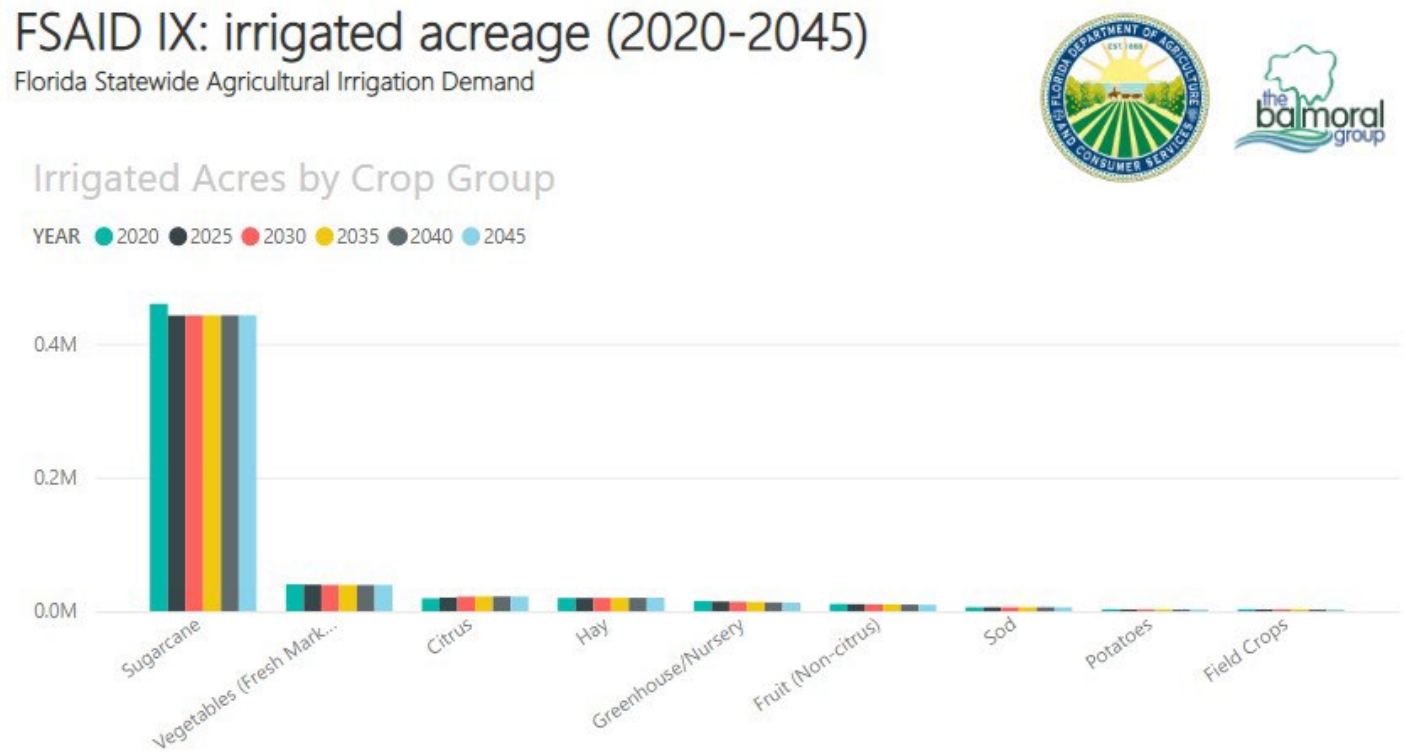
- 2013 legislation (Section 570.93, Florida Statutes) requires FDACS* to develop statewide agricultural demand projections
  - Acreage – historical, current, and 20-year projection by crop
  - Demands by crop for average and 1-in-10-year rainfall conditions
  - Metered data factored into estimates of historical and current demands
  - Consult with stakeholders
- FDACS publishes the annual Florida Statewide Agricultural Irrigation Demand (FSAID) report

*Florida Department of Agriculture and Consumer Services

Presenter: Coleen Jordan

Statutory Basis for Projections

- Section 373.709, Florida Statutes: Agricultural demand projections in water management districts' regional water supply plans should be based on best available data
  - Must consider data of future demands provided by FDACS
  - Any deviation from that data must be described
  - FDACS data are presented with adjusted data



Link to the interactive FSAID website: [Microsoft Power BI]

Basic Components of Agricultural Demand Projections

Irrigated Acreages

- FSAID Irrigated Lands Geodatabase

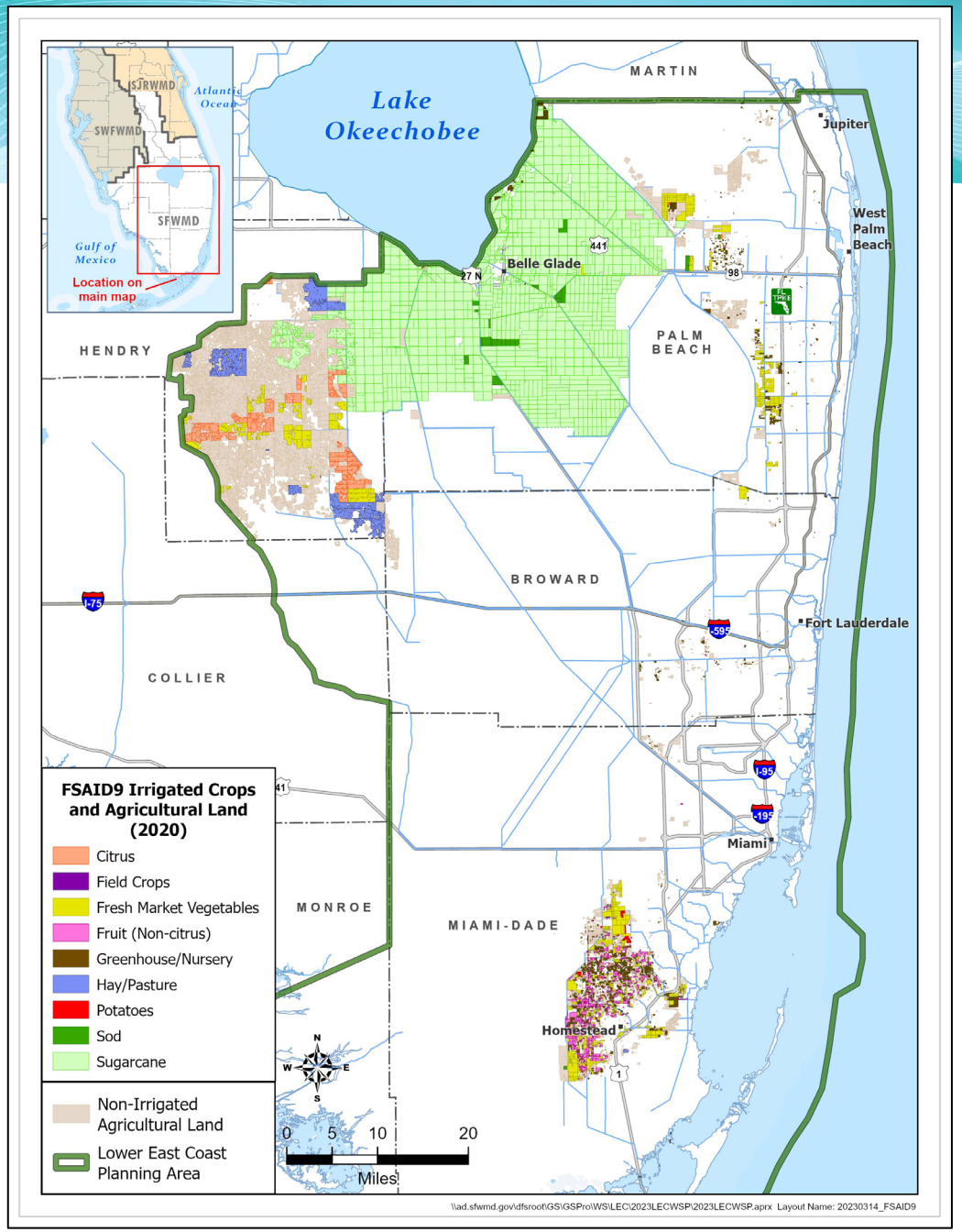
Water Demand Models

- FSAID water use model
- **Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS) model**

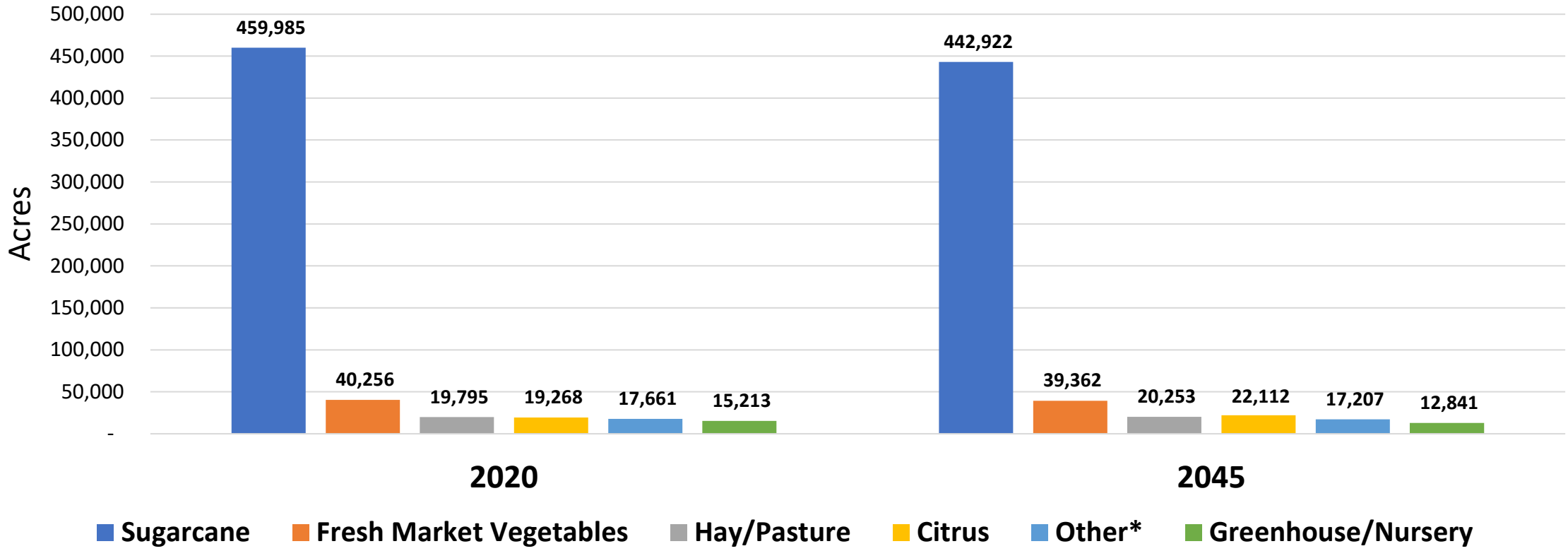
LEC Agriculture

FDACS/FSAID9 2020 Distribution of Irrigated Crop Areas

- Western Palm Beach County
- Eastern Hendry County
- Southern Miami-Dade County



LEC Agricultural FSAID9 Crop Acreage



*Other category includes Fruit (Non-Citrus), Sod, Potatoes, and Field Crops

Acres	2020	2025	2030	2035	2040	2045
FSAID 9 Updated (2023 LEC Plan)	572,178	554,444	554,709	554,872	554,524	554,697
FSAID 4 Projections - adjusted (2018 LEC Plan)	579,271	557,948	555,302	553,160	550,080	-

Presenter: Coleen Jordan

AFSIRS and FSAID Water Demand Model Comparison

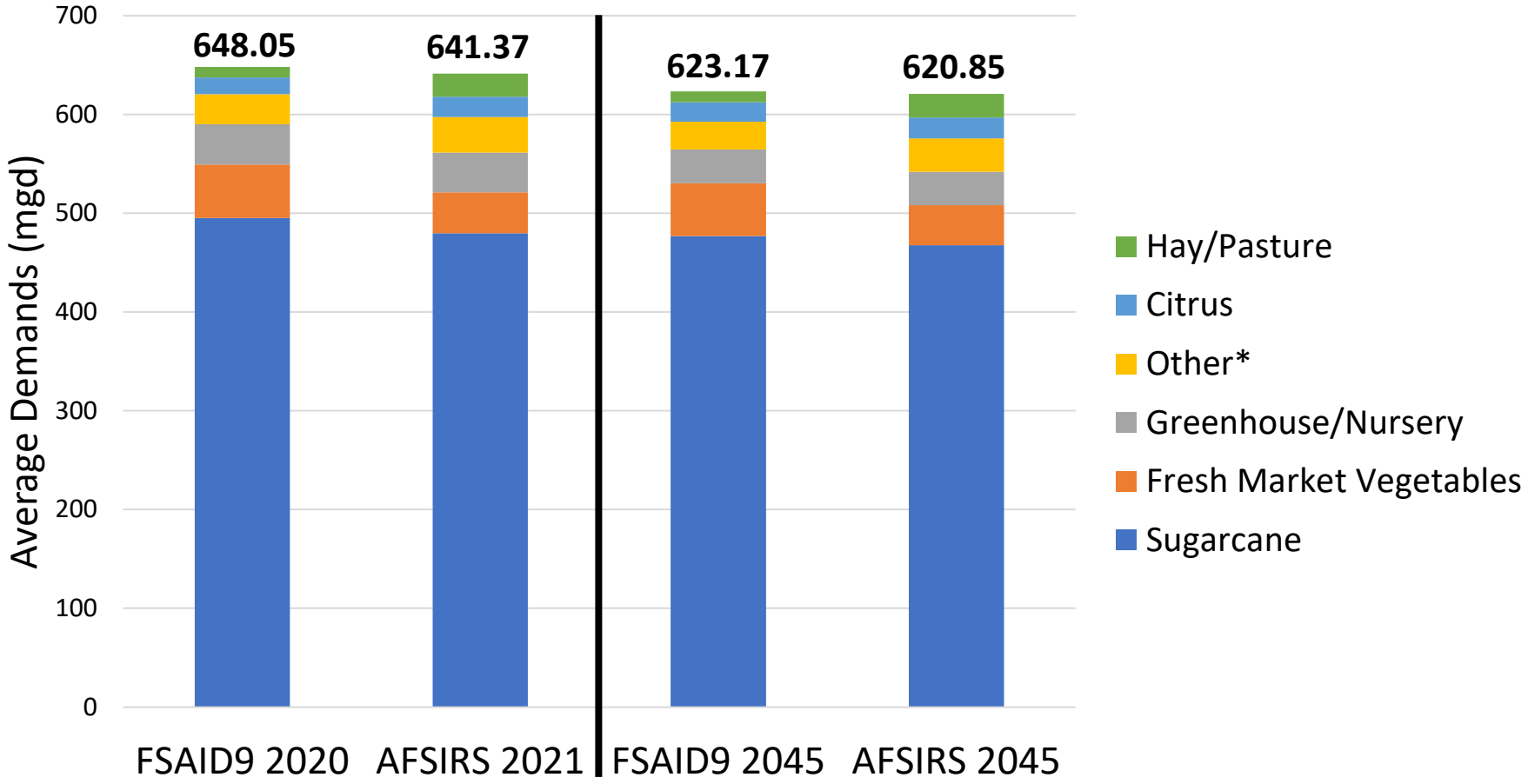
AFSIRS	FSAID
Built with data from University of Florida field experiments	Built with available reported water use from all water management districts
Uses a wide range of location-specific environmental variables	A limited set of environmental variables are used directly in the model
Does not consider changing irrigation intensities in response to crop profitability	Irrigation intensities vary in response to crop profitability

Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS)

Presenter: Coleen Jordan

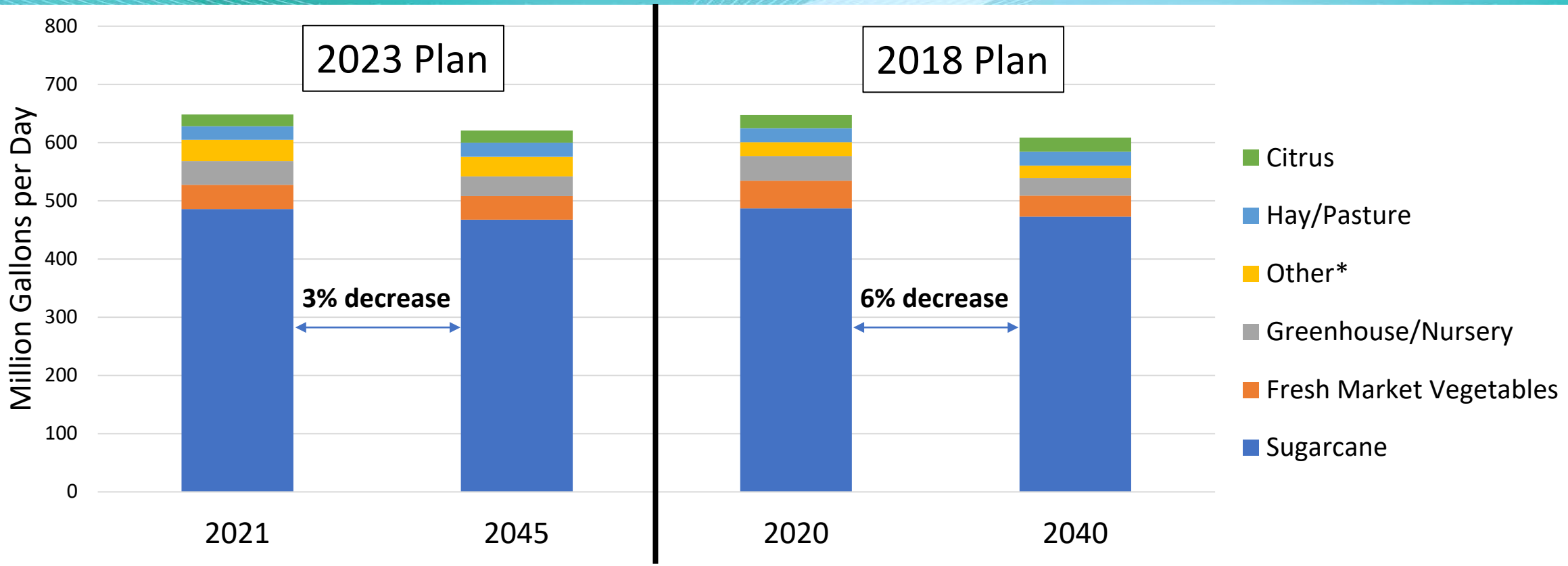
Comparison of FSAID9 and AFSIRS Crop Demands

- The District uses AFSIRS demand projections to remain consistent with its regional modeling efforts.
- AFSIRS model produces similar results to water use permit allocations in the region.



*Other category includes Fruit (Non-Citrus), Sod, Potatoes, and Field Crops

LEC Agricultural Crop Demands



*Other category includes Fruit (Non-Citrus), Sod, Potatoes, and Field Crops

Million Gallons per Day	2020/2021	2025	2030	2035	2040	2045
AFSIRS (2023 LEC Plan)	641.37	627.81	626.72	625.93	623.92	620.85
AFSIRS (2018 LEC Plan)	647.67	626.63	620.58	614.18	608.39	-

Presenter: Coleen Jordan

Draft LEC Agriculture Demands Summary

Agriculture Subcategory	2021	2045
Crops	641.37	620.85
Livestock	0.64	0.64
Aquaculture	3.19	15.88
LEC Planning Area Total	**645.20**	**637.37**

Demands in million gallons per day.

Total = 1% Decrease

Water Use Categories

1. Public Supply
2. Domestic Self-Supply
3. Agriculture
4. **Commercial/Industrial/Institutional**
5. Landscape/Recreational
6. Power Generation

Draft Commercial/Industrial/Institutional Demands

Methodology

- Baseline estimates based on permitted allocation
- Water returned directly to withdrawal source not considered as demand
- Mining operations projected to grow with region's population

County	Demand (mgd)	
	2021	2045
Broward	2.85	3.27
Hendry	1.69	1.69
Miami-Dade	73.92	87.09
Monroe	0.00	0.00
Palm Beach	8.89	10.52
LEC Planning Area Total	**87.35**	**102.56**

Demands in million gallons per day.

Total = 17% Increase

Water Use Categories

1. Public Supply
2. Domestic Self-Supply
3. Agriculture
4. Commercial/Industrial/Institutional
5. **Landscape/Recreational**
6. Power Generation

Draft Landscape/Recreational Demands

Methodology

- 2021 acres based primarily on District permitted data
  - Landscape – 49,676 acres
  - Golf courses – 21,354 acres
- Landscape projections increased at county population growth rates
- Golf course projections have only minor growth

County	Demand (mgd)	
	2021	2045
Broward	45.51	52.15
Hendry	0.00	0.00
Miami-Dade	14.79	17.47
Monroe	2.59	2.65
Palm Beach	116.57	131.32
LEC Planning Area Total	**179.46**	**203.59**

Demands in million gallons per day.

Reclaimed water meets approximately 26% of the L/R irrigation demands.

Total = 13% Increase

Water Use Categories

1. Public Supply
2. Domestic Self-Supply
3. Agriculture
4. Commercial/Industrial/Institutional
5. Landscape/Recreational
6. **Power Generation**

Draft Power Generation Demands

County	Demand (mgd)	
	2021	2045
Miami-Dade	12.80	18.16
Palm Beach	17.18	16.57
LEC Planning Area Total	**29.98**	**34.73**

Demands in million gallons per day.

Total = 16% Increase

Solar = no water demand

Note: These demands do not include facilities that use reclaimed water, harvested rainwater, seawater, surface water returned to the source, and city water.

Lower East Coast Draft Water Demands (mgd) Summary

Water Use Category	2021	2045	2040 From 2018 Plan Update
Public Supply	887.67	1,046.12	1,089.34
Domestic Self-Supply	11.15	13.51	15.76
Agriculture (i.e., crop, livestock, and aquaculture)	645.20	637.65	625.27
Commercial/Industrial/Institutional	87.35	102.56	66.96
Landscape/Recreational	179.45	203.59	156.46
Power Generation	29.98	34.73	52.75
LEC Planning Area Total	**1,840.80**	**2,038.16**	**2,006.54**

Demands in million gallons per day.

2023 LEC Demand Total = 11% Increase

Questions and Public Comment

- If you are participating via Zoom:
  - Click the Reactions button to access the Raise Hand feature
- If you are participating via phone:
  - *9 raises hand
  - *6 mutes/unmutes your line
- When you are called on, please state your full name and affiliation prior to providing comments and/or questions

Sugarcane

2023 LEC Plan Update Next Steps

Nancy Demonstranti, P.G.
LEC Water Supply Plan Manager

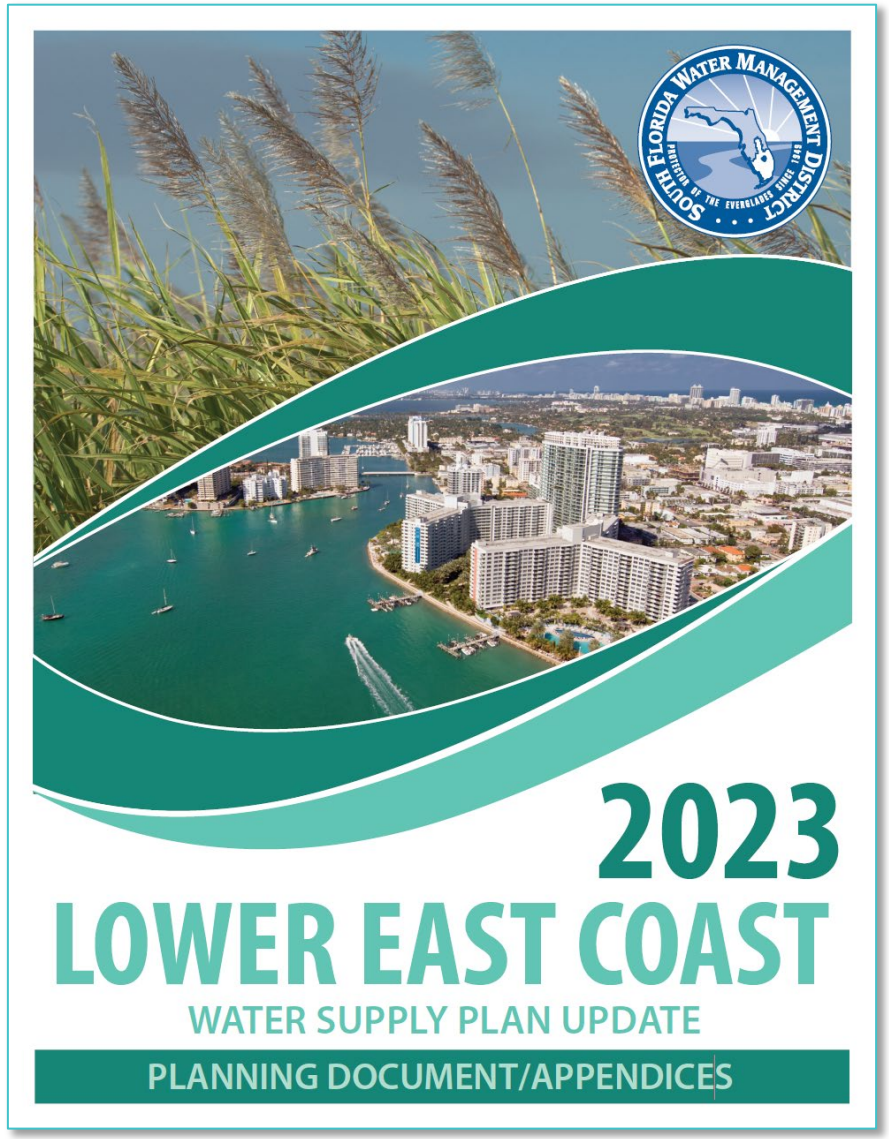
2023 LEC Stakeholder Meeting
May 18, 2023

Objectives of the 2023 LEC Plan Update

1. Quantify sufficient water supply during 1-in-10-year drought conditions through 2045
2. Protect natural systems and water resources
3. Encourage water conservation measures and alternative source development
4. Promote compatibility with local government planning
5. Coordinate and integrate with other water resource initiatives

2023 LEC Water Supply Plan Organization

- Executive Summary
- Chapter 1: Introduction
- Chapter 2: Demand Estimates and Projections
- Chapter 3: Water Conservation
- Chapter 4: Resource Protection
- Chapter 5: Water Source Options
- Chapter 6: Water Resource Analyses
- Chapter 7: Water Resource Development Projects
- Chapter 8: Water Supply Development Projects
- Chapter 9: Future Direction



Next Steps

- Continue coordination with utilities, agricultural operations, state agencies, and other stakeholders
- Distribute some individual chapters early for stakeholder review
- Stay up-to-date with progress of local and regional projects
- Potential agenda topics for next stakeholder meeting: **July 2023**
  - Update on Comprehensive Everglades Restoration Plan projects
  - Water resource protection rules
  - Saltwater interface mapping
  - Climate resiliency initiative

2023 LEC Plan Update Schedule

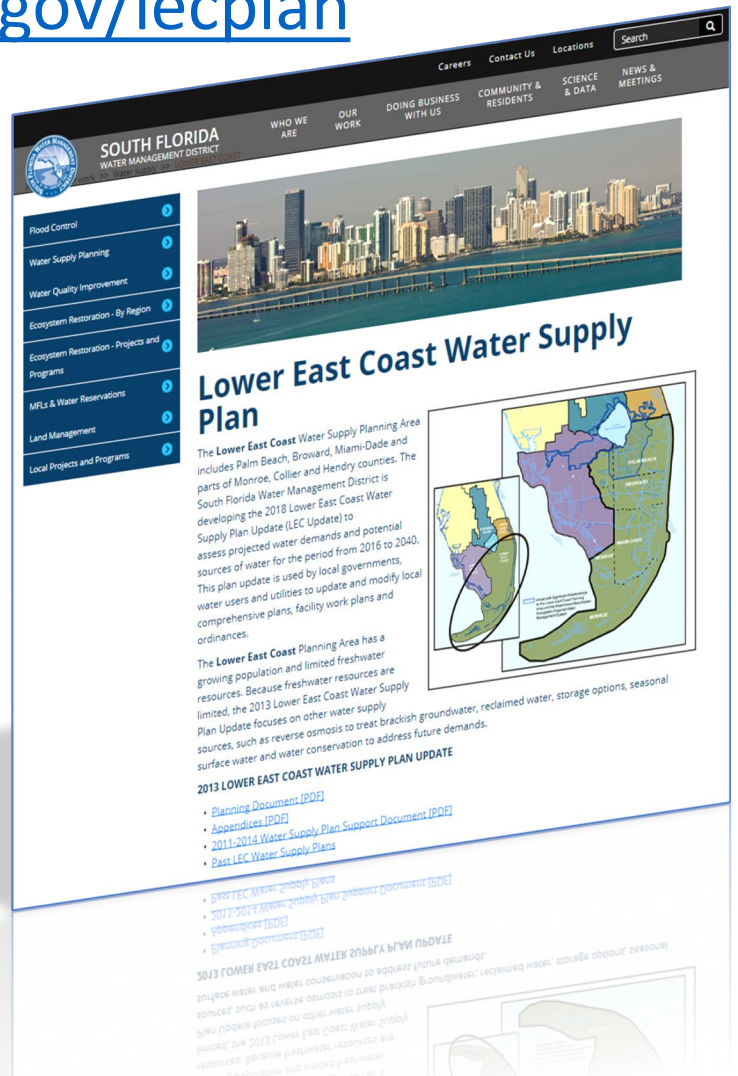
*Stakeholder Meeting 1**	*May 18, 2023*
Stakeholder Meeting 2*	July 2023
Technical Methods Workshop	September 2023
Post Draft Plan for public review & comment	December 2023 - Jan 2024**
Stakeholder Meeting 3*	February 2024
Governing Board Meeting	February 2024
Public comment period ends	March 2024
Governing Board Meeting	April 2024

* Stakeholder meetings will be virtual

**Lake O MFL recovery strategy update Jan 2024

Need Water Supply Information?

- Plan information can be found at www.sfwmd.gov/lecplan
- Workshop announcements sent via email



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