

**Climate Change!
What's SJRWMD
doing to make NE FL
more Resilient?**

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Strategic Planning & Initiatives

St. Johns River Water Management District

www.sjrwmd.com

SLR and Climate Change Impacts

- **Groundwater availability**
 - Changes in rainfall, water demand, and recharge
- **Localized flooding**
 - Nuisance / tidal flooding
 - Extreme weather events
 - Increase severity of tropical events
 - Increased storm surge height
- **Coastal water quality and habitats**
 - Saltwater intrusion
 - Increase salinity in coastal rivers and bays



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Core Missions



Water supply



Flood protection



Water quality






Natural systems

Resilience Actions

State

Local

		
RESOURCES	FUNDING	COORDINATION
Florida Adaptation Planning Guidebook & Technical Assistance	Resilience Planning & Implementati on Grants	Quarterly Coastal Resilience Forum

- **Peril of Flood Act**
Section 163.3178(2)(f)1
- **Adaptation Action Areas (AAA)**
Section 163.3177(6)(g)(10)



Local Government Planning

- Peril of Flood Act
- Requirements for local government planning
 - Coastal flooding
 - Related impacts of sea-level rise
- Address flood risks related to:
 - High tide events
 - Storm surge
 - Flash floods
 - Sea-level rise

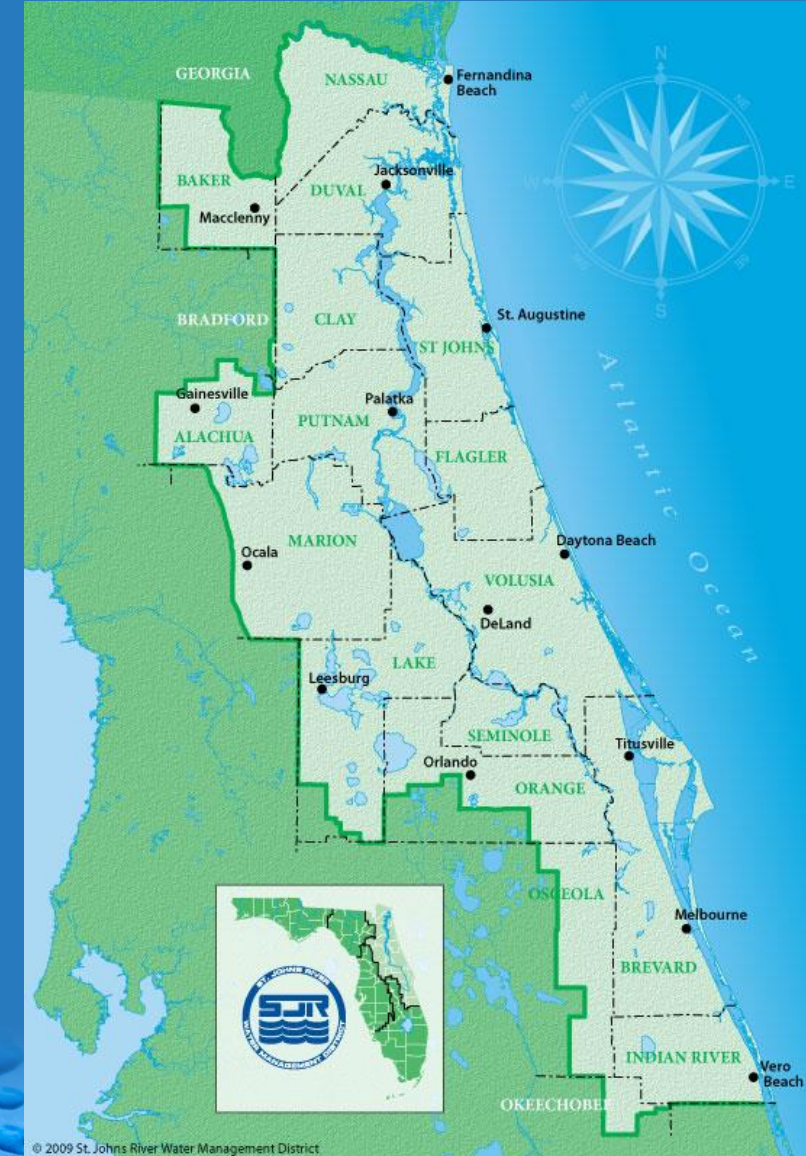


Resilient Florida

- **SB 1954**
- **Resilient Grant Program**
- **Comprehensive Statewide Flood Vulnerability and Sea Level Rise Assessment**
- **Resilience Plan to address:**
 - **Flooding and SLR**
 - **Coastal and Inland Communities**

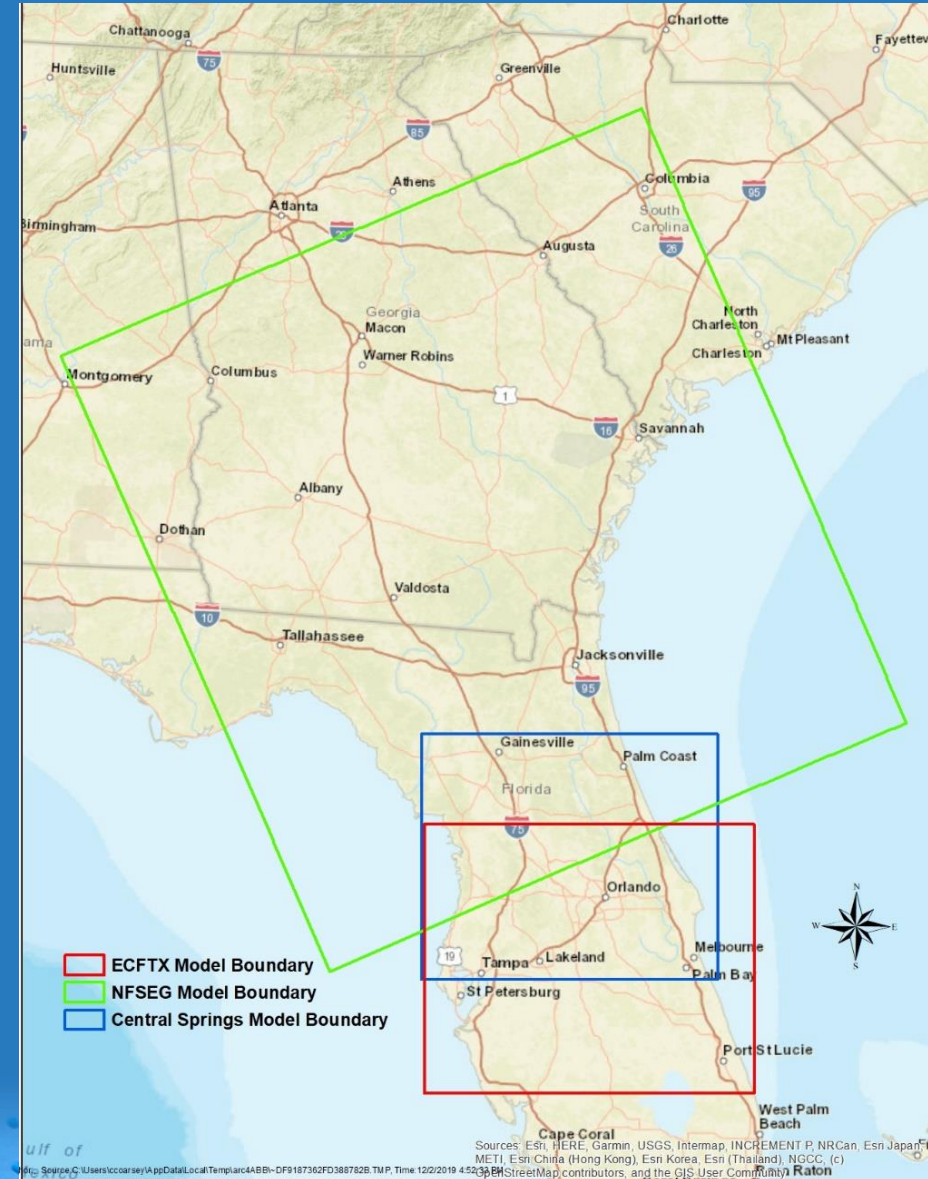
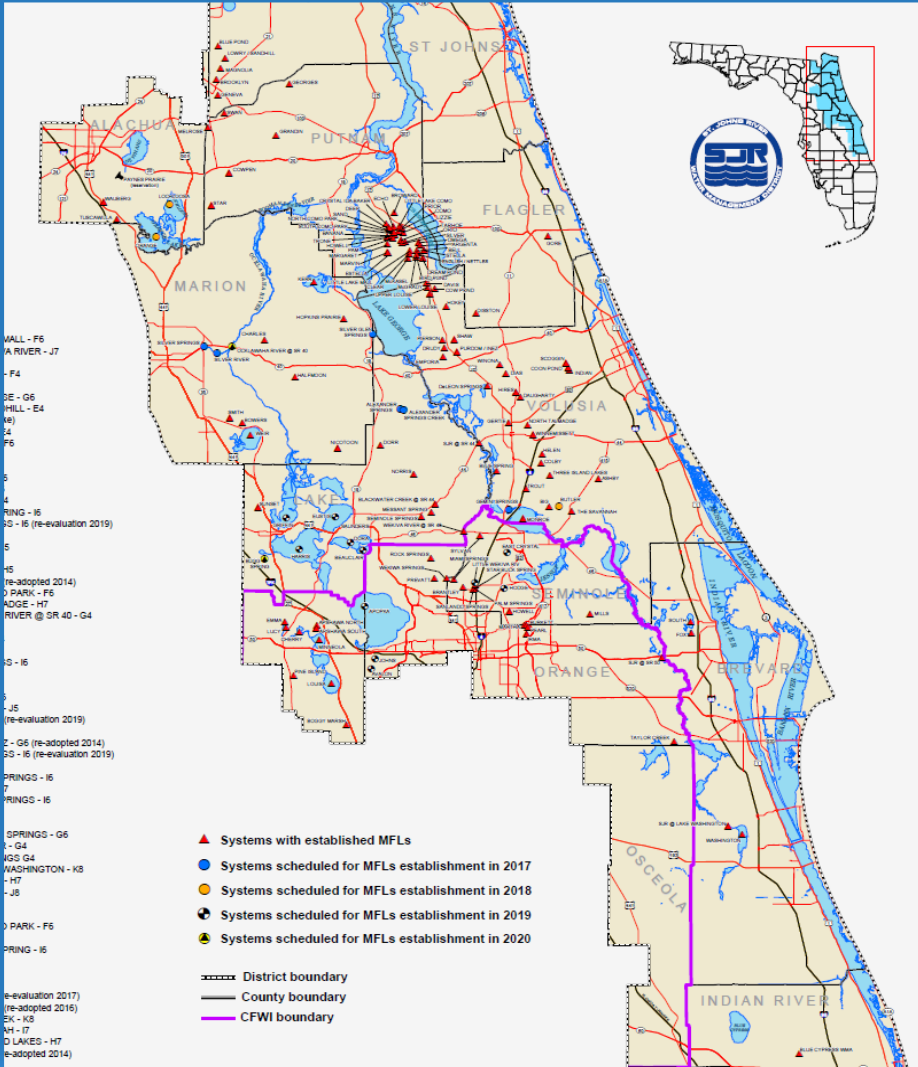
District Activities

- Provide technical assistance to communities
- Provides cost-share funding to partners
- Land acquisition and preservation
- Restoration of wetlands and floodplain for floodwater storage
- Water quality monitoring and habitat mapping program
- Support development of alternative water supplies (AWS) and water conservation projects
- Require permittees (CUP) to monitor/evaluate saltwater intrusion
- District projects consider SLR and long-term metrological conditions
 - Project design and management
 - MFL development
 - RWSPs



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District Activities

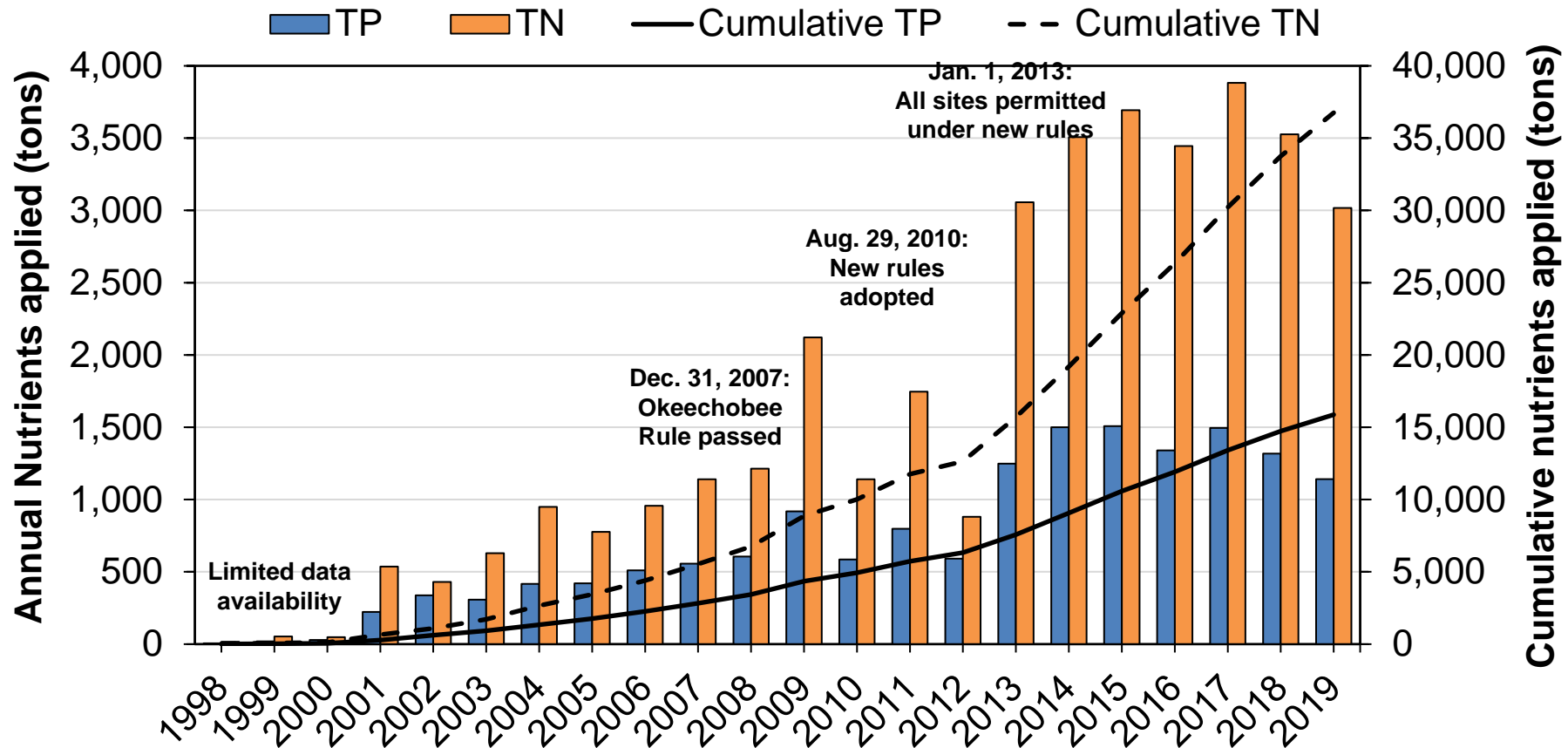


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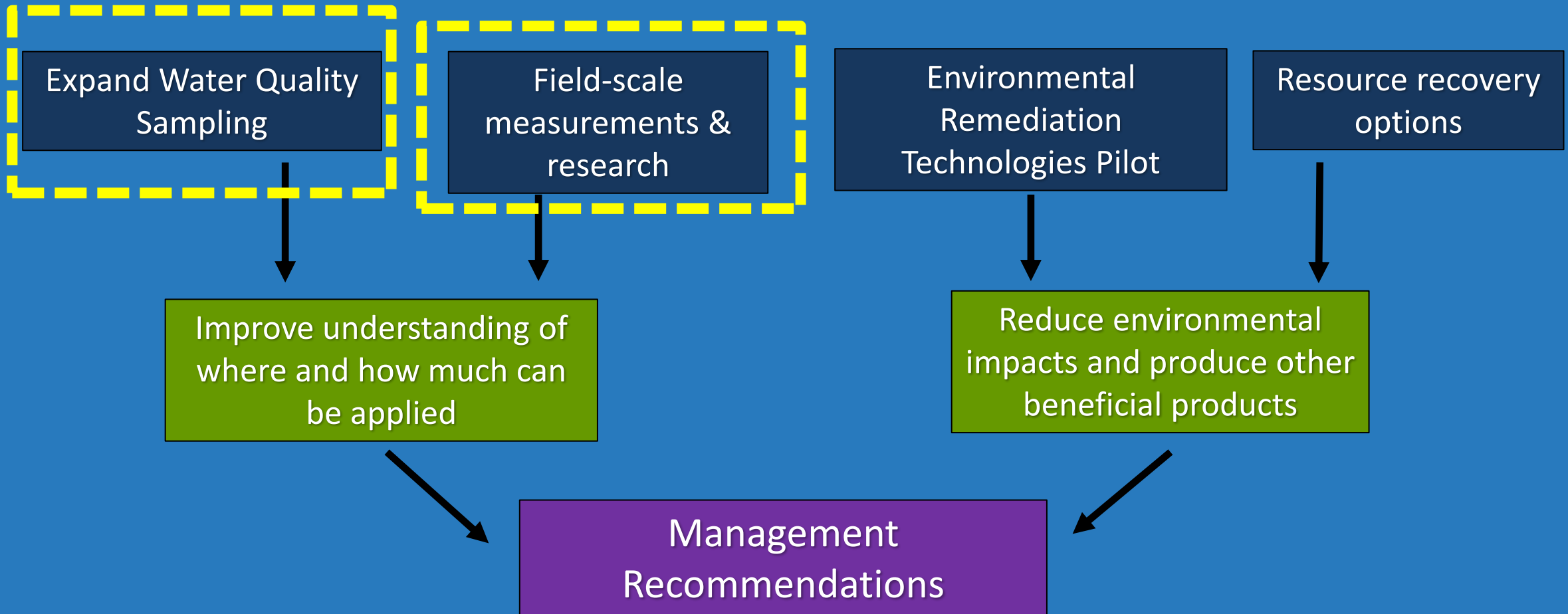
Upper SJR Basin

Class B Biosolids Applications

TN and TP from Class B Biosolids in the Upper St. Johns River
(1998 – 2019)

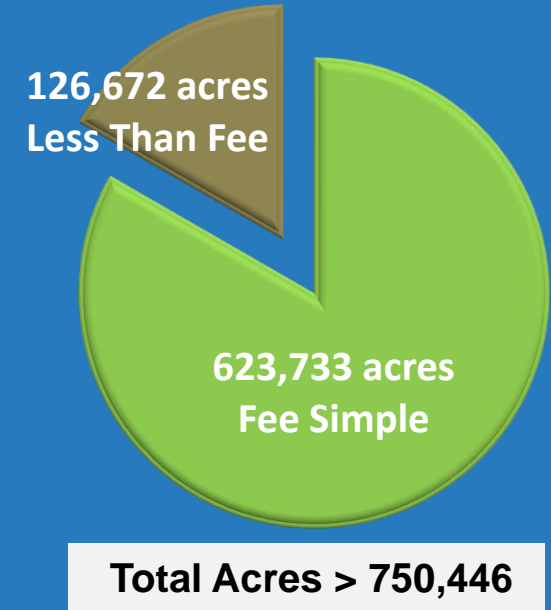
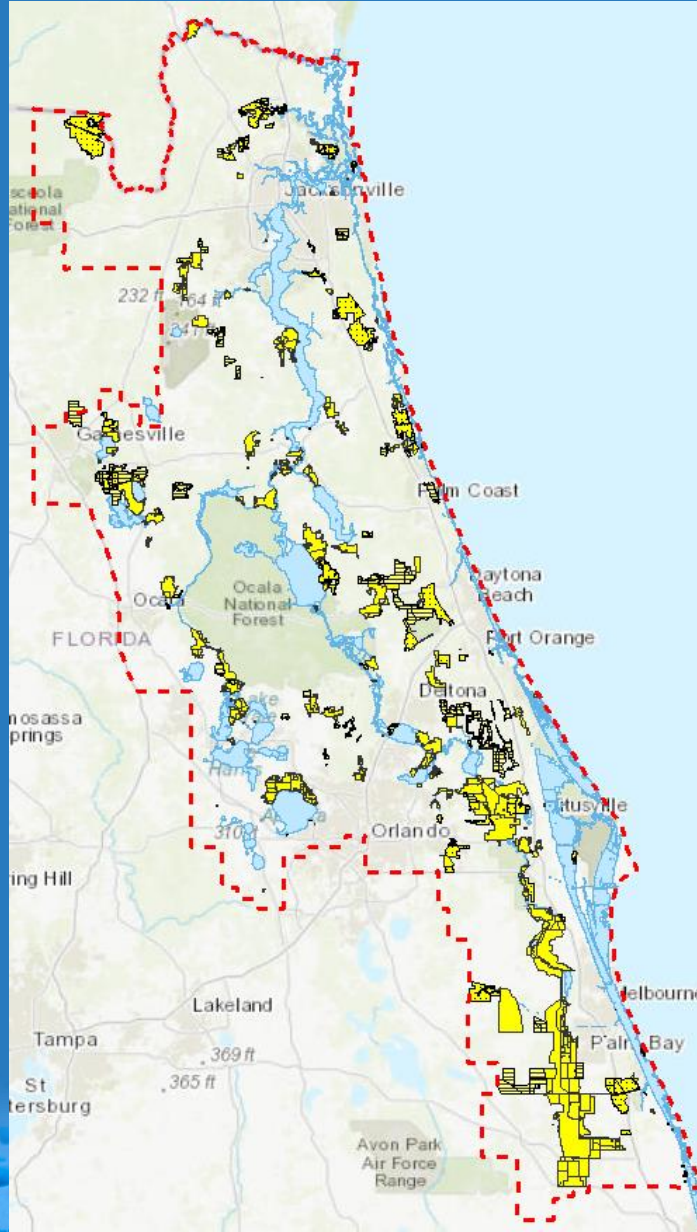


Projects to Monitor and Improve Water Quality: Biosolids Assessment (\$1.9 M)



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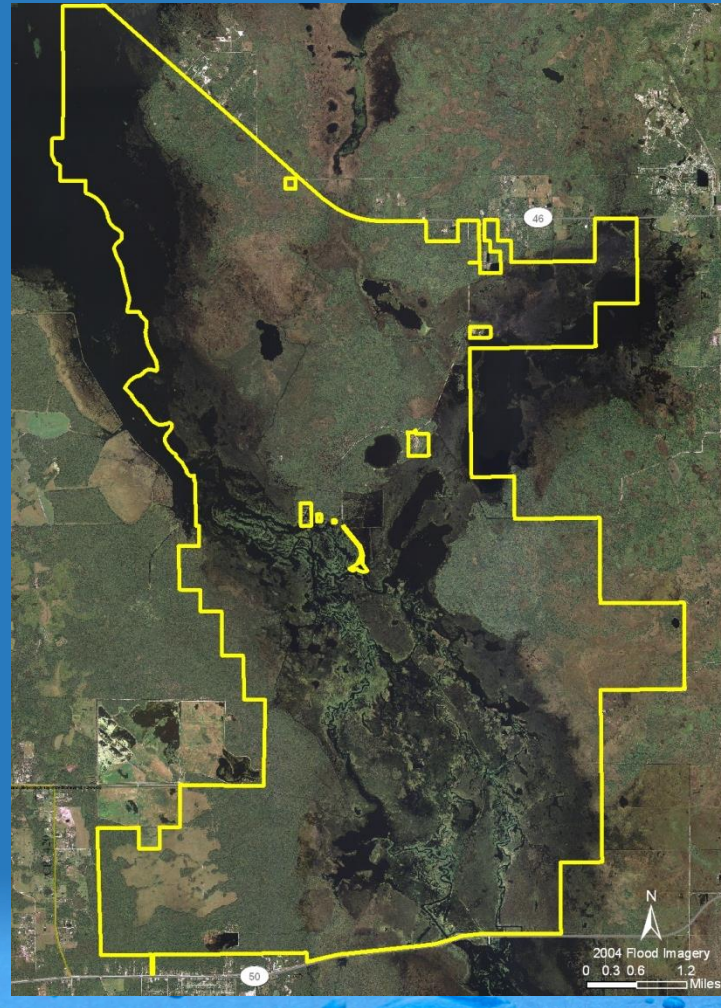
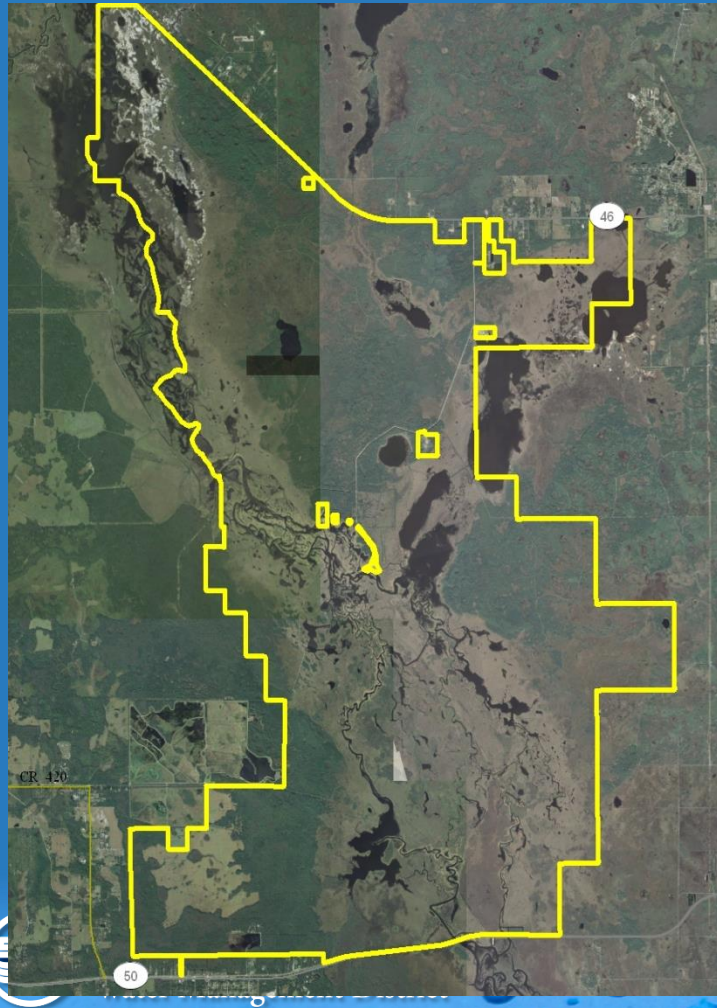
Land Acquisition and Management



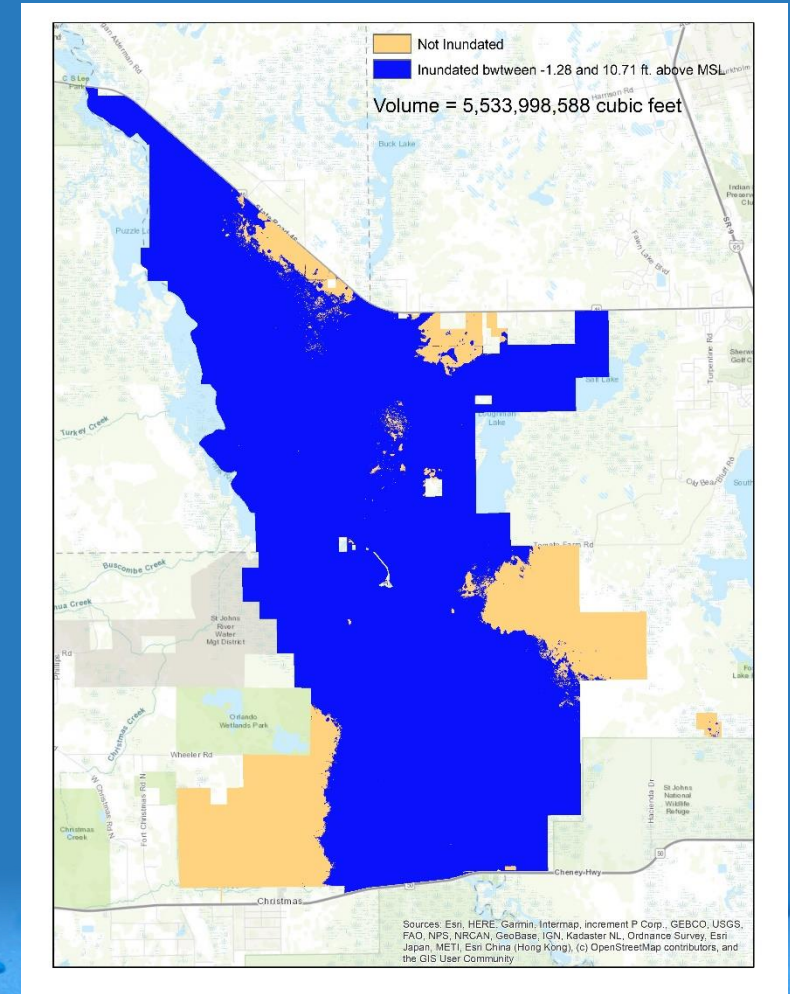
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Natural Systems

Dry and Wet Conditions



Flood Storage Volume
= 127,043 acre-feet



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Natural Systems



Oyster Bar Restoration

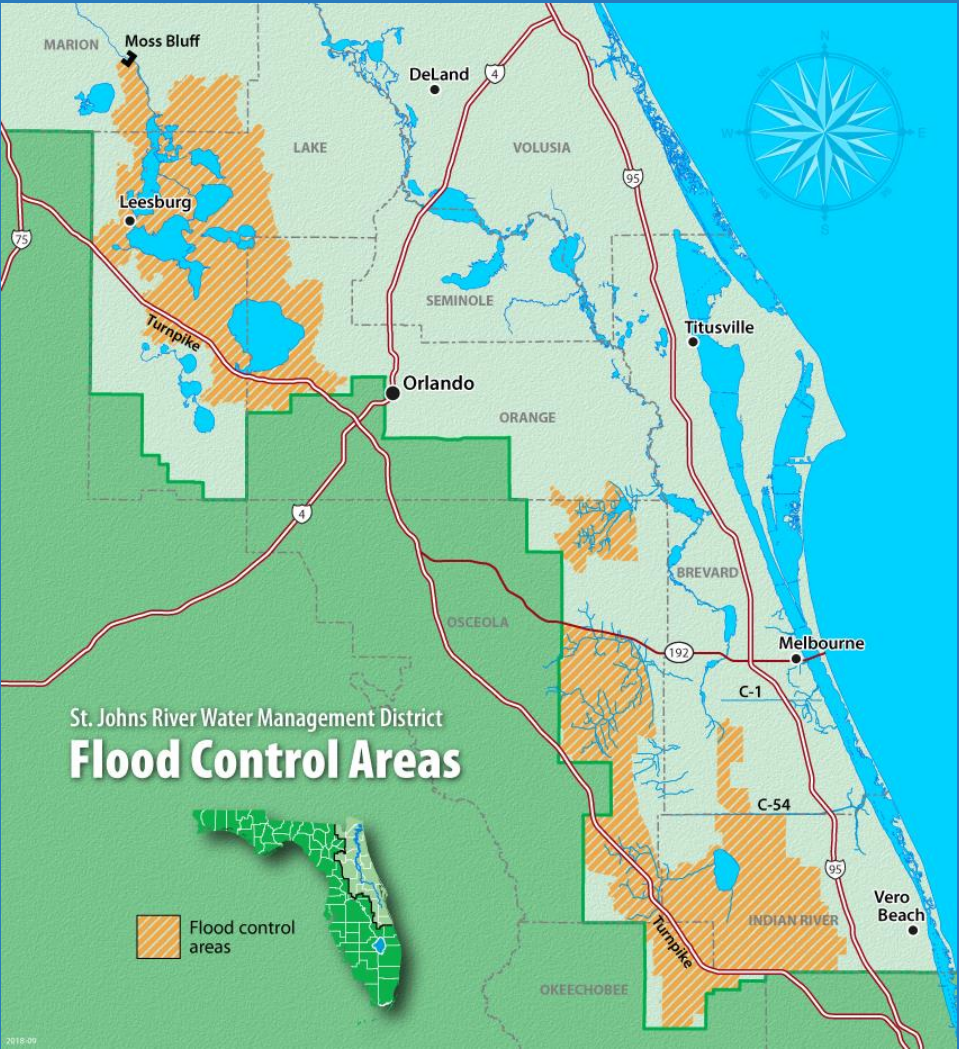
Protecting and Restoring District Lands



St. Johns River
Water Management District

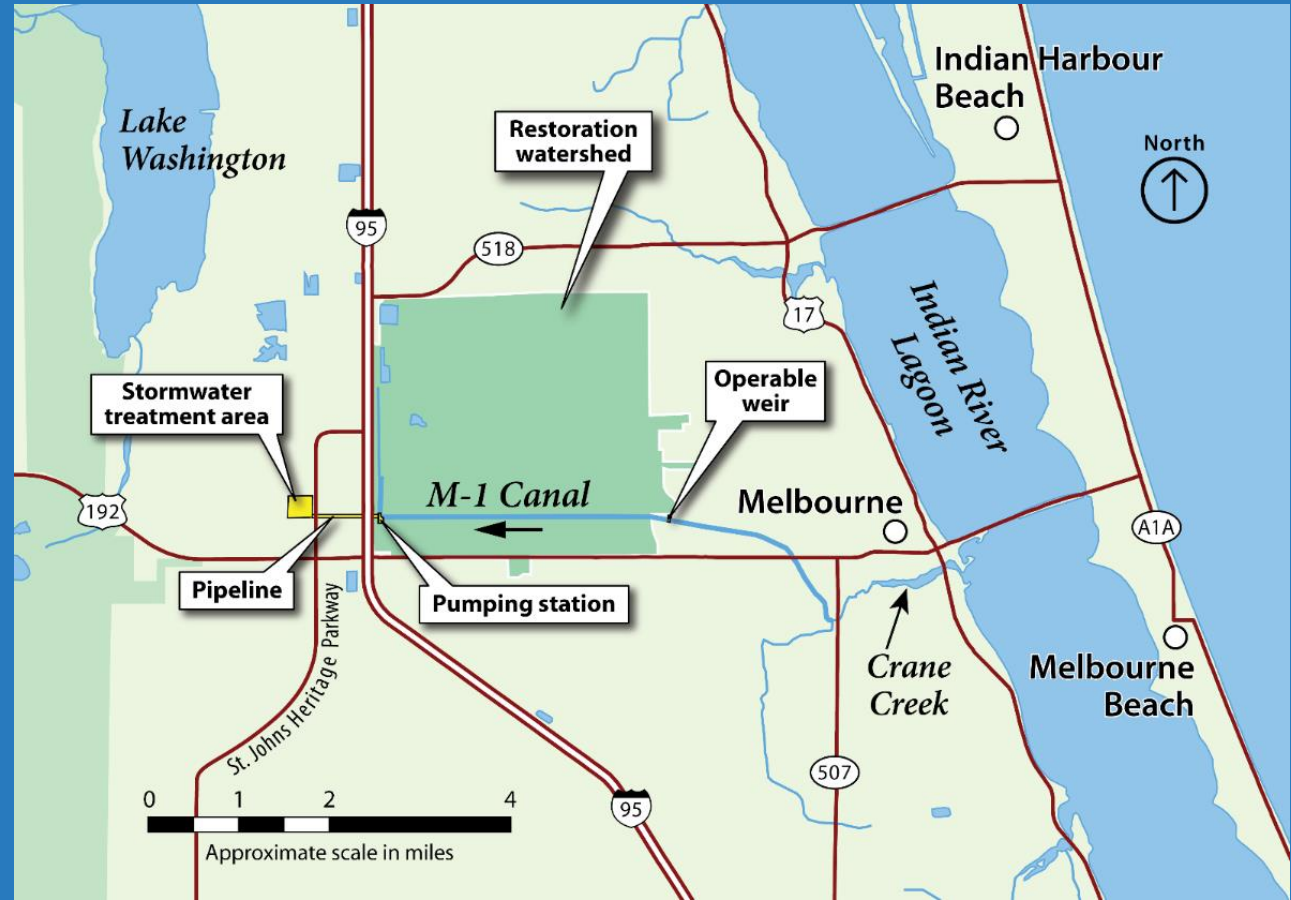
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Flood Control



Crane Creek M-1 Canal Flow Restoration Project

- **Components:** operable weir, pump station, pipeline and STA
- **Annual benefits:**
 - Estimated load reduction of 24,000 lbs. of TN and 3,000 lbs. of TP; reduce freshwater sediment inflow to IRL
- **Restore 7 million gallons per day flow to St. Johns River**



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A Simple Example: Control of Aquatic Plants



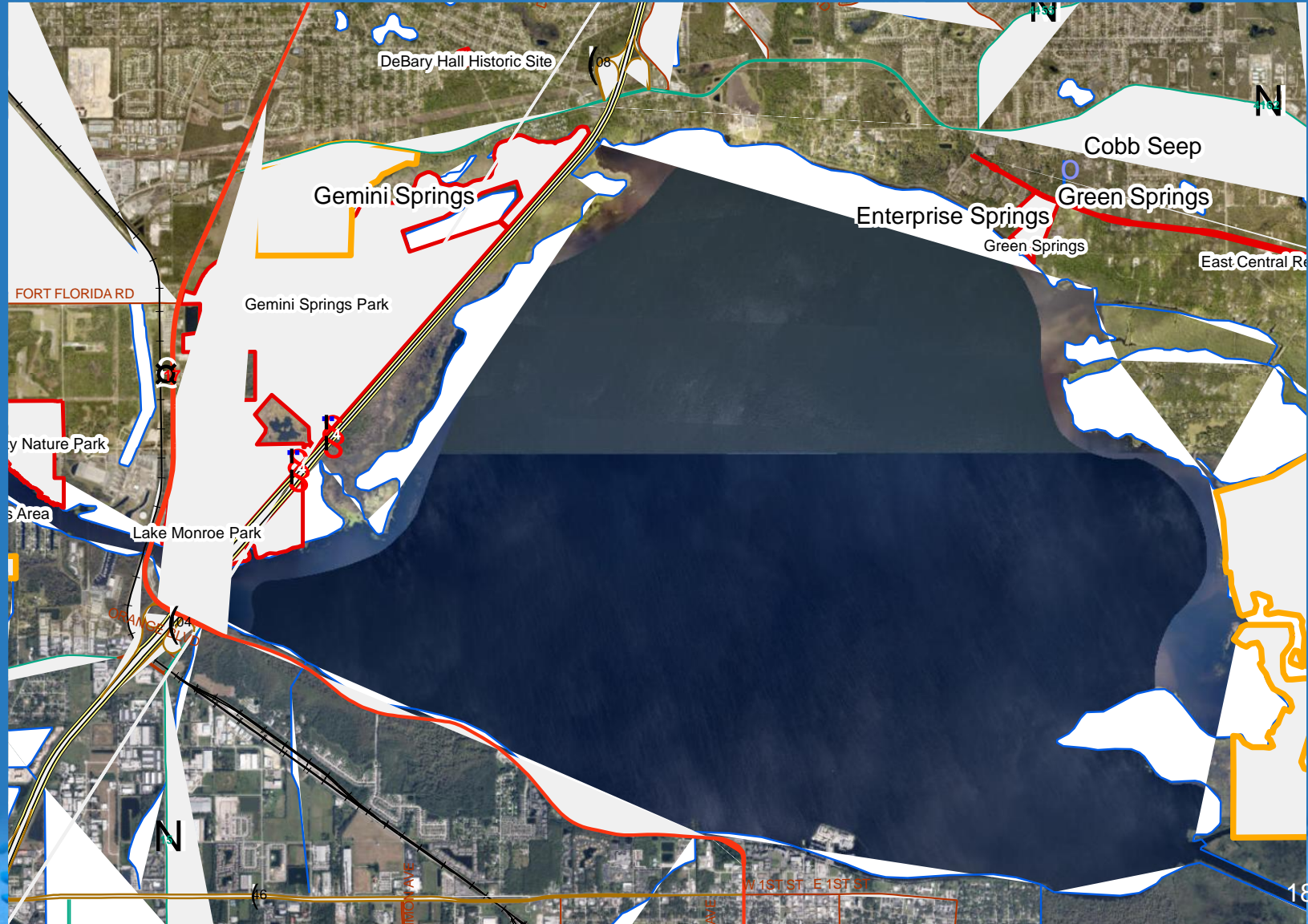
Herbicide spraying, Blue Cypress Conservation Area



Hydrilla harvesting, Melbourne Tillman Water Control (*Florida Today* photo)

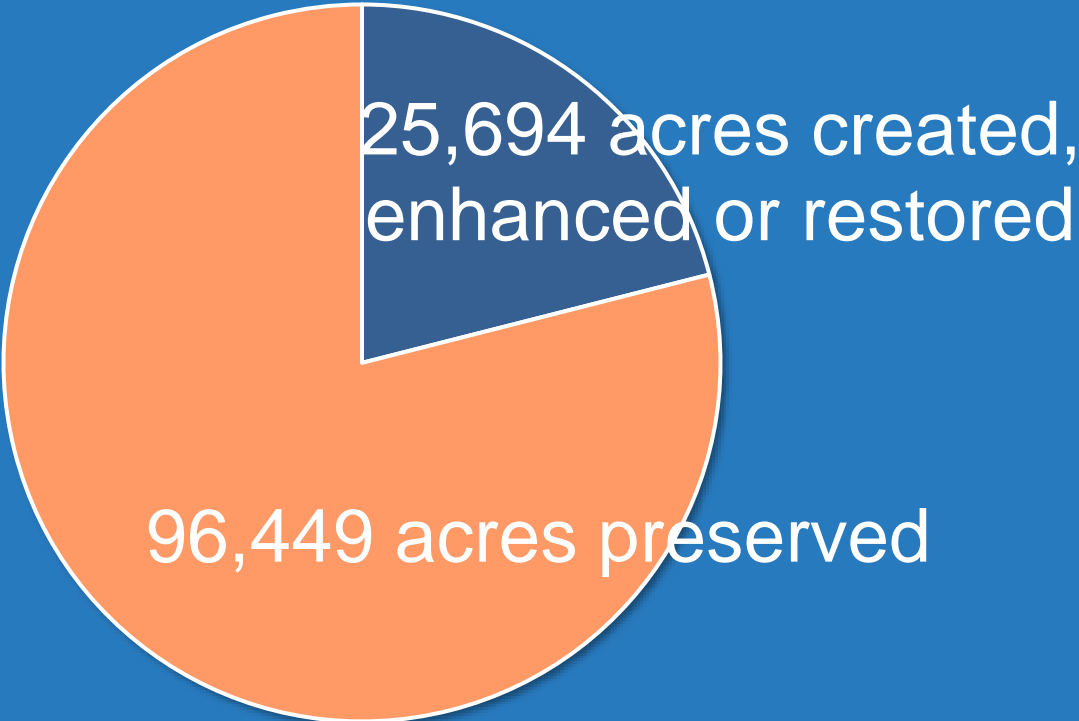
DeBary Bayou

- Gemini Springs (Florida Priority Spring)
- I-4 Expansion with new openings in causeway
- Targeted activities
 - Enhance Flow
 - Removal of ~30 lbs TP/acre and ~150 lbs TN/acre



Permitting

ERP



CUP

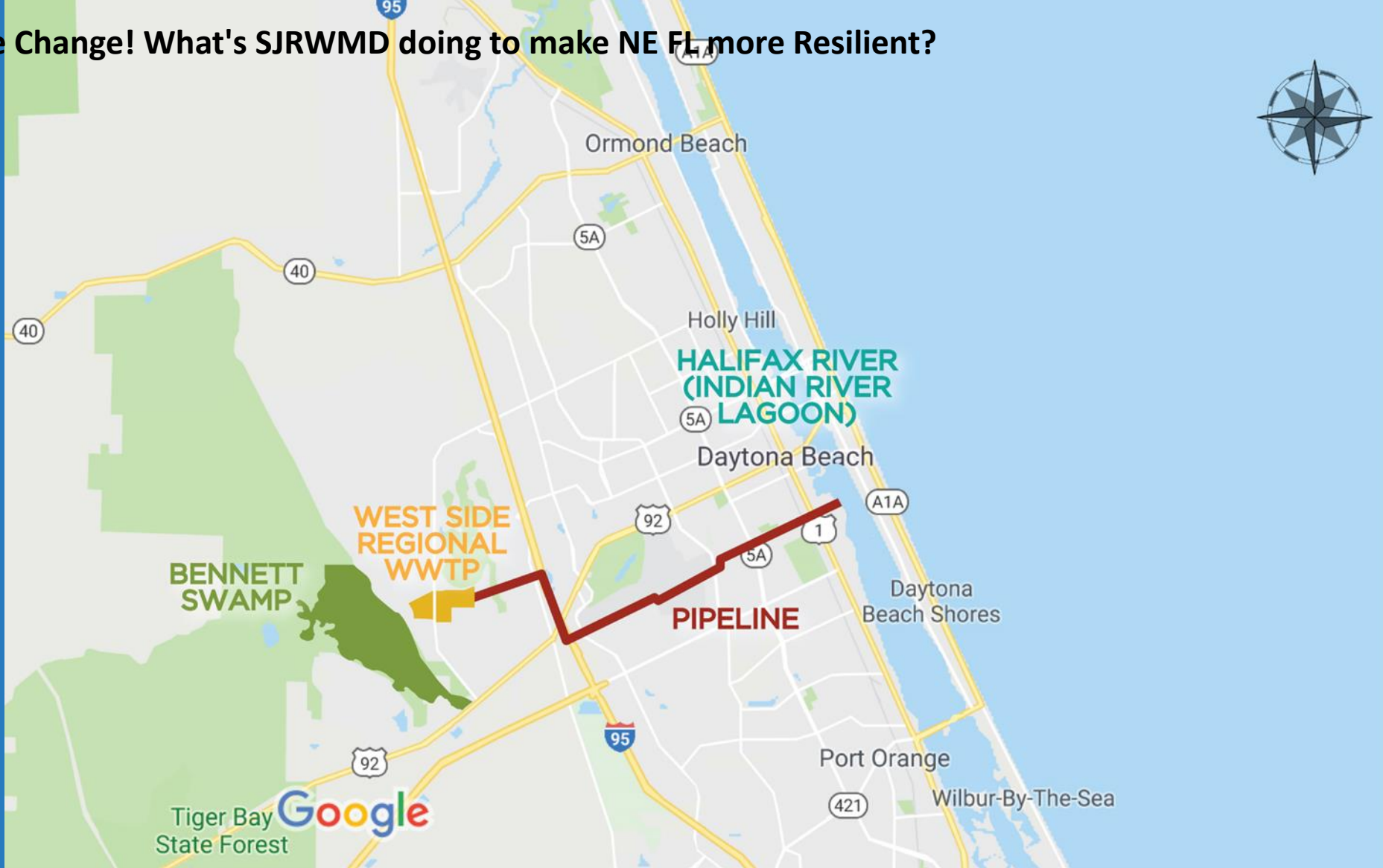


Water Supply



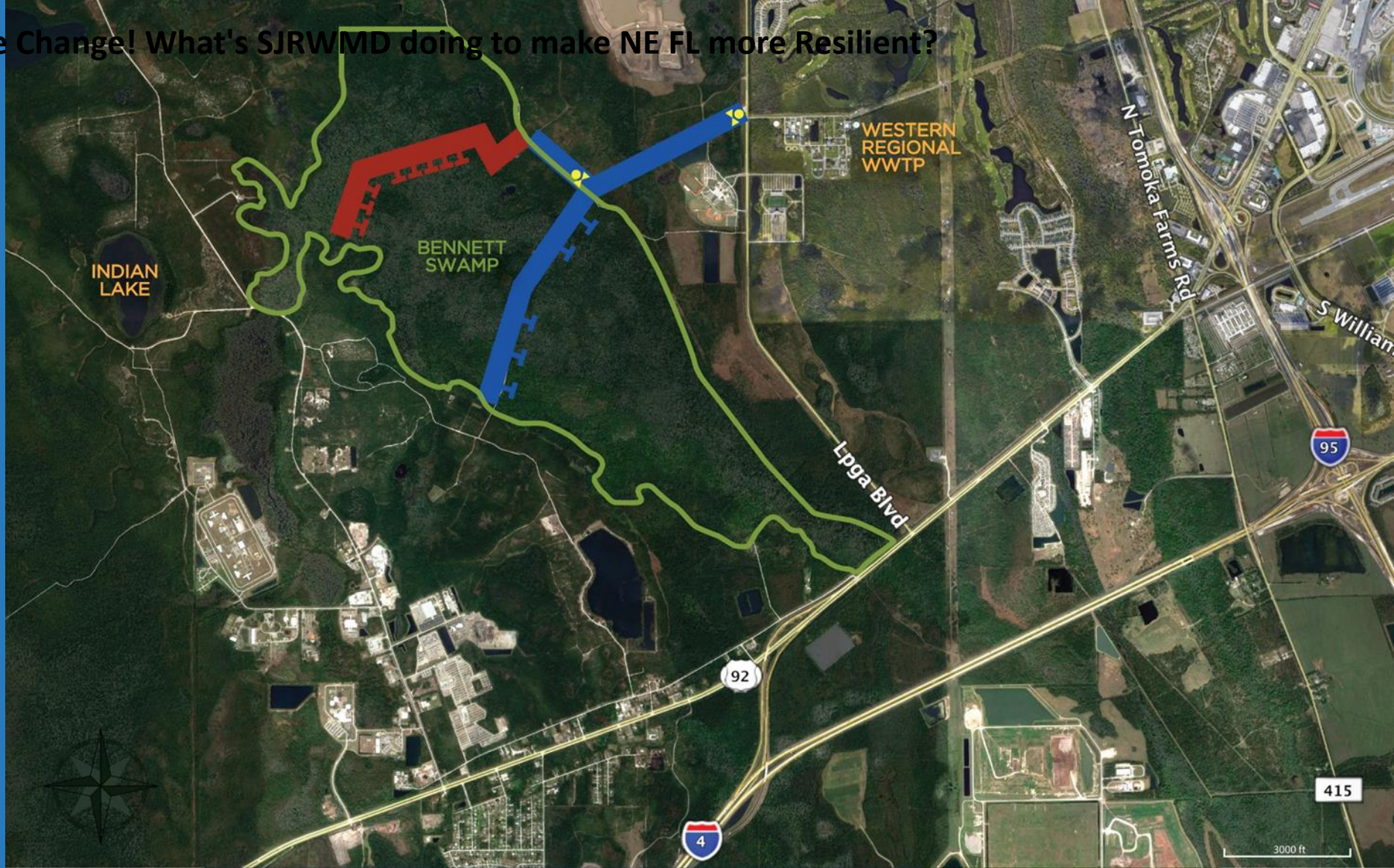


Regional Location Map

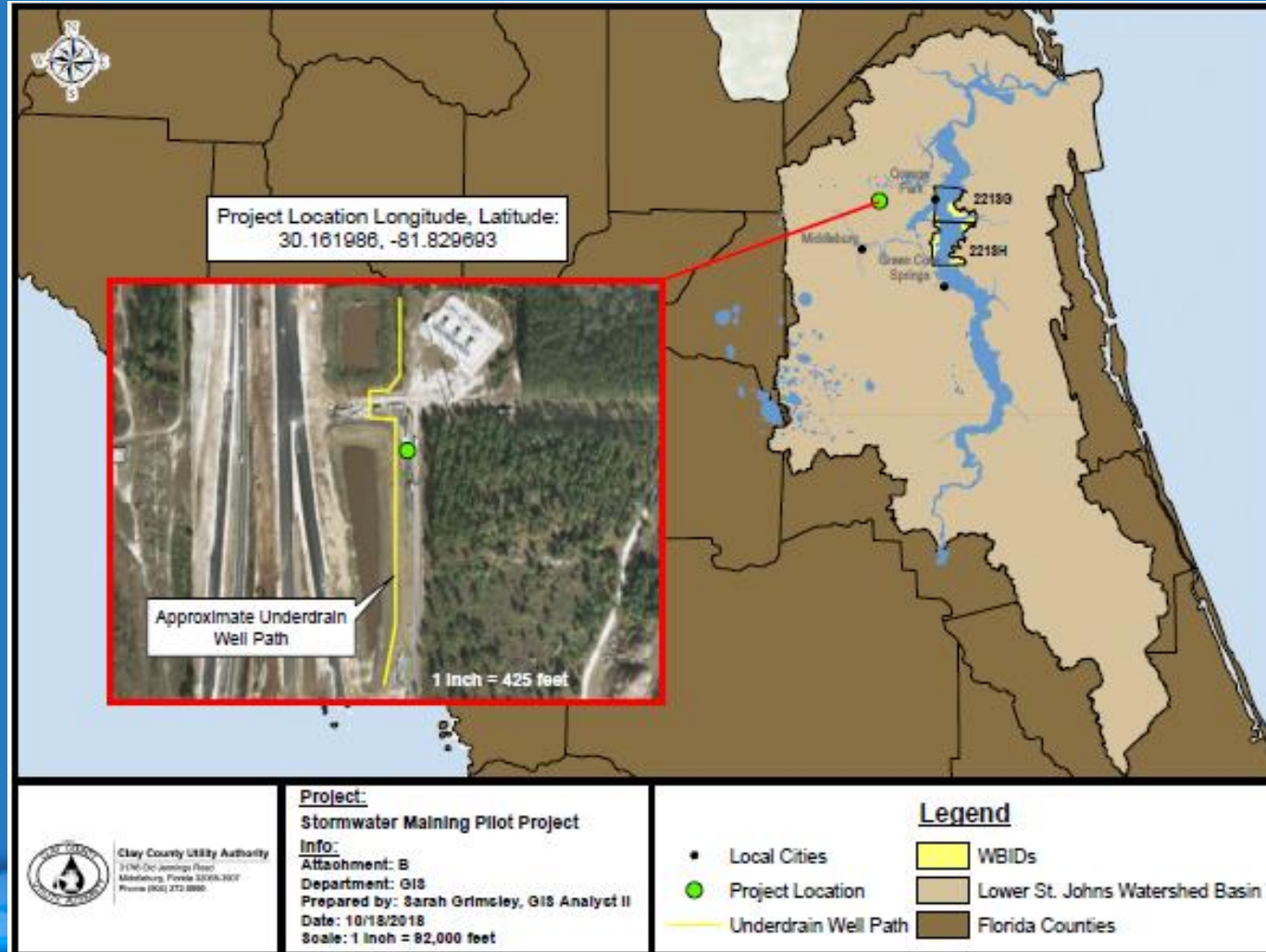


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Project Location Map



Clay County Utility Authority Stormwater Mining Pilot Project



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SJRWMD Cost-Share FY 2014-2020

274 projects with
partners

\$511.4M Total
Investment

Types of Valves being Tested to Reduce Nuisance Flooding



One type of tide check valve, Tideflex CheckMate Inline Check Valve^[6] will allow stormwater to drain out under lower tide conditions. During high tide, the valve will prevent sea water from backing up into the stormwater pipe network.



St. Johns River
Water Management District



CITY OF
ST. AUGUSTINE.
EST. 1565

Main Relief Canal Stormwater Treatment and Irrigation Water

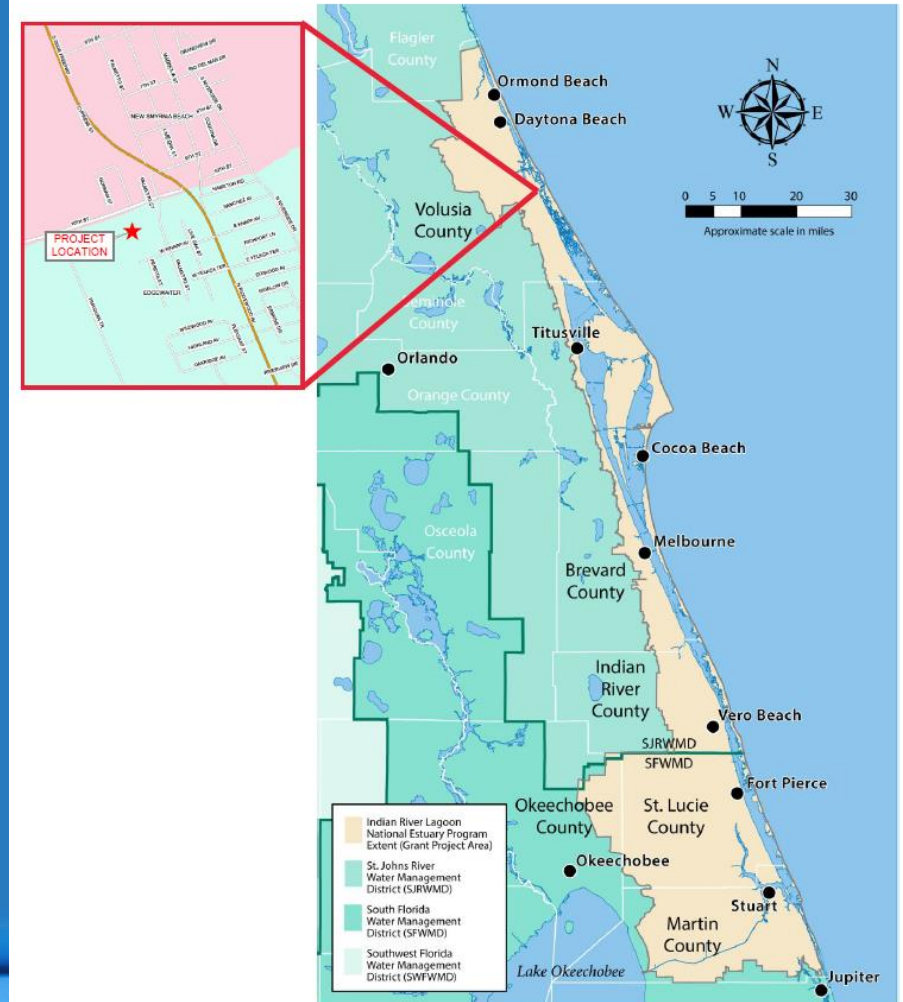
- Estimated water quality benefit:
 - 15,052 lbs/yr TN reduction
 - 2,361 lbs./yr TP reduction
- Total construction cost: \$10,759,010



Volusia County Gabordy Canal Stormwater Project

- FY 2021 IRL Funding Program
- Estimated water quality benefit (to IRL):
 - 4,300 lbs./yr TN reduction
 - 290 lbs./yr TP reduction
- Total construction cost: \$2,995,000

GABORDY CANAL & 10th STREET STORMWATER TREATMENT FACILITY PROJECT LOCATION MAP



Brevard Zoo Clam Restoration

- FY 2021 Indian River Lagoon Water Quality Improvement Program
- Native clam habitat restoration
- 100 restoration sites in Brevard County
- Community involvement and education



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Communicating with Public



sjrwmd.com/localgovernments/sea-level-rise

More information about District's ongoing resiliency work on our website

- Summary of recent work
- Resources to help our local partners

Sea-level rise and resiliency

▶ Local governments



Sea-level rise, increased severity of tropical storm events, and shifting rainfall pattern are effects of a changing climate which is expected to impact Floridians, property and the state's natural resources. These increased risks pose many challenges to state and local governments, including utilities.

The St. Johns River Water Management District is committed to assisting communities and utilities to become more resilient in preparing for and adapting to these changes. Resilience is the ability to recover quickly from disasters and to adapt to future conditions such as sea-level rise. Resilience planning, while complex, can be simplified into the steps below. These steps can be incorporated into all areas of planning, no matter how small or large.

1. **Identify current conditions**— Identify nearest tide gauge and project/infrastructure elevations. On the larger scale, take inventory of assets and determine what is at risk.
2. **Evaluate planning horizon** — Identify lifespan of project. Consider which assets are most vulnerable based on historic impacts and potential consequences (how critical, economic, etc.).
3. **Conduct risk analysis**— Identify a range of sea-level rise projections and design alternatives; compare to project lifespan and severity of impacts (economic, public safety, number of people, critical infrastructure, adaptive strategies, etc.).
4. **Make an informed decision** — Evaluate potential impacts, adaptive strategies, design alternatives and lifetime costs for project. Also, evaluate holistic or systems impacts/plans (e.g., is this project part of a larger plan).

District efforts: Local partnerships

Coastal and low-lying areas are not alone in their adaption planning for climate change. Communities and utilities can utilize district resources to help increase their resiliency. Some of the frequently utilized resources the district provides are:

District efforts: Core missions

Funding

The district has utilized its cost-share program to partner with many local governments to ensure the completion of shovel-ready stormwater/flood protection projects designed to reduce flooding risks and improve water quality. These cost-share projects have allowed for the retrofitting of stormwater outfalls with tidal backflow prevention valves, reconstruction of weirs, construction of watershed management collection and stormwater treatment systems, and stormwater management system expansion and reconstruction.

State/National efforts