2023 North Florida Regional Water Supply Plan

Constraint Assessment Public Workshop

November 15, 2022 at SRWMD
November 16, 2022 at SJRWMD

Agenda

- Water Supply Overview
- Timeline for water supply plan and related activities in the Partnership
- North Florida Regional Water Supply Plan (NFRWSP) Water Resource Constraint Assessment
- Next Steps – Project Solicitation
- Public Comment
- Closing Remarks

Regional Water Supply Planning §373.709, F.S.

"The governing board of each water management district shall conduct water supply planning for a water supply planning region…, where it determines that existing sources of water are not adequate to supply water for all existing and future reasonable-beneficial uses and to sustain the water resources and related natural systems for the planning period."

What is a Regional Water Supply Plan (RWSP)?

Constitutes an assessment of:

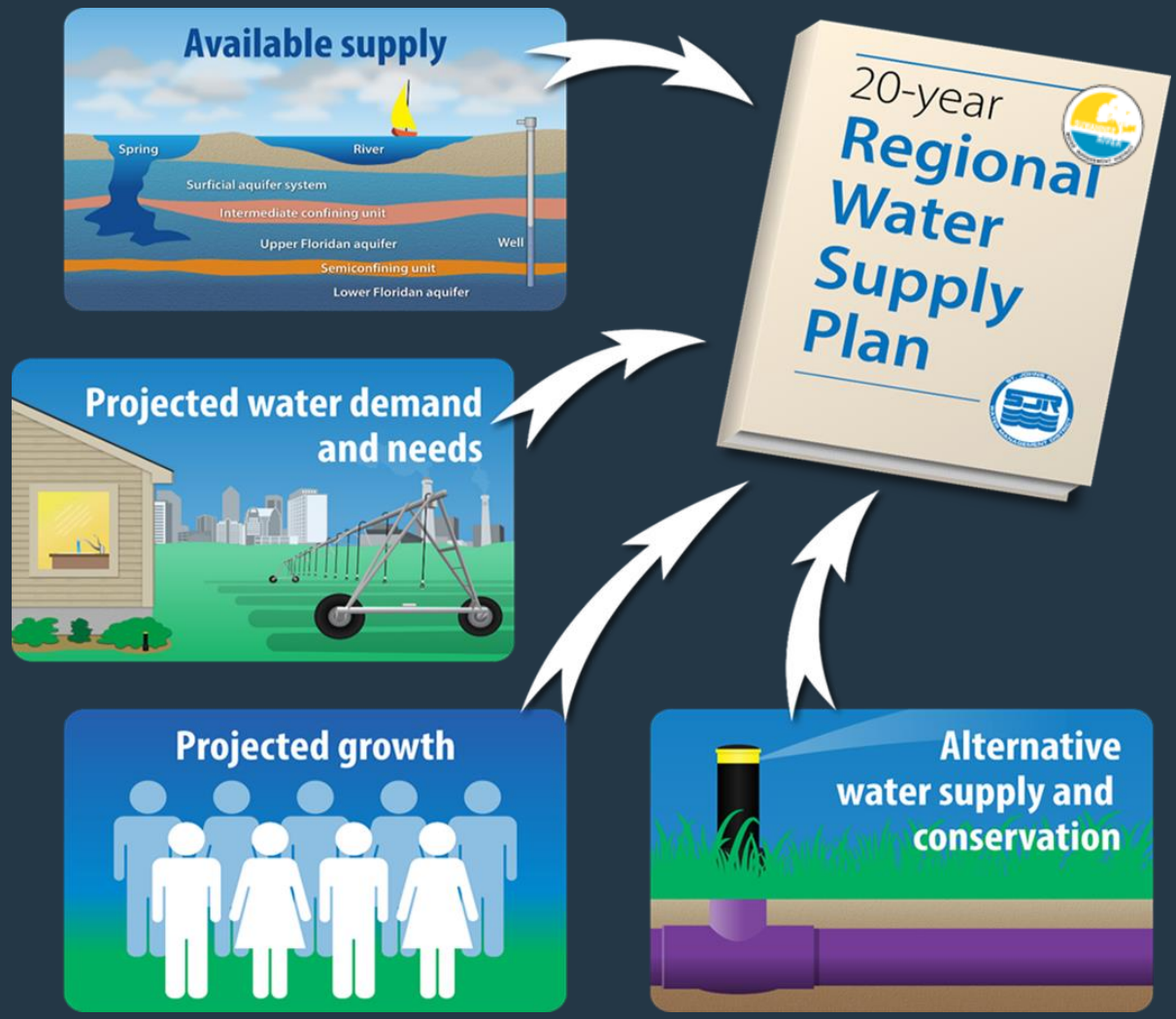
- how much water is needed over the planning horizon, and
- whether traditional sources can meet that demand

While:

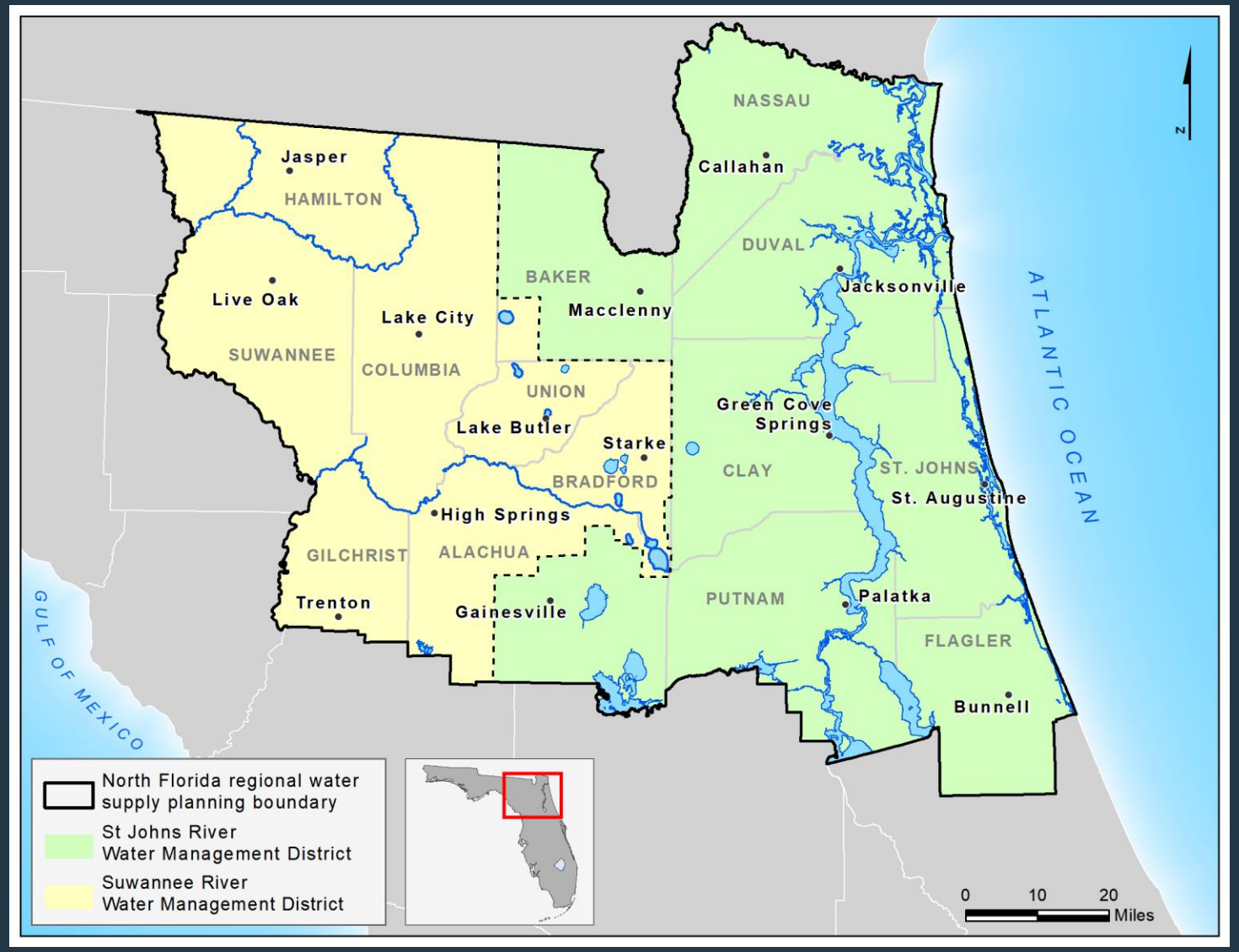
- protecting the water resources and related natural systems, and
- identifying future water supply sources

Regional Water Supply Planning Process

- 20-year planning horizon
- Conducted in an open public process
- Coordination with other agencies
- Approval by the Governing Board
- Updated every five years



NFRWSP Overview



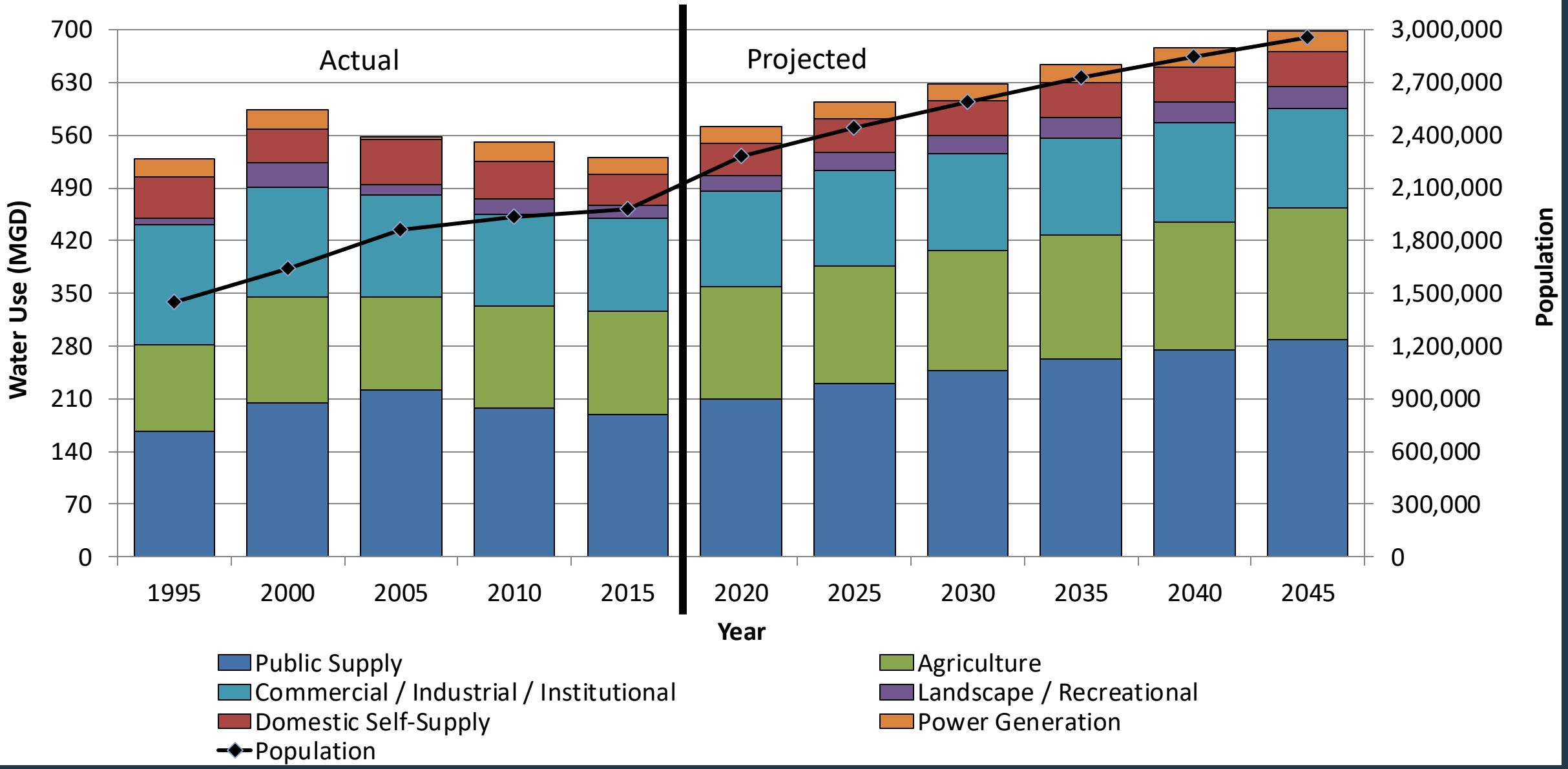
Timeline for the NFRWSP

- 2017 – Approval of first NFRWSP
- 2020 - updates to the approved NFRWSP kicked off
- 2021 – development and review of water use estimates and projections
- 2022 – finalization of estimates and projections posted: https://northfloridawater.com/watersupplyplan/
- 2023 – development of project options to address constraints and finalization of NFRWSP

NFRWSP Water Use and Demand Projections

Category	2015 (mgd)	2045 (mgd)	Change (mgd)	% Change
Public Supply	189	288	99	52
Domestic Self-Supply and Small Utilities	40	46	6	15
Agriculture	137	175	38	28
Commercial / Industrial / Institutional and Mining / Dewatering	123	131	8	7
Landscape / Recreation	18	29	11	62
Power Generation	22	28	6	28
Total	**529**	**697**	**168**	**32**

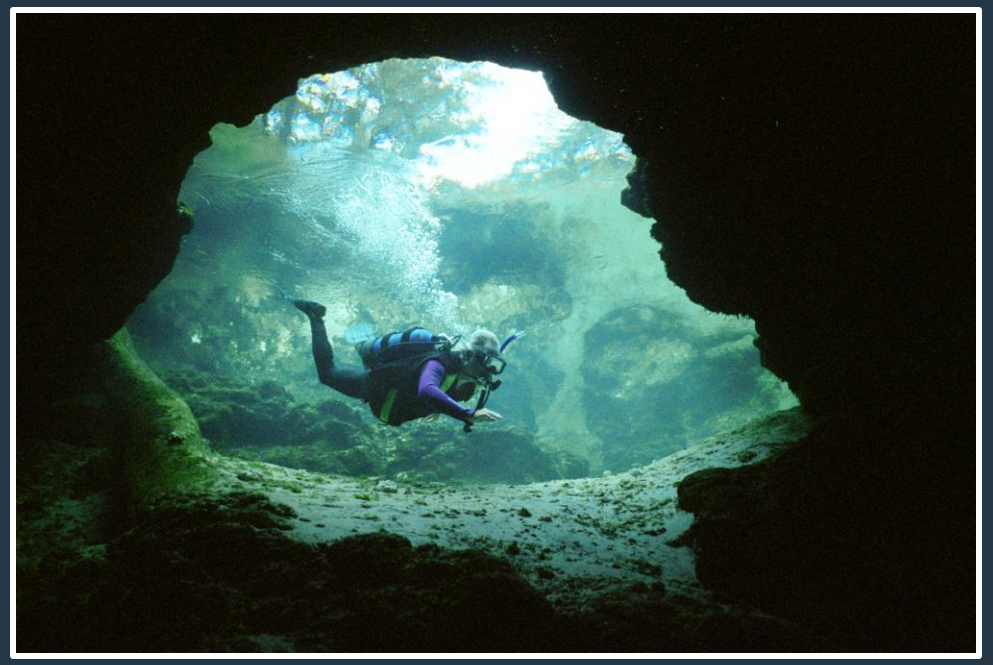
Historic Water Use and Population -vs- Projected Water Demand and Population in NFRWSP



Water Resource Evaluation

Can future water demand be met with traditional sources, while protecting water resources and related natural systems?

- Minimum flows and minimum levels
- Water bodies without adopted MFLs
- Wetlands
- Chloride concentrations

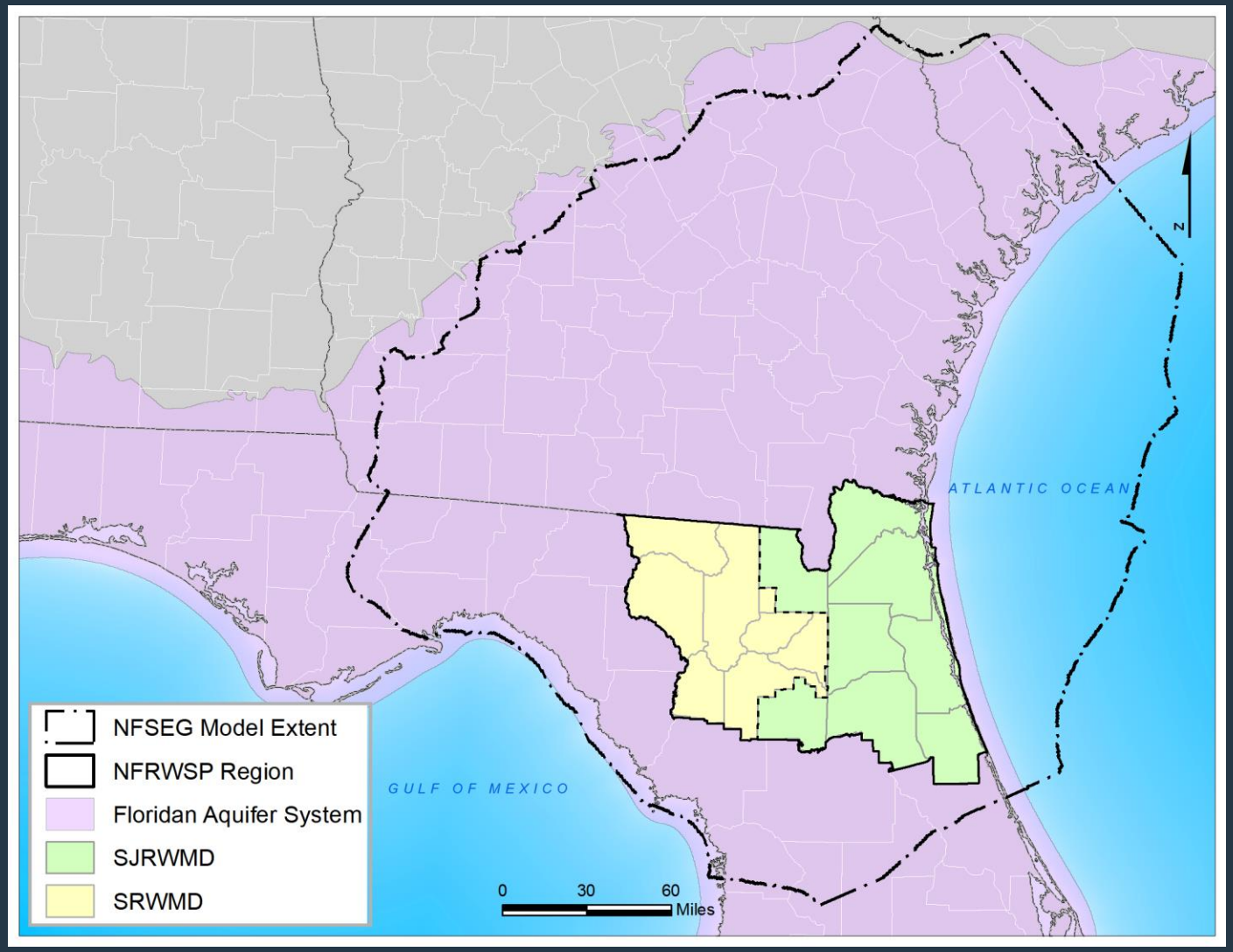


Little River Spring

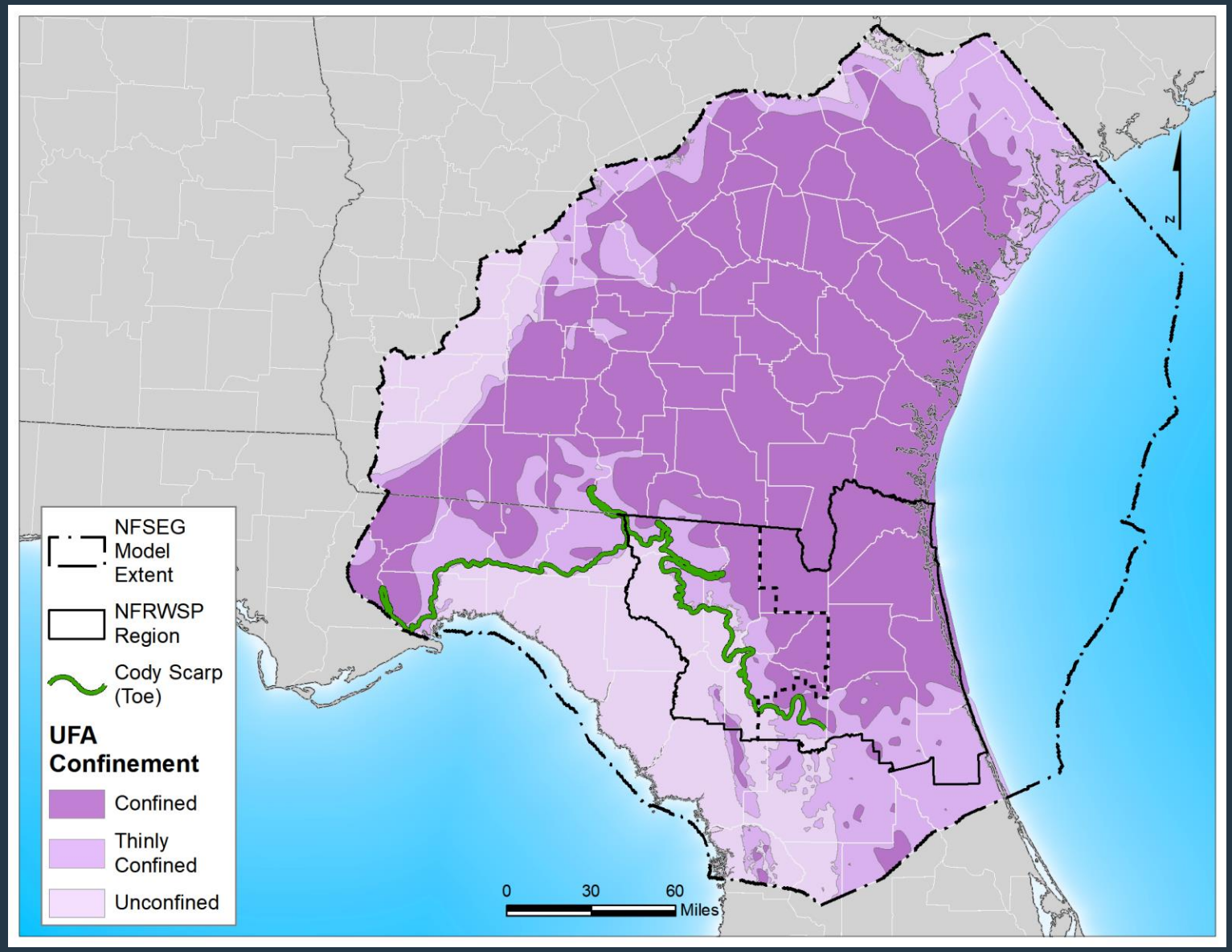
NFSEG Groundwater Flow Model Overview

- North Florida-Southeast Georgia Model (NFSEG), v 1.1

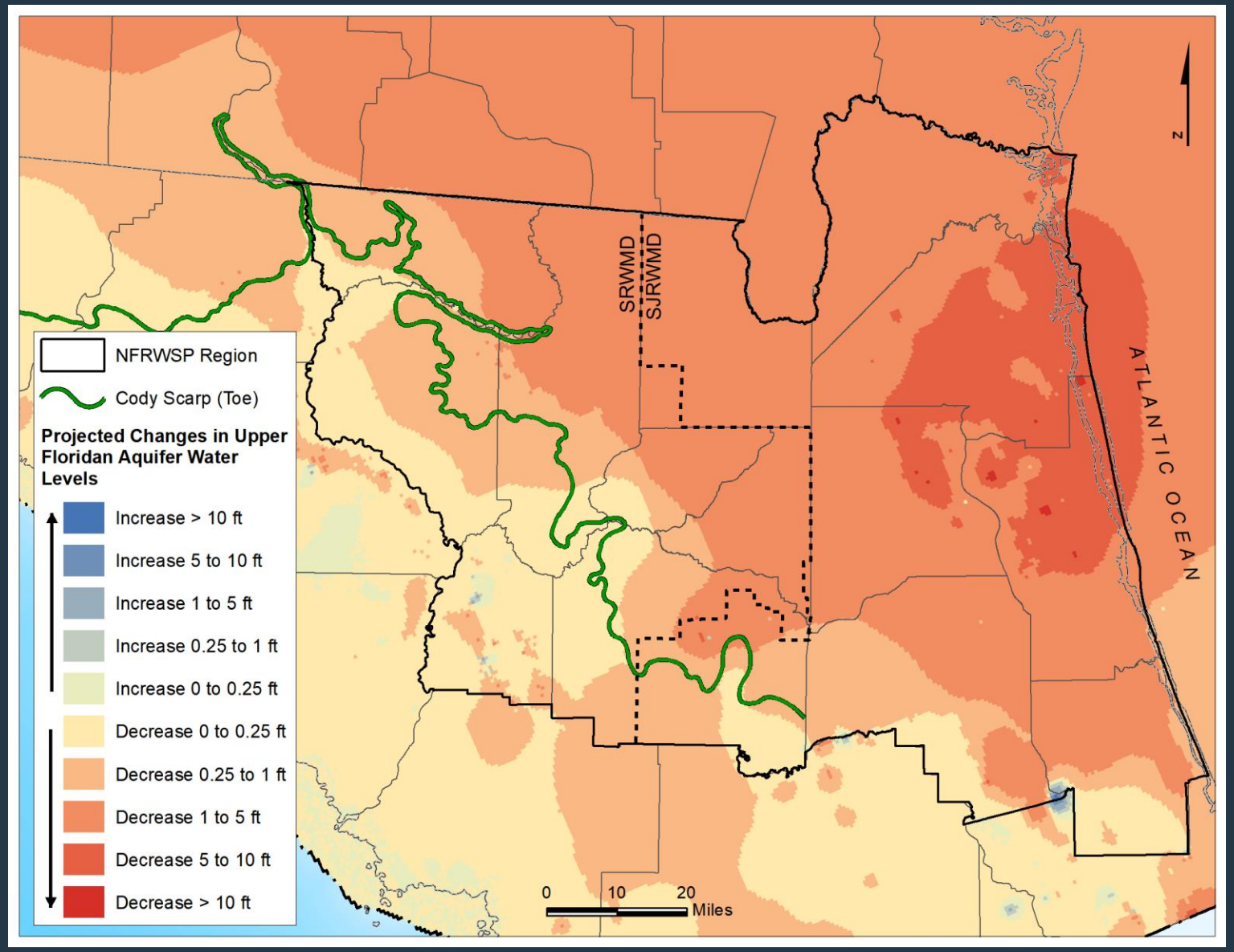
- Model Scenarios
  - Pumps off (PO)
  - Current pumping (CP) – 2014-2018 average groundwater use
  - 2045 projected groundwater demand



NFSEG Groundwater Flow Model



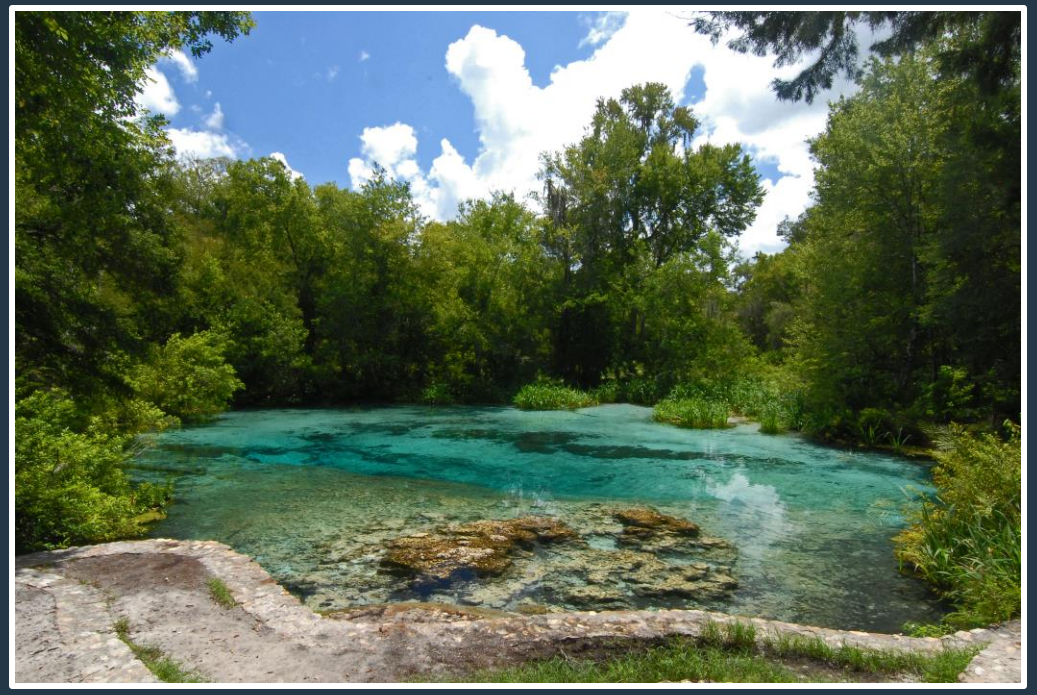
Current Pumping to 2045 – UFA (Layer 3)



Minimum Flows and Minimum Water Levels (MFLs)

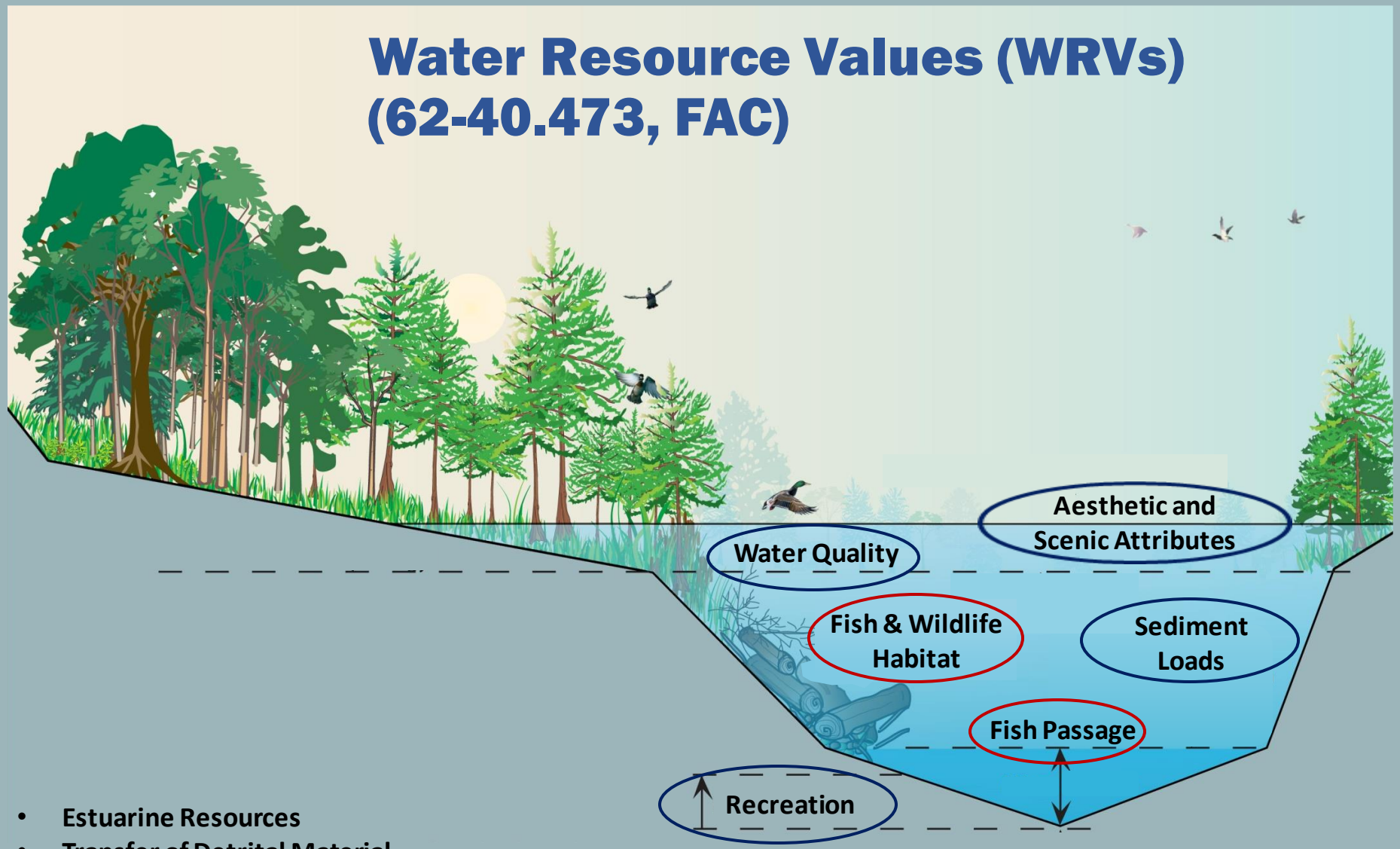
- MFLs are required and defined by Florida Statutes in Section 373.042:

- Minimum flows and minimum water levels are "the limit at which further withdrawals would be significantly harmful to the water resources or ecology of the area"



Ichetucknee Head Spring

Water Resource Values (WRVs) (62-40.473, FAC)



- Estuarine Resources
- Transfer of Detrital Material
- Maintenance of Freshwater Storage and Supply
- Filtration/Absorption of Nutrients and other Pollutants
- Navigation

- Boating
- Paddling

A conceptual illustration, not to scale

MFL Status Assessment

- MFL is not met → Recovery Strategy needed
- MFL met, expected to fall below MFL during the next 20 years → Prevention Strategy needed
- MFL met, expected to be met for next 20 years → No Recovery or Prevention Strategy needed

Ongoing MFL Work in the Planning Region

- Major initiatives include:
  - Re-evaluation of the Lower Santa Fe and Ichetucknee Rivers and associated priority springs (LSFI)
  - Upper and Middle Suwannee River Gages
  - Middle Suwannee River Outstanding Florida Springs (OFS) Re-evaluation
  - Upper and Middle Suwannee Priority Springs

Minimum Flows and Minimum Levels (MFLs)

- MFL water bodies with adopted recovery strategy:
  - Status is incorporated from the strategy
    - Brooklyn and Geneva Recovery Strategy
    - Lower Santa Fe and Ichetucknee (LSFI) Recovery Strategy
  - Need for additional projects

- For other MFL water bodies:
  - Flows/levels extracted from NFSEG model runs for pumps off, CP and 2045 projection

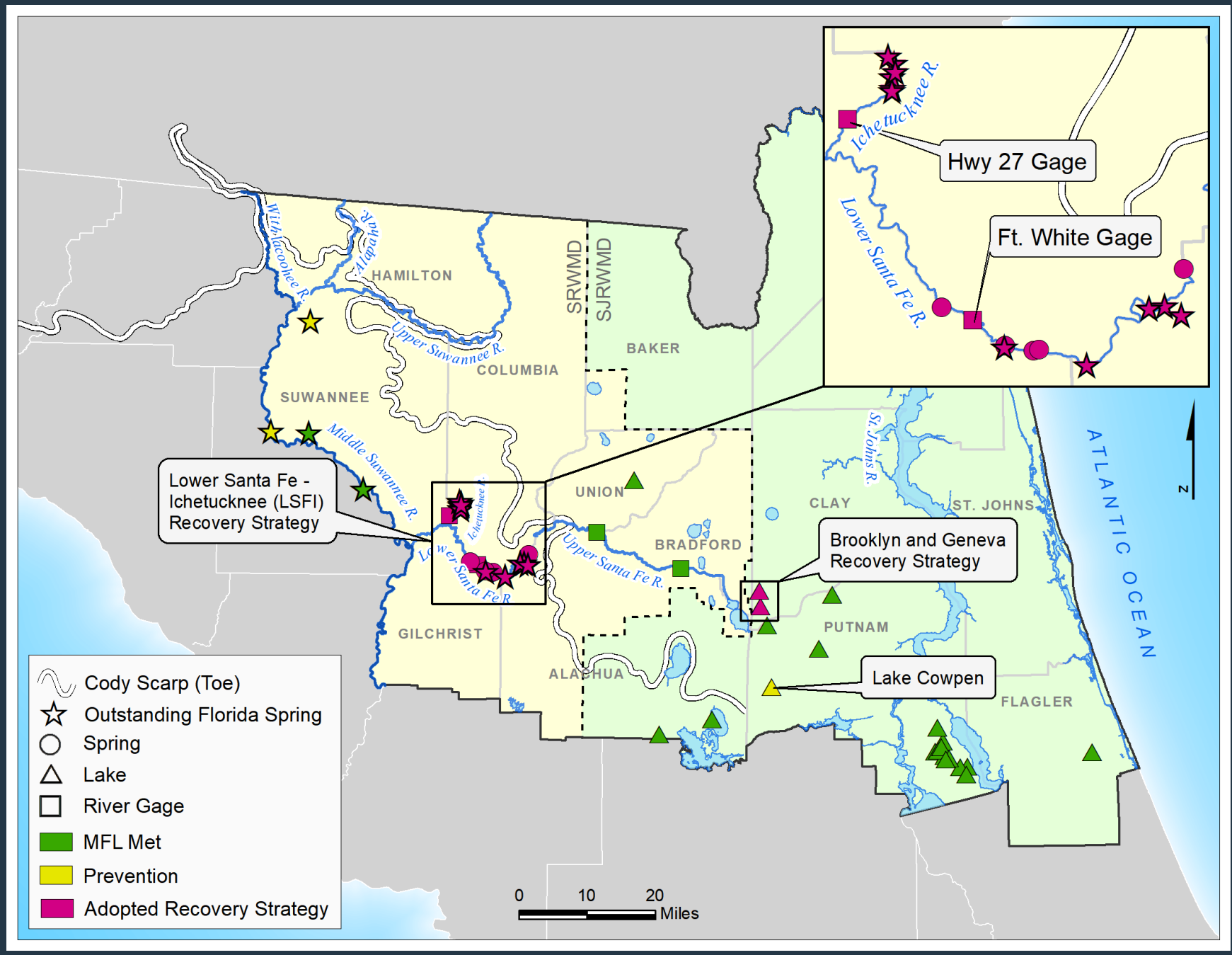
Minimum Flows and Minimum Levels (MFLs)

- Suwannee River WMD
  - Percent change was calculated from pumps off to CP and pumps off to 2045 projection
  - Percentages were compared to the reference criteria to determine current and future status

- St Johns River WMD
  - Lake MFLs status under the CP condition was used to determine current status
  - Drawdown values from CP to 2045 projection was used to determine future status

Status Assessment for Adopted MFLs

Assessed MFL water bodies = 45



Water Bodies Without Adopted MFLs

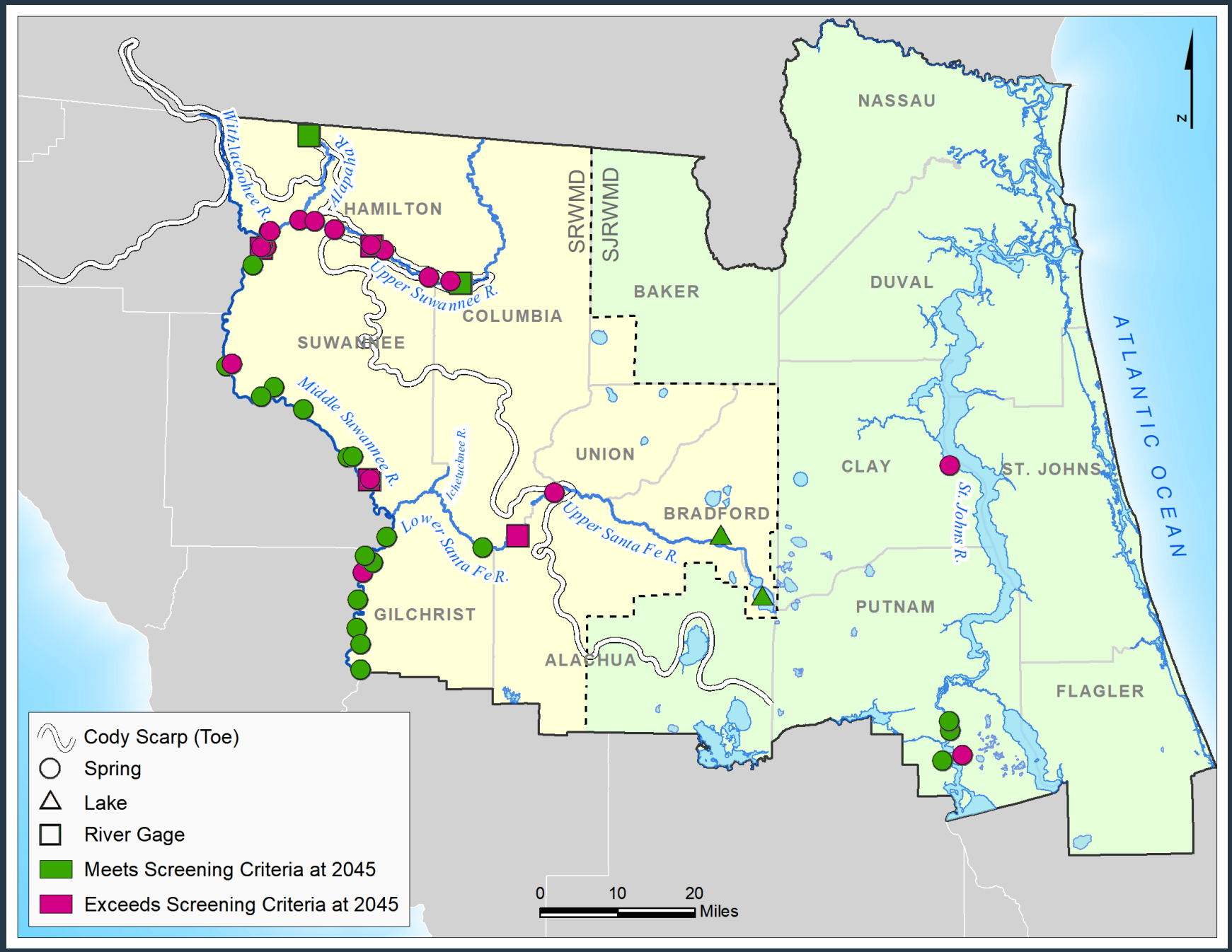
- Flows and levels were extracted from NFSEG model runs for pumps off and 2045 projection

Water Bodies Without Adopted MFLs

- For flowing systems
  - Percent change was calculated for pumps off to 2045 projection
  - 10% change in simulated groundwater flow was used as a reference criterion
- For lakes:
  - Projected change in aquifer level from the pumps off condition to 2045 projection was calculated
  - Change in aquifer level was used to evaluate lakes based on lake-specific criteria

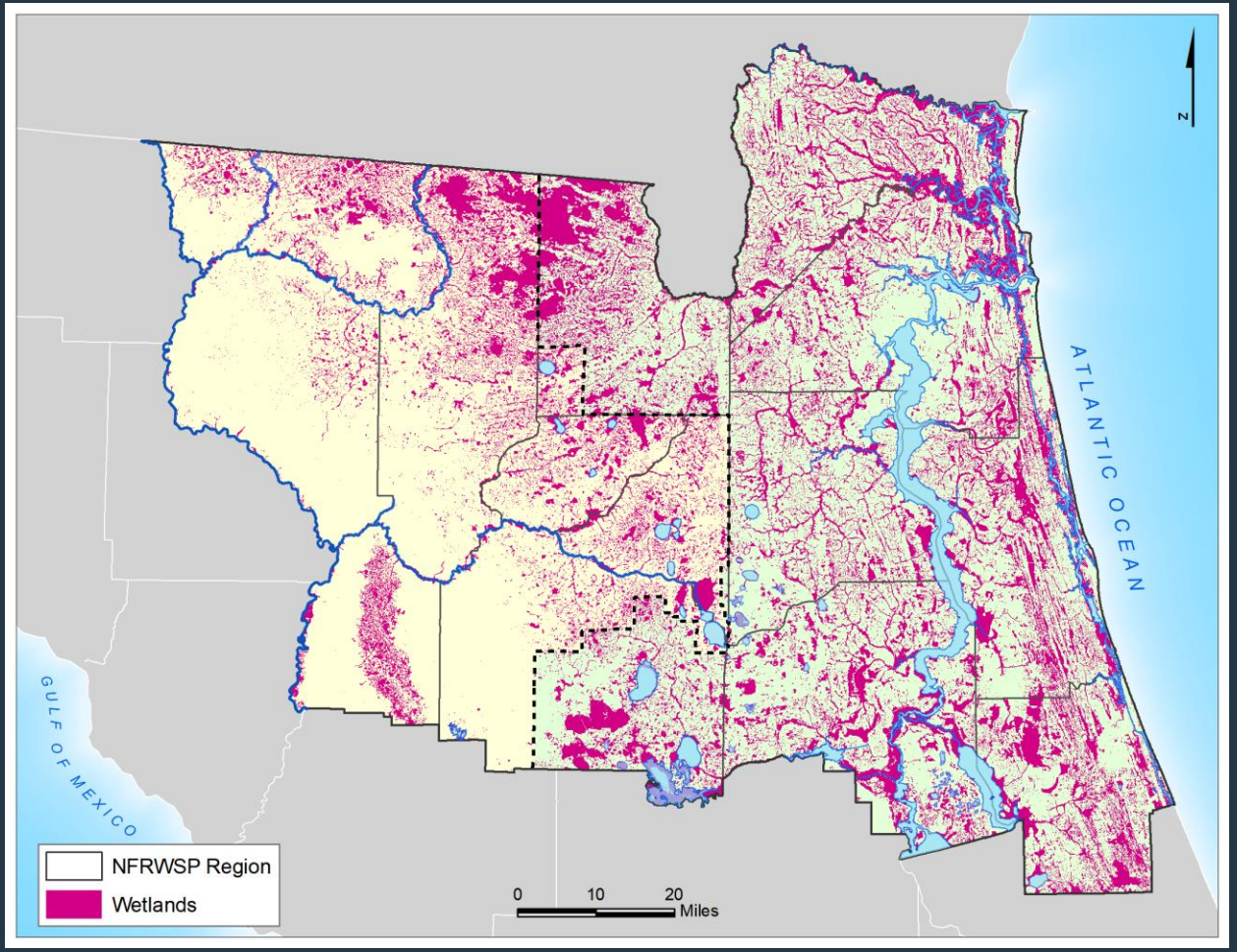
Assessment of Water Bodies Without Adopted MFLs

Water bodies assessed = 44



Wetland Assessment

- Wetlands play an important role in North Florida
- Partnership area has over 100,000 acres of wetlands
- Planning process will assess the potential adverse change to wetlands that occur if future demands are met with groundwater



Wetland Assessment

- Components that may be considered when evaluating wetlands:
  - Depth to water table
  - Distribution of sensitive vegetation
  - Soil type
  - Aquifer confinement
  - Projected future water demands
  - Simulated drawdown in the surficial aquifer

Chloride Concentration Assessments

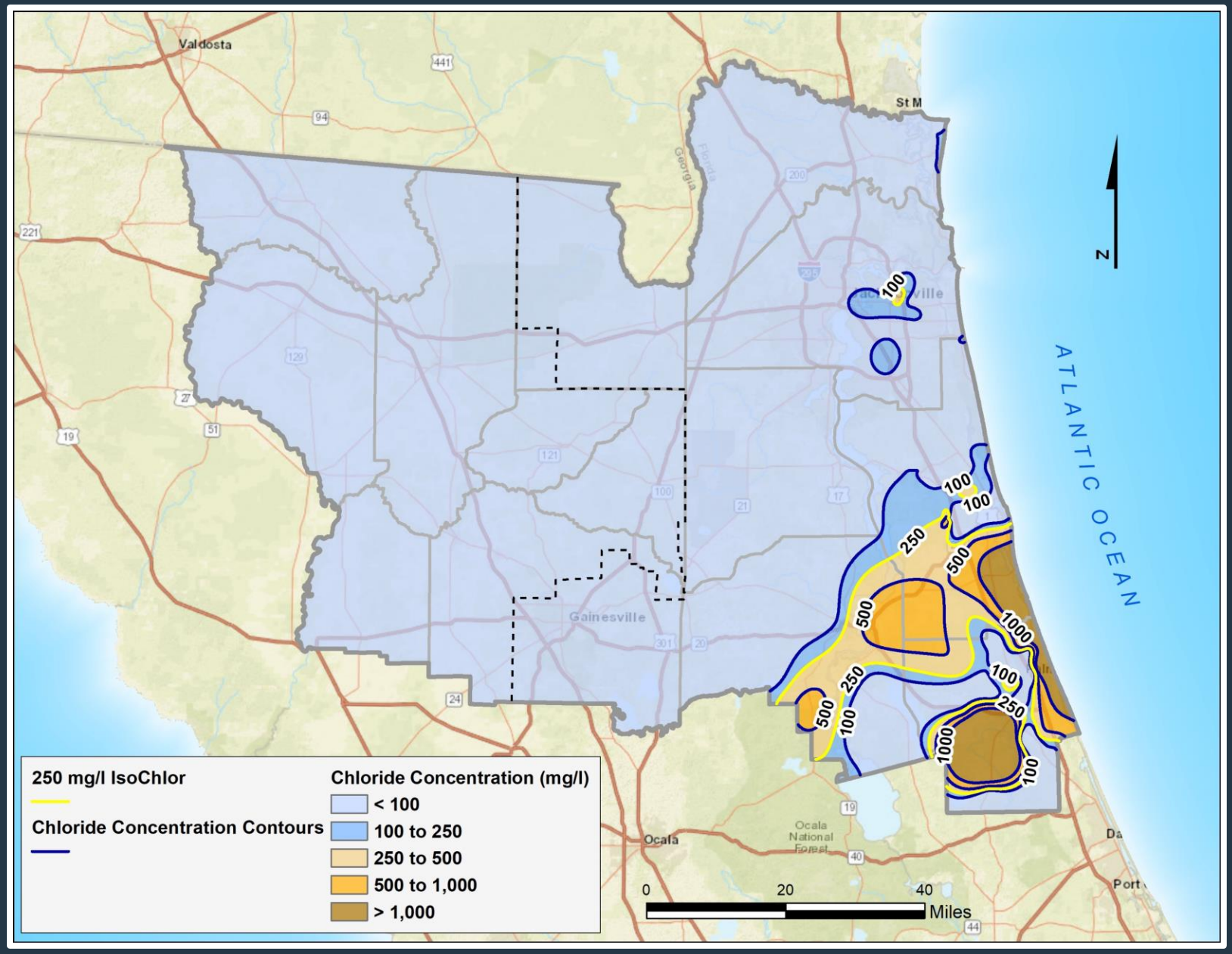
- Chloride Concentration Map of the Upper Floridan Aquifer
- Movement of the 250 mg/L Isochlor in the Upper Floridan Aquifer
- Production Well Water Quality Assessment

Chloride Concentration Map of the Upper Floridan Aquifer

- Water quality data from wells in the SJRWMD and SRWMD District Monitoring Network and Consumptive Use Permit wells were used to create a regional representation of chloride concentrations in the Upper Floridan Aquifer.

- The map represents the average chloride concentration in the Upper Floridan Aquifer from 2016 to 2020.

2016-2020AVG Chloride Concentrations in Upper Floridan Aquifer

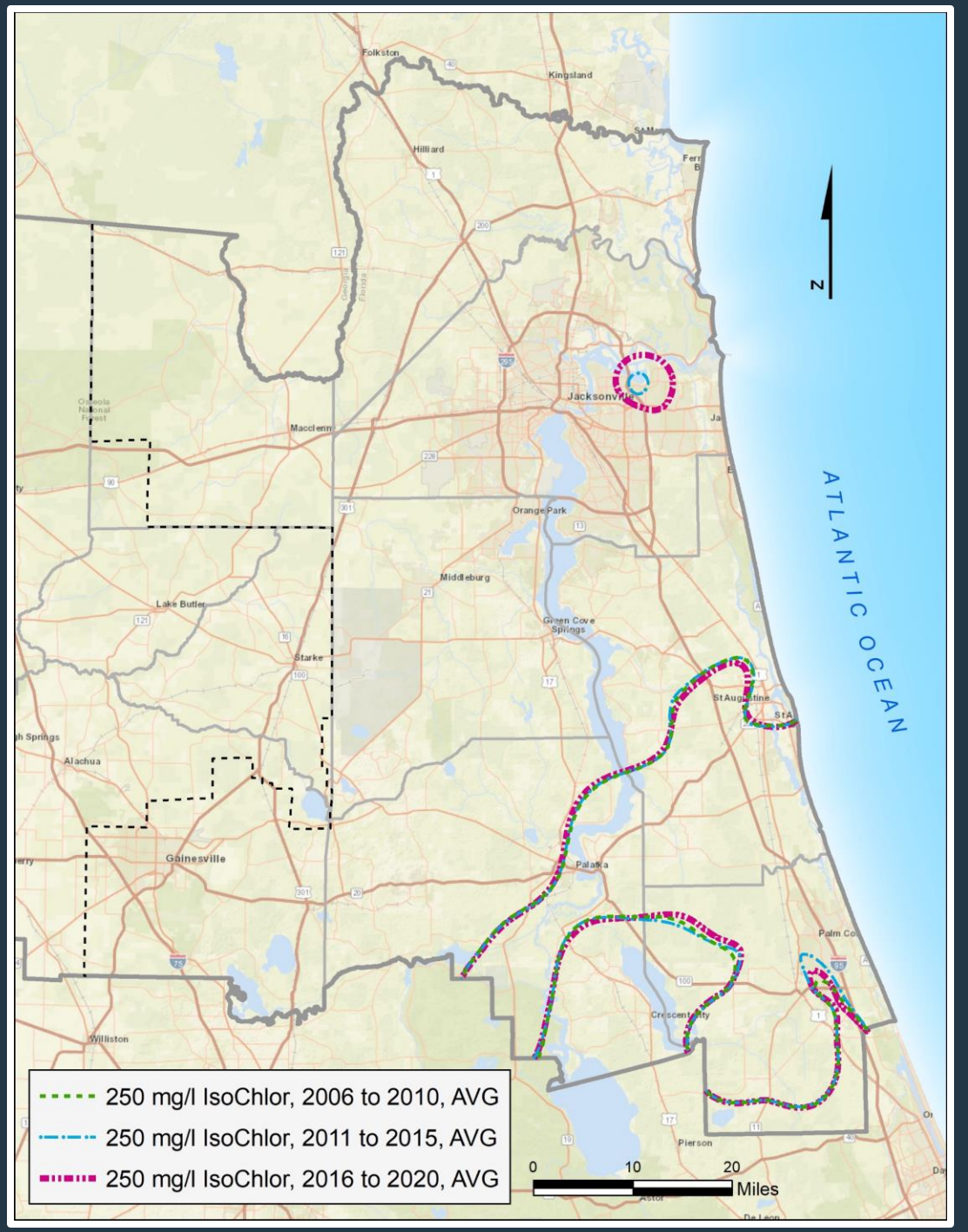


Movement of the 250 mg/L Isochlor in the Upper Floridan Aquifer

- Water quality was used to create a series of Upper Floridan Aquifer chloride concentration maps over the previous 15 years.

- These maps were used to represent the movement of the 250 mg/L average chloride concentration line in the Upper Floridan Aquifer from 2006-2010AVG to 2016-2020AVG.

Movement of the 250 mg/L Isochlor from 2006 to 2020



SJRWMD CUP Production Well Water Quality Assessment

- Water quality data from 17 Consumptive Use Permit wells were assessed for statistically significant trends in chloride concentrations.

- Time-series graphs of chloride concentrations and pumping data were created over the period of record of available data.

CUP Production Well Water Quality

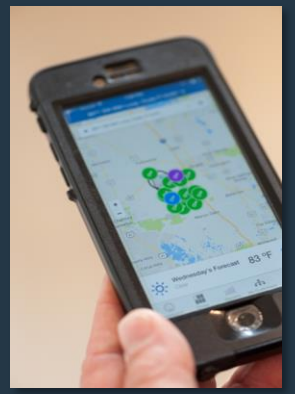
- 5 wells increasing trend
- 1 well decreasing trend
- 11 wells stable (no trend)

Water Resource Evaluation Results

- There are springs, rivers and lakes that are currently not meeting or projected to not meet their MFLs
- There are wells with increasing chloride trends and areas of elevated chloride concentrations
- Wetland acreage will be evaluated for future potential adverse changes
- Planning region cannot rely solely on traditional groundwater supplies to meet current and future water demands
- Planning process will need to include development of alternative water supplies, evaluation of aquifer recharge, and investment in conservation

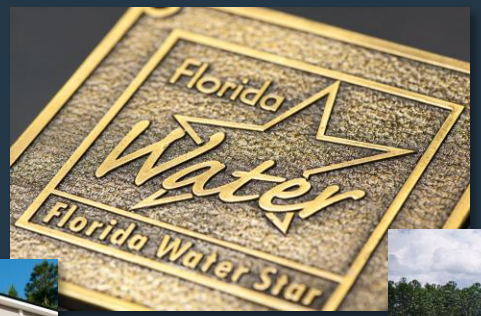
Opportunities and Solutions

- Project development and collaboration
  - Water conservation
  - Recharge
  - Alternative water supply
    - Surface water
    - Stormwater harvesting
    - Reuse



Next Steps

- Post constraint documentation to NFRWSP website: December 2022
- Written comments due: January 31, 2023
- Project solicitation letter mail-out: early January 2023
- Begin outreach: Winter 2022/2023



Draft Regional Water Supply Plan Timeline

Activity	Fall 2022	Winter 2023	Spring 2023	Summer 2023	Fall 2023
Constraints Public Comment					
Project Solicitation					
Draft Plan Development					
Stakeholder Input on Draft Plan					
Finalize Water Supply Plan					
Implement Water Supply Plan					

Activity Name	Link	Contact
Lower Santa Fe and Ichetucknee Status	Lower Santa Fe and Ichetucknee Rivers and Springs | Suwannee River Water Management District (mysuwanneeriver.com)	mfl@srwmd.com
Lower Santa Fe and Ichetucknee Rulemaking	Water Policy Rulemaking | Florida Department of Environmental Protection	OWP_rulemaking@floridadep.gov
Lower Santa Fe and Ichetucknee Project Development	Conceptual Projects | Suwannee River Water Management District (mysuwanneeriver.com)	Projects@srwmd.org
Suwannee River Gage MFL Peer Review	Minimum Flows and Minimum Water Levels | Suwannee River Water Management District (mysuwanneeriver.com)	mfl@srwmd.com
Suwannee River Gage MFL Status	Minimum Flows and Minimum Water Levels | Suwannee River Water Management District (mysuwanneeriver.com)	mfl@srwmd.com
Middle Suwannee Outstanding Florida Springs Technical Work	Minimum Flows and Minimum Water Levels | Suwannee River Water Management District (mysuwanneeriver.com)	mfl@srwmd.com
Western Water Supply Plan	Water Supply Assessment & Plan | Suwannee River Water Management District (mysuwanneeriver.com)	westernplan@srwmd.com

2023 North Florida Regional Water Supply Plan Constraint Assessment Public Workshop

Please email the North Florida Partnership

partnership@sjrwmd.com

with any comments no later than **January 31, 2023**

For additional NFRWSP information, go to

https://www.northfloridawater.com/