Water Supply Assessment

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Department of Resource Management
St. Johns River Water Management District

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Water Supply Assessment

Statutory Requirements

- Existing and projected water use (through 2030)
- Existing and proposed sources of water and conservation efforts
- Identify areas where projected uses cannot be sustained with proposed sources without unacceptable impacts to water resources and related natural systems – ***priority water resource caution areas (PWRCAs)***

Regional Water Supply Planning Requirements

Chapter 373, *Florida Statutes*

- 20-year planning horizon (2030)
- Public process
- Coordination with water supply entities, local governments and other affected parties
- Identifies:
  - Water supply development projects adequate to meet projected water supply needs
  - Water resource development projects
  - Sources of project funding

Water Supply Planning History

- 1997 legislation requiring water supply planning
- **1998 Water Supply Assessment**
- 2000 District Water Supply Plan
- **2003 Water Supply Assessment**
- 2005 District Water Supply Plan
- **2008 Water Supply Assessment**
- 2010 District Water Supply Plan

Priority Water Resource Caution Areas
1998 and 2003

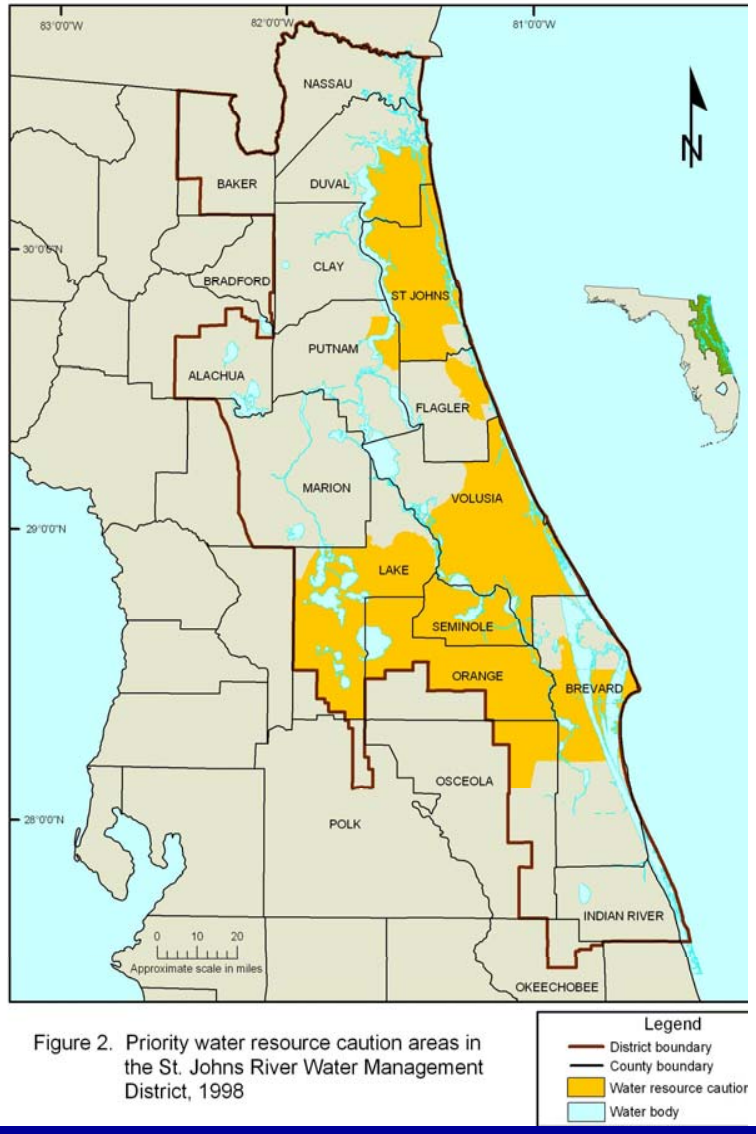


Figure 2. Priority water resource caution areas in the St. Johns River Water Management District, 1998

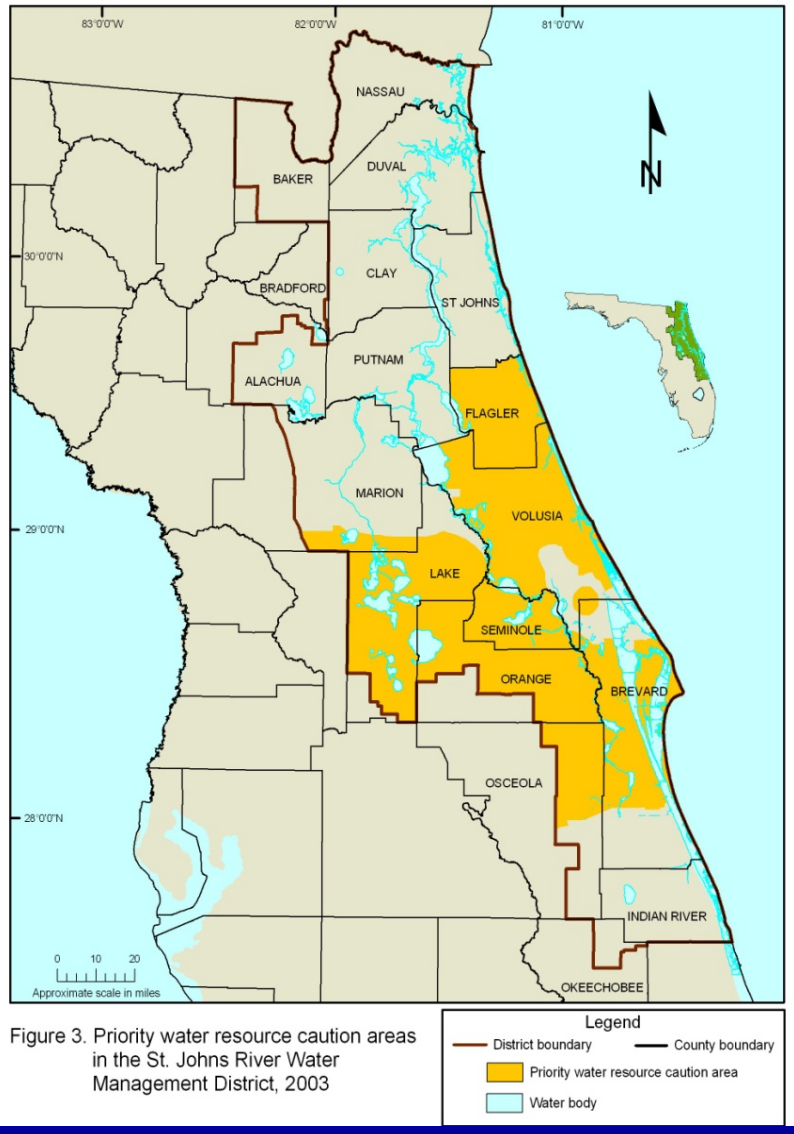
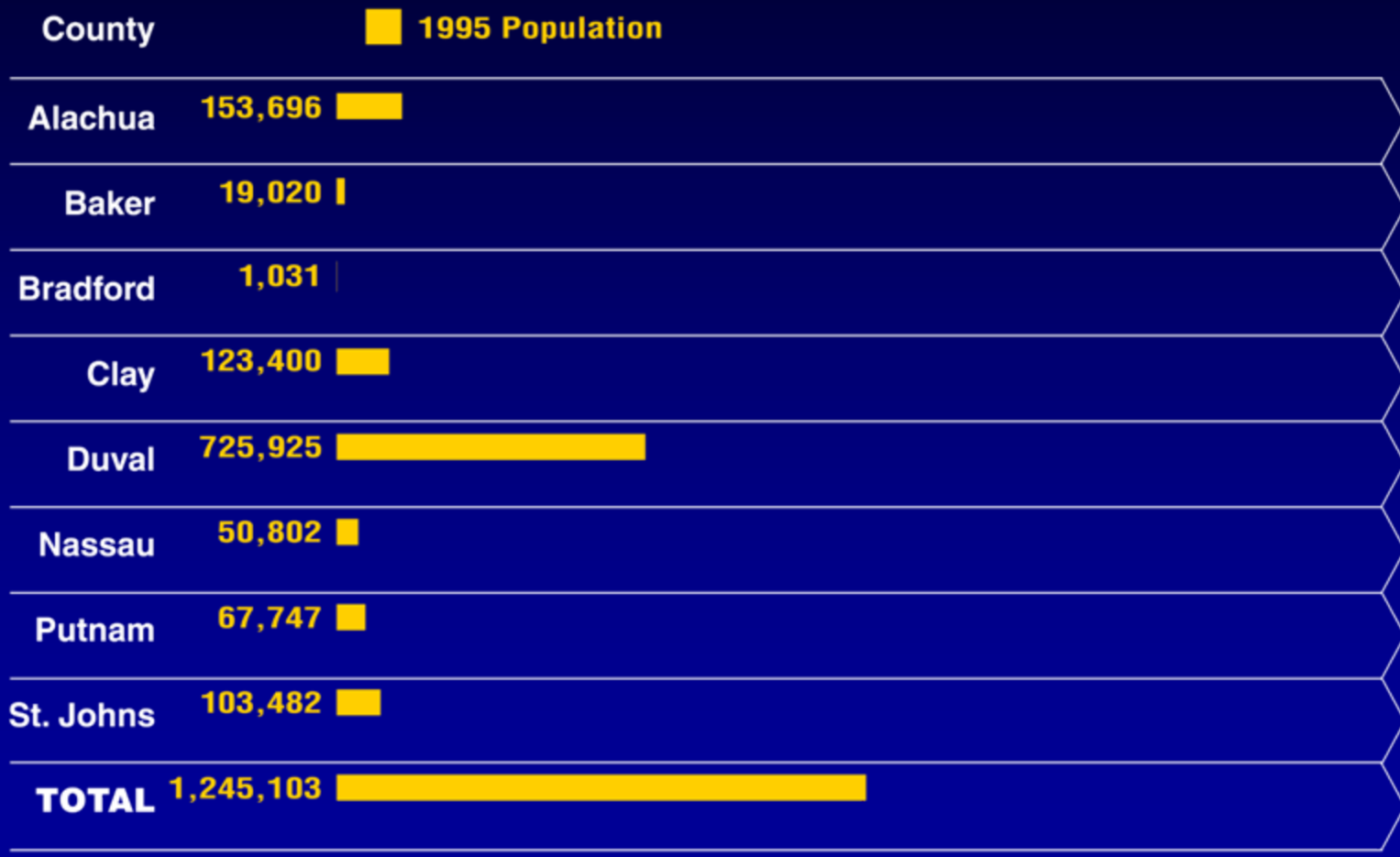


Figure 3. Priority water resource caution areas in the St. Johns River Water Management District, 2003

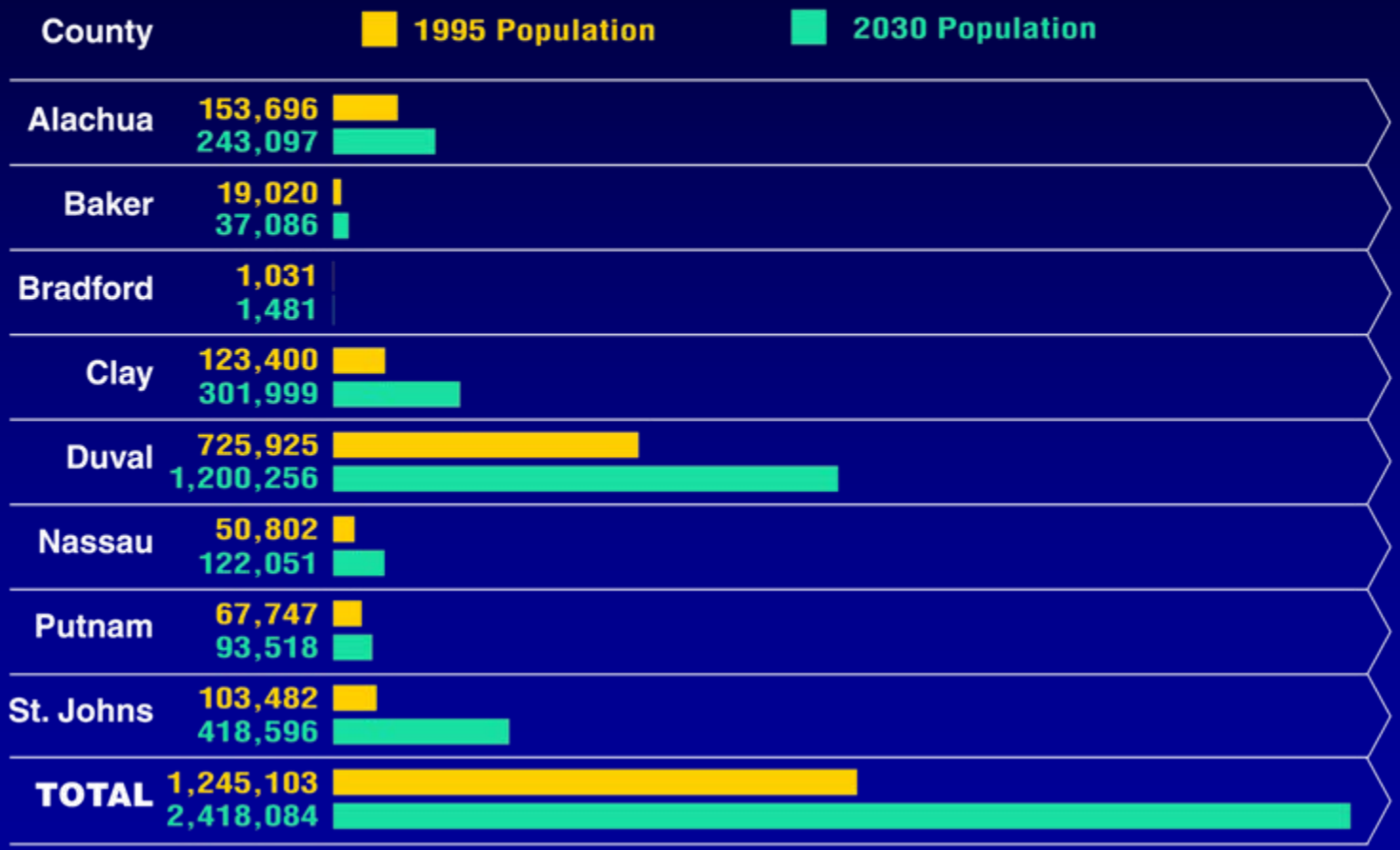
WSA 2008 Tools

- **Water use data (1995-2030)**
- **Groundwater flow models**
- **Water resource constraints**

Northeast Florida Population in SJRWMD



Northeast Florida Population in SJRWMD



Northeast Florida Population in SJRWMD

County	1995 Population	2030 Population	% Change
Alachua	153,696	243,097	58
Baker	19,020	37,086	95
Bradford	1,031	1,481	44
Clay	123,400	301,999	145
Duval	725,925	1,200,256	65
Nassau	50,802	122,051	140
Putnam	67,747	93,518	38
St. Johns	103,482	418,596	305
TOTAL	1,245,103	2,418,084	94

Northeast Florida
Total Water Use in SJRWMD

County	1995 Water Use (mgd)	2030 Water Use (mgd)	Percent Change 1995–2030
Alachua	30.59	43.65	43
Baker	4.67	9.25	98
Bradford	0.42	0.49	17
Clay	27.48	60.89	122
Duval	162.04	238.44	47
Nassau	44.28	70.26	59
Putnam	83.15	54.77	-34
St. Johns	53.98	80.27	49
TOTAL	*406.61*	*558.02*	*37*

Extent of the Floridan Aquifer system

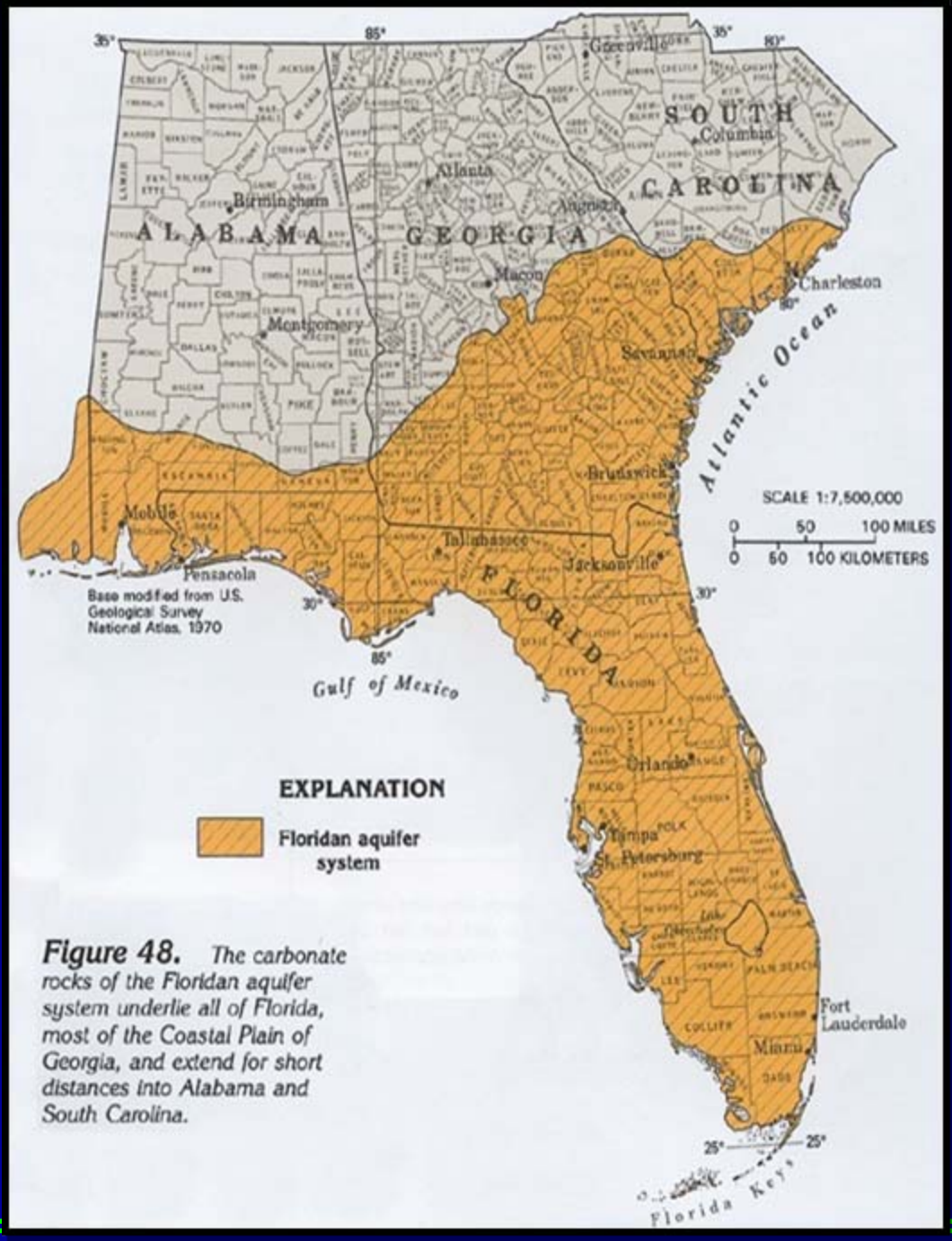
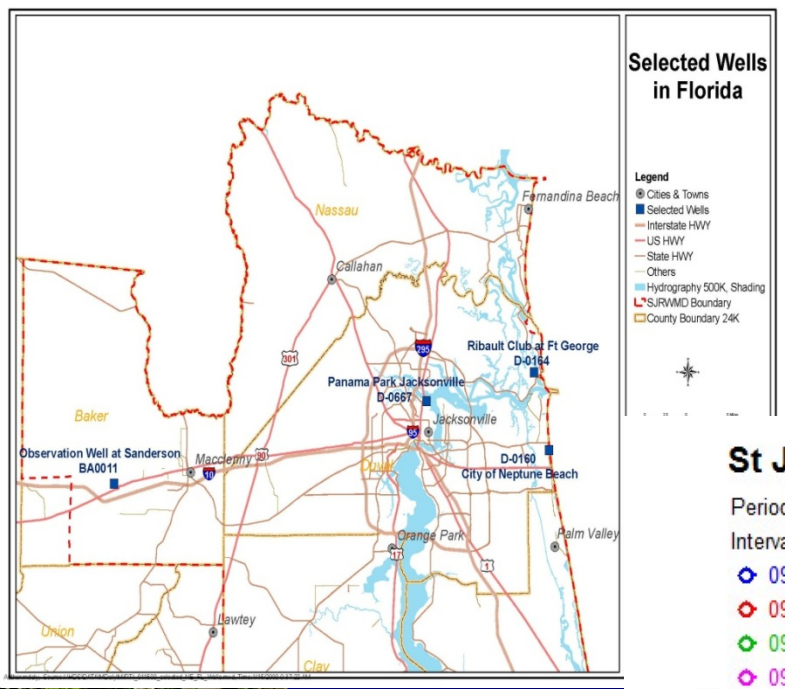
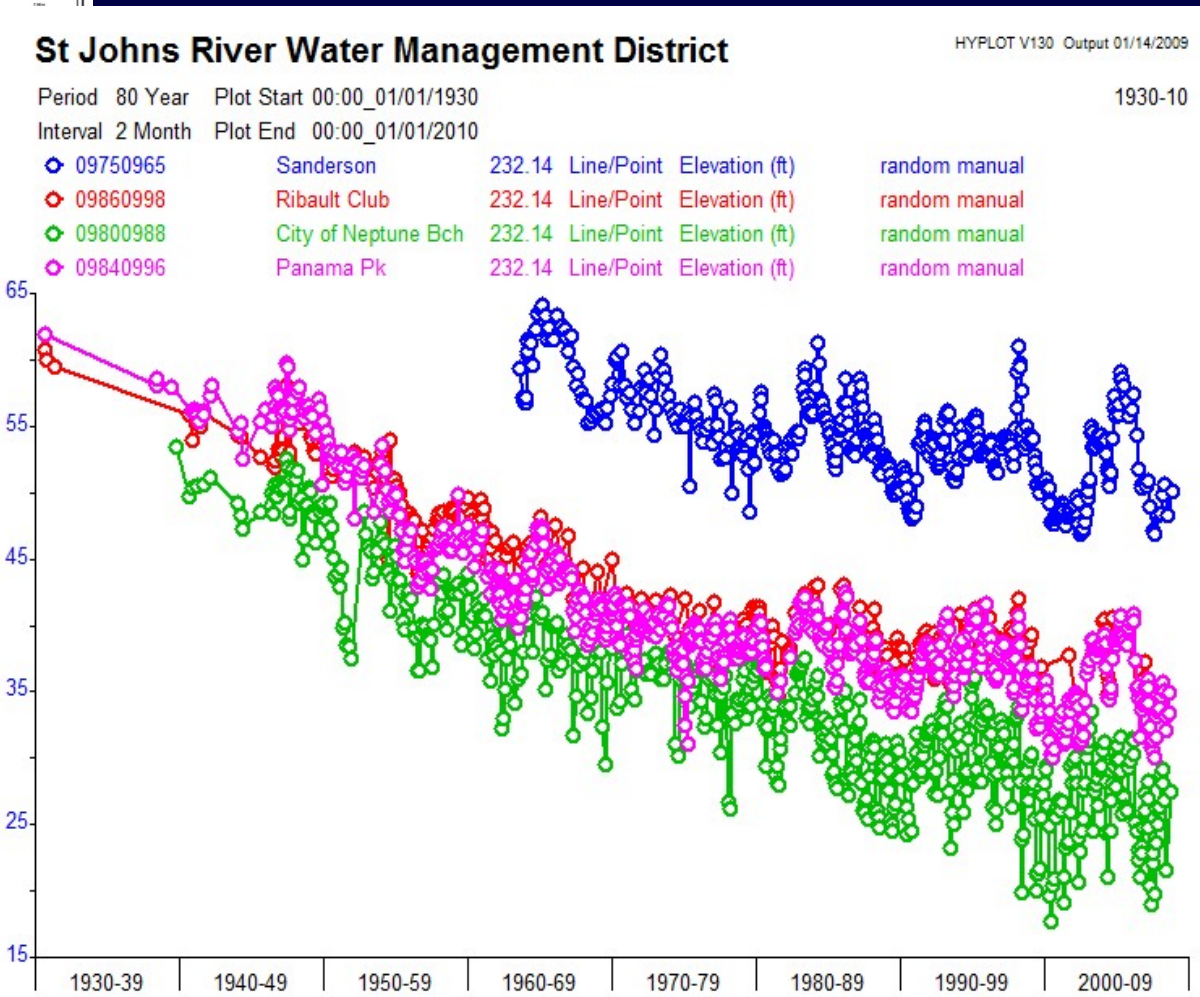


Figure 48. *The carbonate rocks of the Floridan aquifer system underlie all of Florida, most of the Coastal Plain of Georgia, and extend for short distances into Alabama and South Carolina.*

Trends in Aquifer Levels in NE Florida





Projected changes in the elevation of the potentiometric surface of the Floridan aquifer system

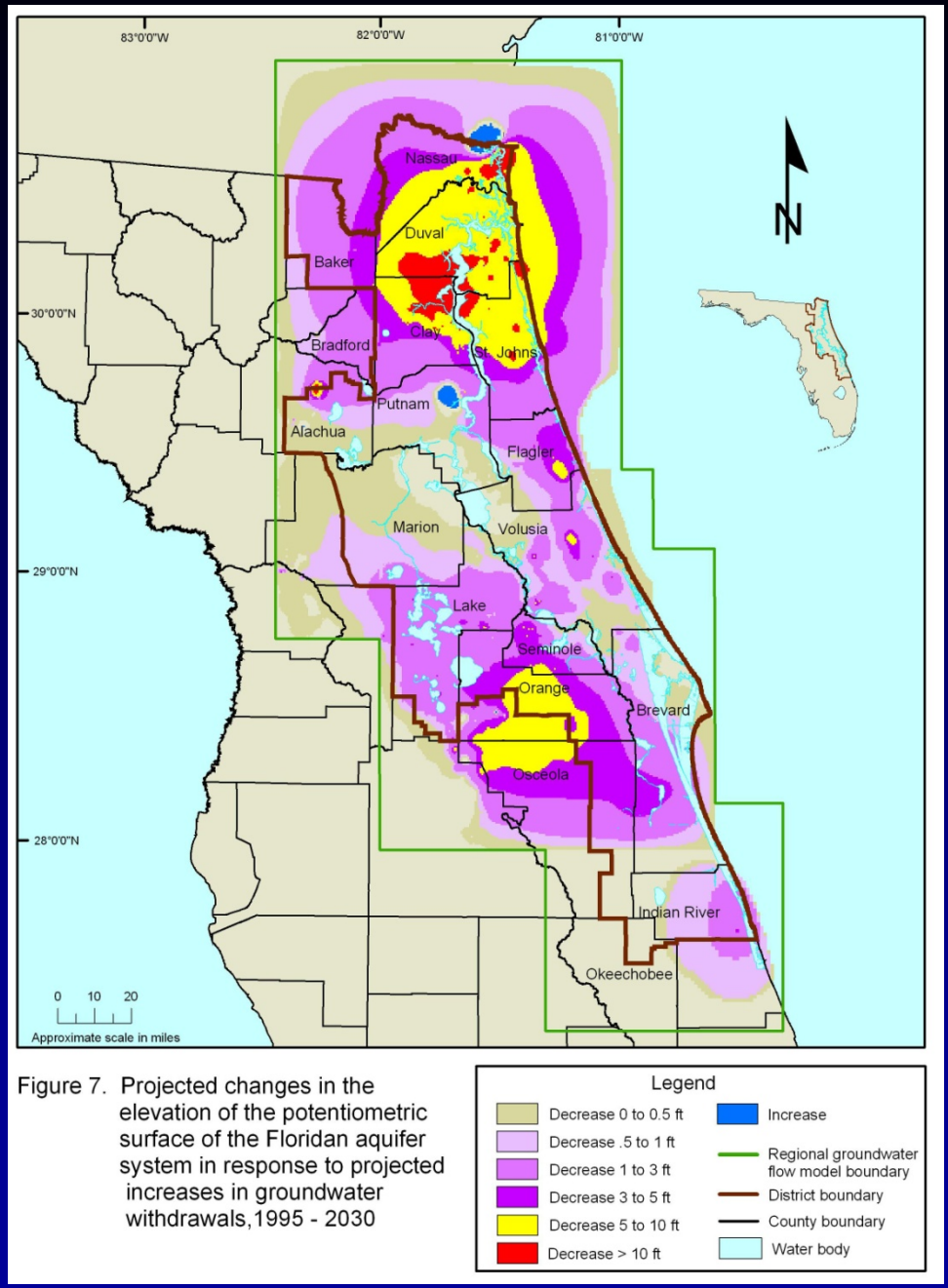


Figure 7. Projected changes in the elevation of the potentiometric surface of the Floridan aquifer system in response to projected increases in groundwater withdrawals,1995 - 2030

Projected changes in surficial aquifer system water levels

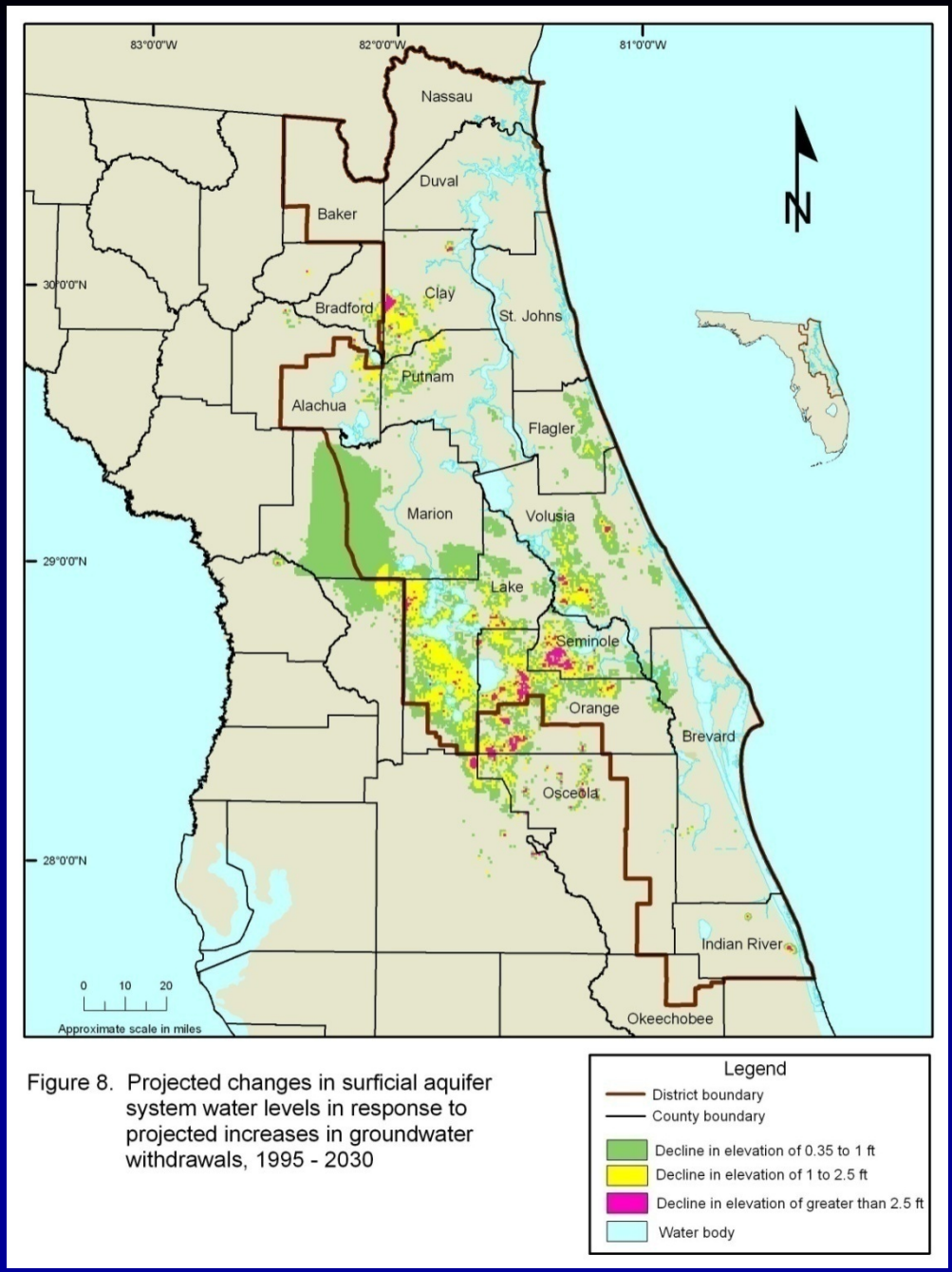
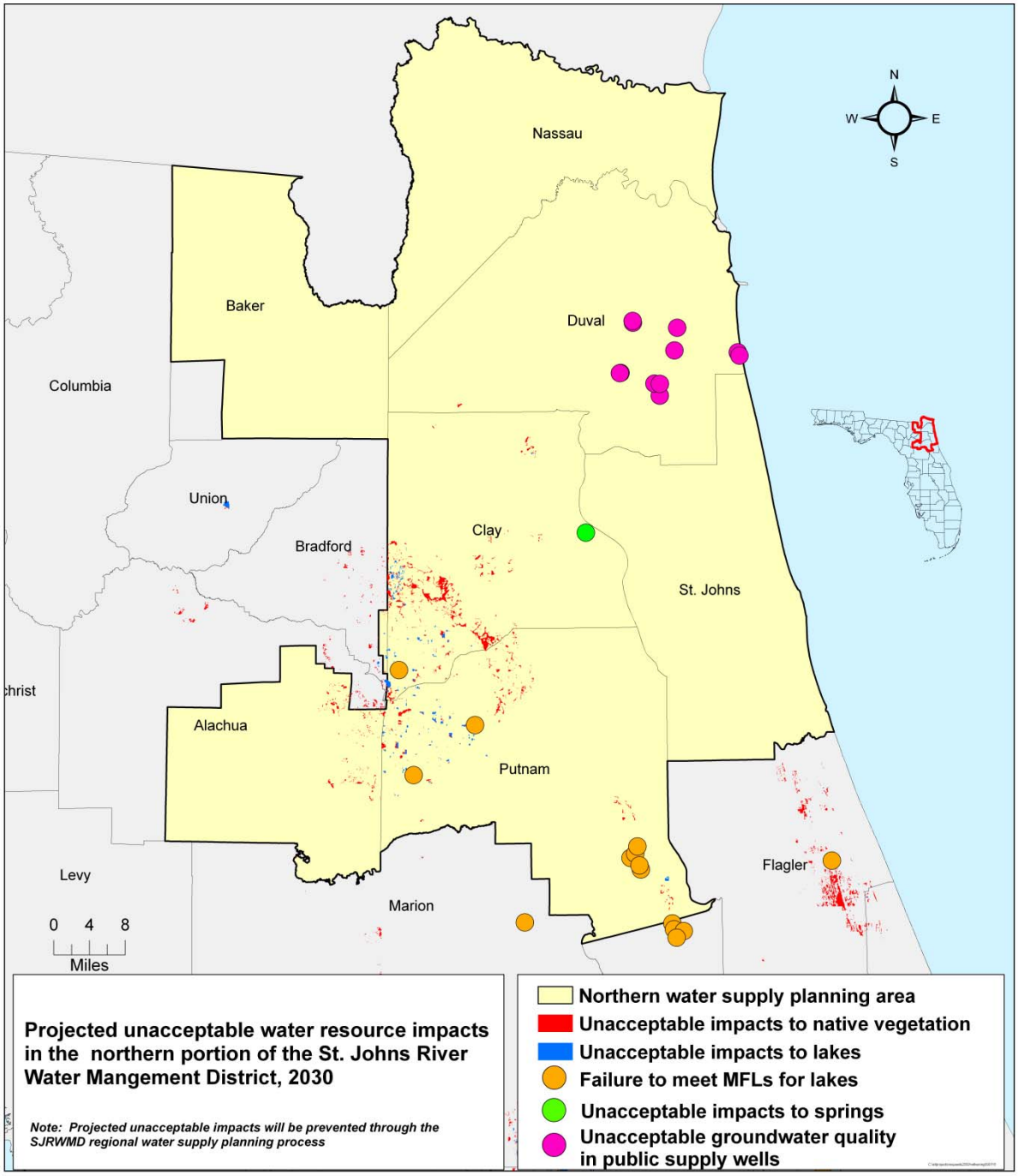


Figure 8. Projected changes in surficial aquifer system water levels in response to projected increases in groundwater withdrawals, 1995 - 2030

Water Resource Constraints

Identify limits of water level change at which unacceptable impacts are likely to occur

- **Natural systems constraints**
  - **Native vegetation (wetlands)**
  - **Lakes**
  - **Springs**
  - **Minimum flows and levels (MFLs)**
- **Groundwater quality constraint**
  - **Saltwater intrusion**


N
W
E
S
Nassau
Baker
Duval
Columbia
Union
Bradford
Clay
St. Johns
Alachua
Putnam
Levy
Marion
Flagler
0 4 8
Miles
Projected unacceptable water resource impacts in the northern portion of the St. Johns River Water Mangement District, 2030
Note: Projected unacceptable impacts will be prevented through the SJRWMD regional water supply planning process
Northern water supply planning area
Unacceptable impacts to native vegetation
Unacceptable impacts to lakes
Failure to meet MFLs for lakes
Unacceptable impacts to springs
Unacceptable groundwater quality in public supply wells

Priority Water Resource Caution Areas and Potential Caution Areas

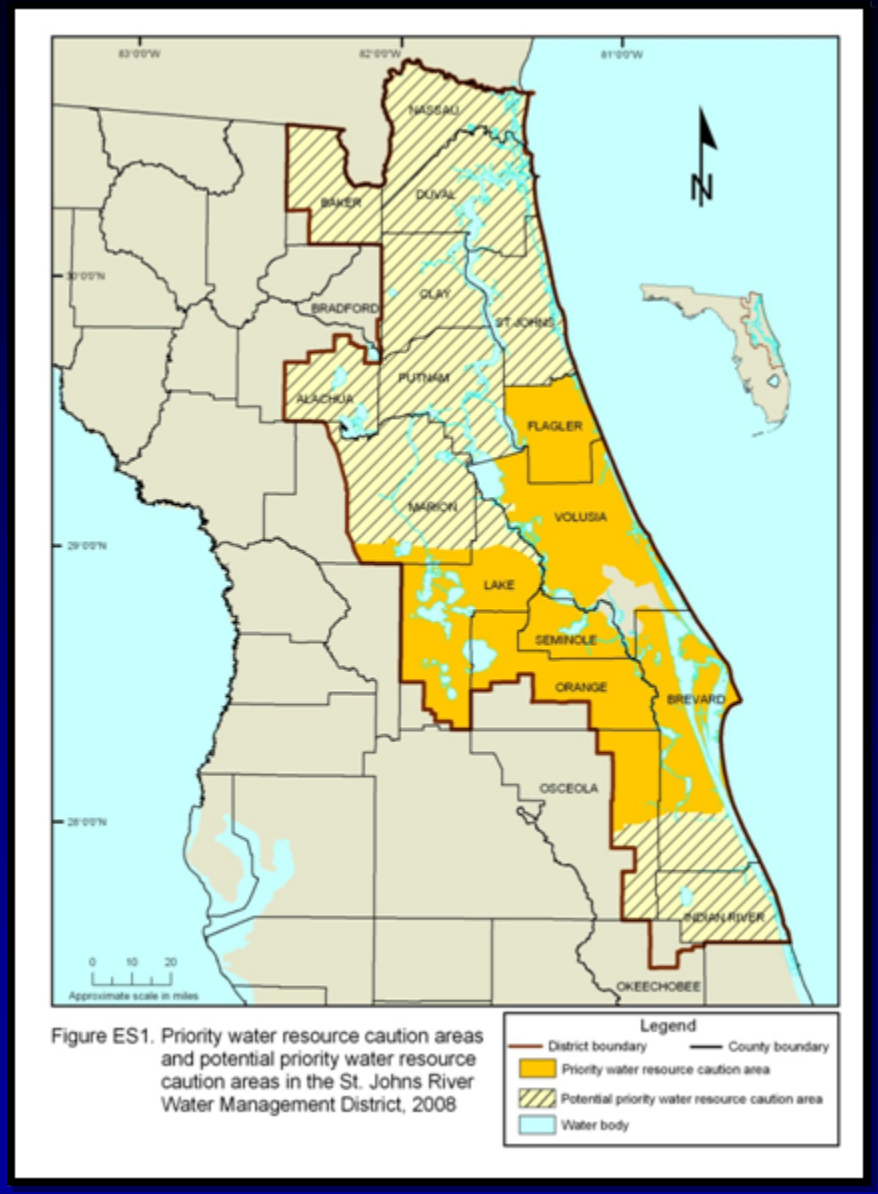


Figure ES1. Priority water resource caution areas and potential priority water resource caution areas in the St. Johns River Water Management District, 2008

Potential Caution Areas

- **Areas that may not be able to meet future water demands without unacceptable impacts to water resources and related natural systems**
- **May be identified as PWRCAs following further evaluation**
- **Will be further evaluated during 2010 water supply planning process**

Planning Areas in SJRWMD

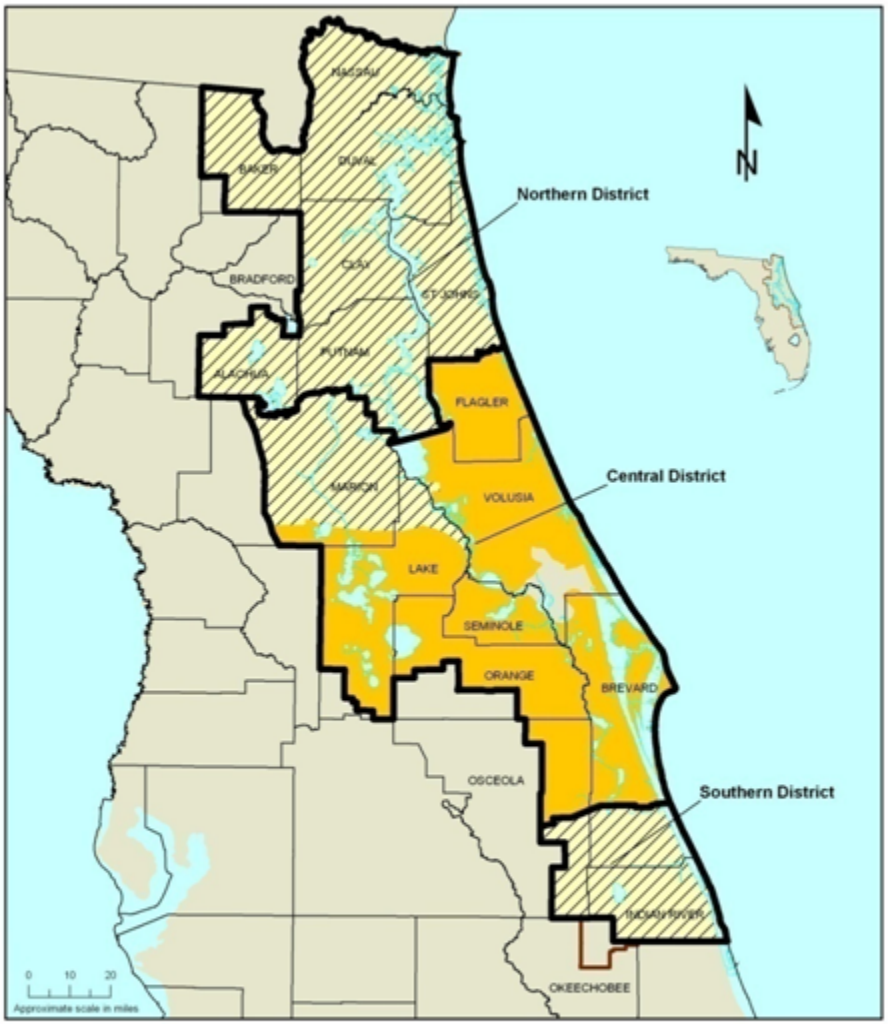


Figure ES2. Water supply planning areas in the St. Johns River Water Management District, 2010

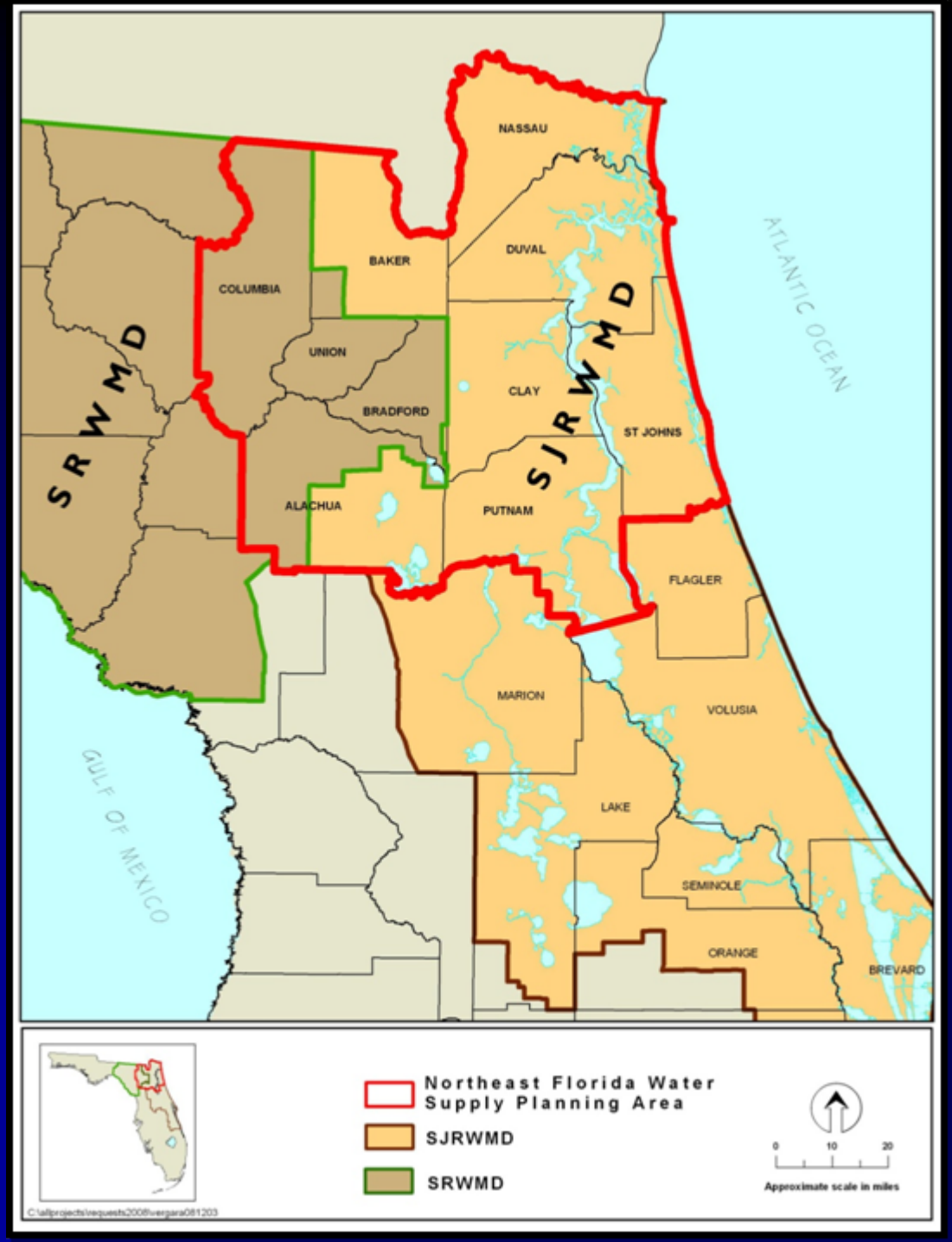
Northeast Florida Water Supply Planning Process

- **Sponsors**
  - **St. Johns River Water Management District**
  - **Suwannee River Water Management District**

Northeast Florida Planning Area

Counties

- **Alachua**
- **Baker**
- **Bradford**
- **Clay**
- **Columbia**
- **Duval**
- **Nassau**
- **Putnam**
- **St. Johns**
- **Union**



Planning Process Objectives

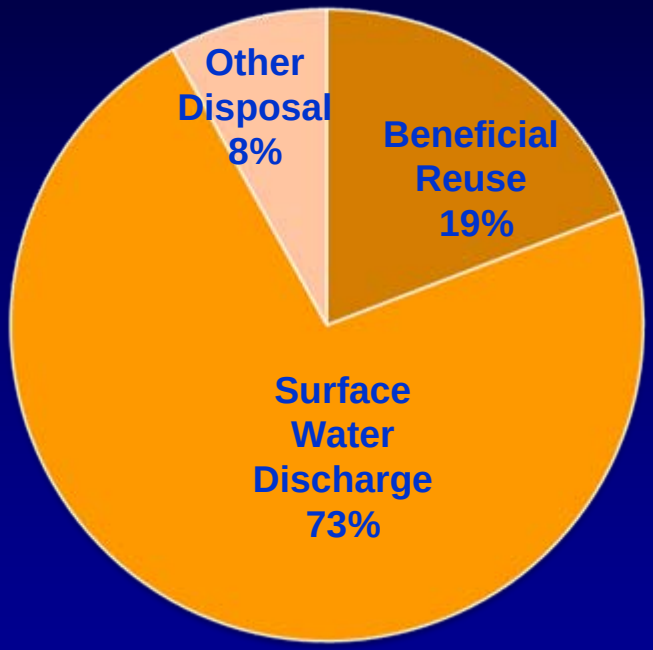
- Review projected water resource impacts
- Finalize priority water resource caution areas (Water Supply Assessment)
- Identify strategies and projects for sustainable 2030 water supplies in Northeast Florida (2010 Water Supply Plan)

Sustainable Water Supplies

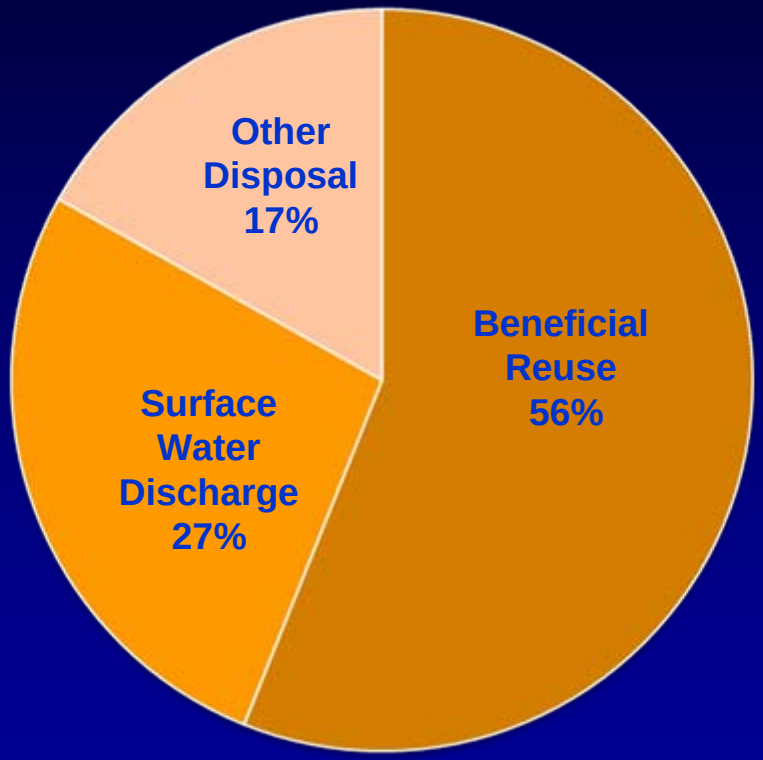
- **Maximize water conservation and reuse of reclaimed water**
- **Diversified set of water sources for 2030**
  - **Use of groundwater limited to sustainable levels**
  - **Other feasible water source project options identified (reclaimed, storm water, surface water, seawater)**
  - **Plan for coordinated use of sources to provide reliable supplies even in drought conditions**

Wastewater Treatment, Reuse, and Disposal by Region, 2006

North SJRWMD (137 mgd)



South SJRWMD (184 mgd)



"Other Disposal" includes spray fields, absorption and infiltration ponds in discharge areas, deep well injection and wetland augmentation.

(Alachua, Baker, Clay, Duval, Flagler, Nassau, Putnam and St. Johns counties)

(Brevard, Indian River, Lake, Marion, Orange, Seminole and Volusia counties)

Planning Process Participants

- **Local governments**
- **Public supply utilities**
- **Multi-jurisdictional entities**
- **Self-suppliers**
- **Other affected/interested parties**

Northeast Florida Planning Area Schedule

- **June 2009–December 2010**
  - **First meeting – June 18 in Gainesville**
  - **Subsequent meetings held at various locations within the planning area**

Questions?

Projected Unacceptable Impacts to Native Vegetation

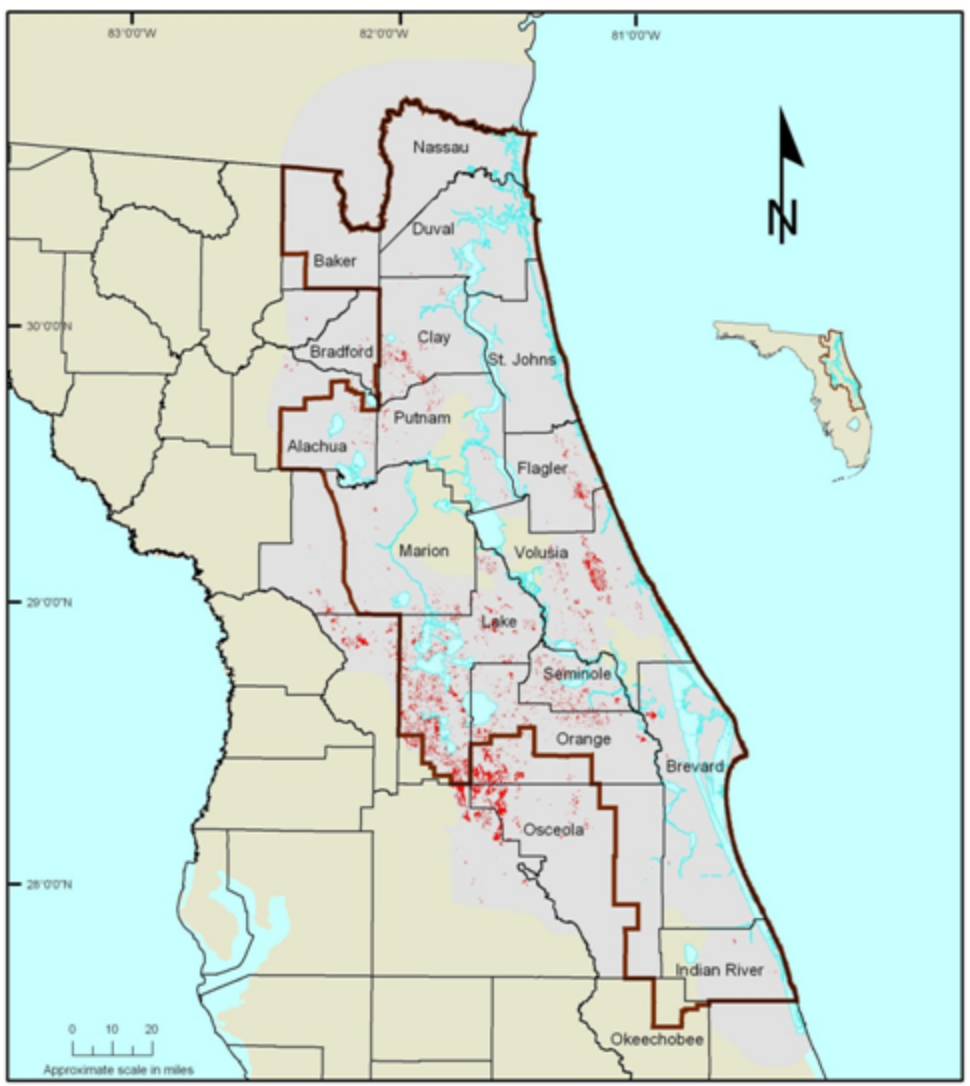


Figure 8. General areas within which anticipated water sources are not adequate to supply projected 2030 demands based on projected impacts to native vegetation

Projected Unacceptable Impacts to Lakes

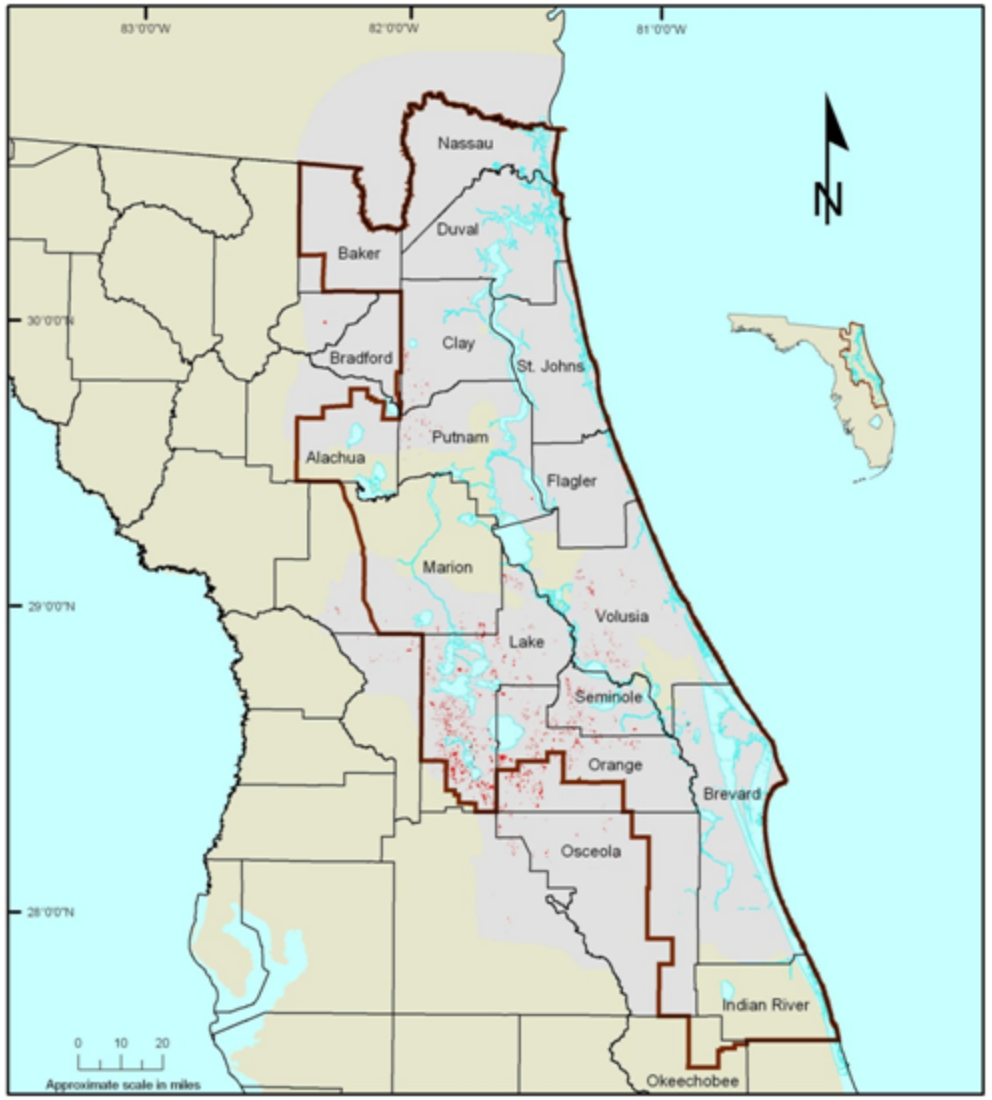


Figure 9. General areas within which anticipated water sources are not adequate to supply projected 2030 demands based on projected impacts to lakes

Lakes with Levels Projected to Fall Below Established MFLs

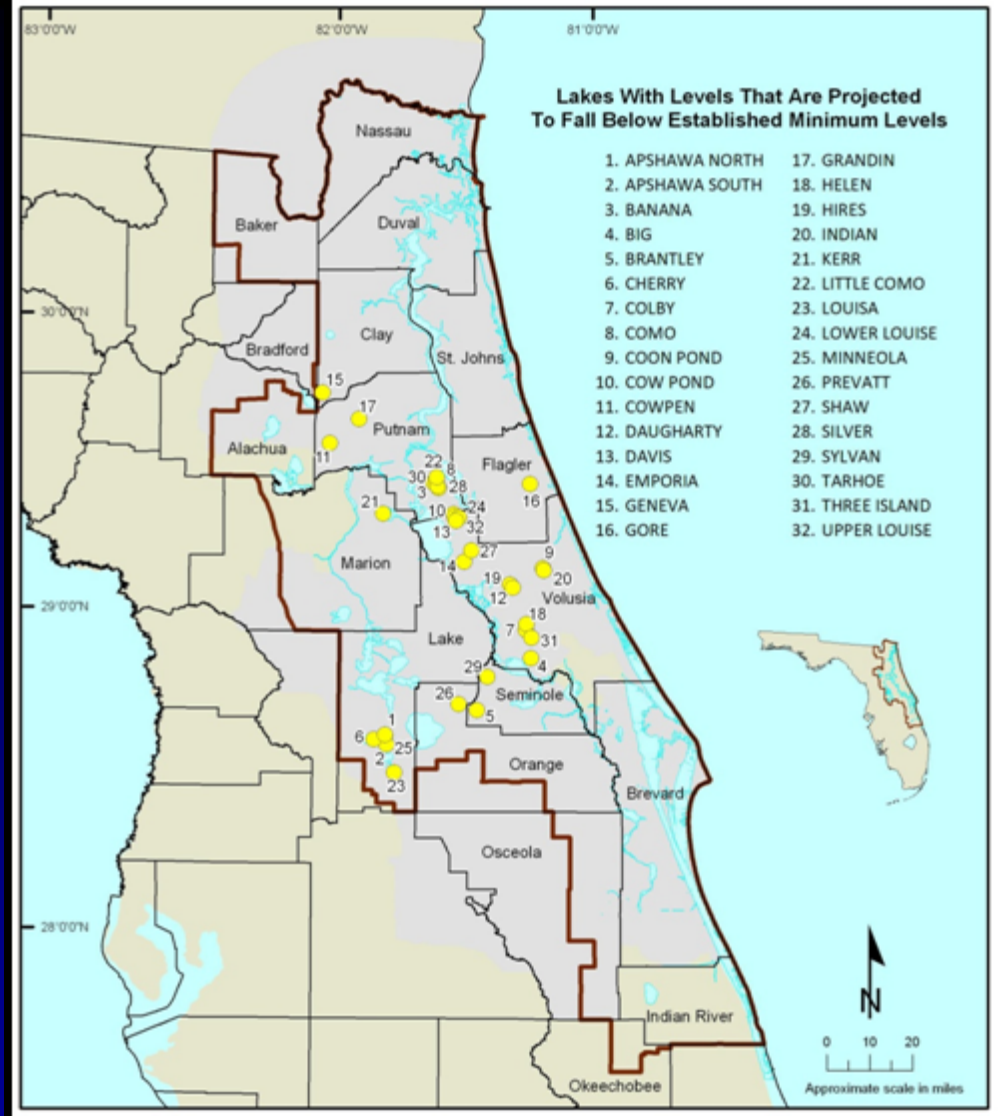


Figure 12. General areas within which anticipated water sources are not adequate to supply projected 2030 demands based on projected impacts to lakes with established minimum levels

Legend

- Lakes with levels that are projected to fall below established minimum levels as a result of projected water use increases from 1995 to 2030
- Area containing withdrawals and service areas that contribute to projected impacts to lakes with established minimum levels
- District boundary
- County boundary
- Water body

Projected Unacceptable Impacts to Groundwater Quality

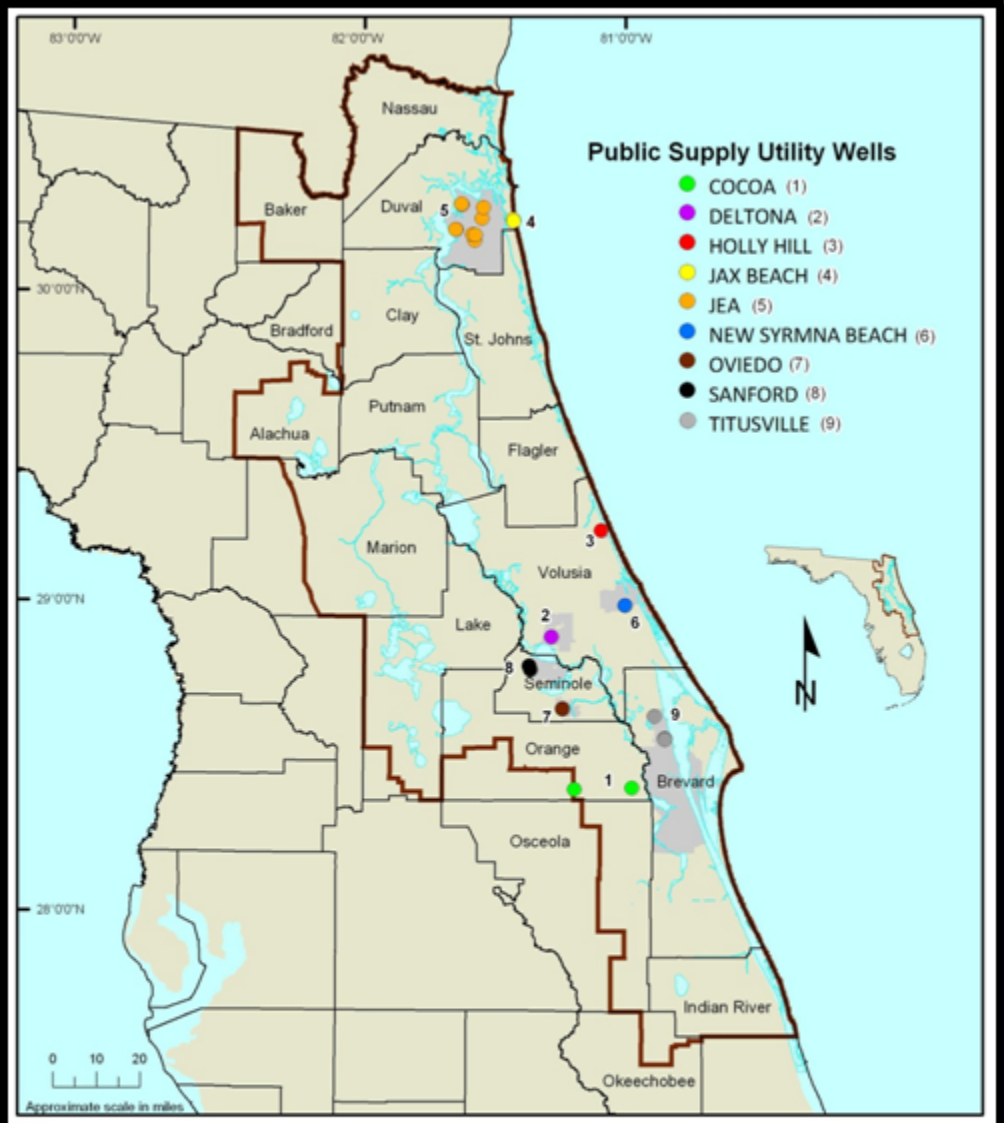


Figure 13. General areas within which anticipated water sources are not adequate to supply projected 2030 demands based on projected impacts to groundwater quality

Impacts to Springs (15% Reduction in Flow)

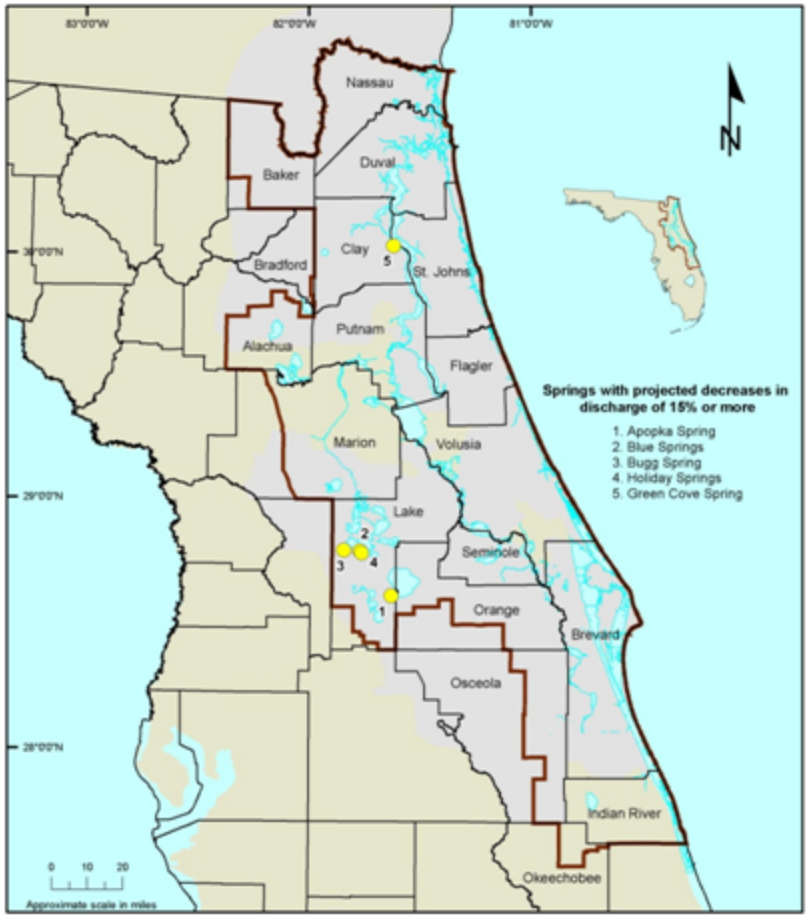


Figure 10. General areas within which anticipated water sources are not adequate to supply projected 2030 demands based on projected impacts to springs

Impacts to Springs with Established MFLs

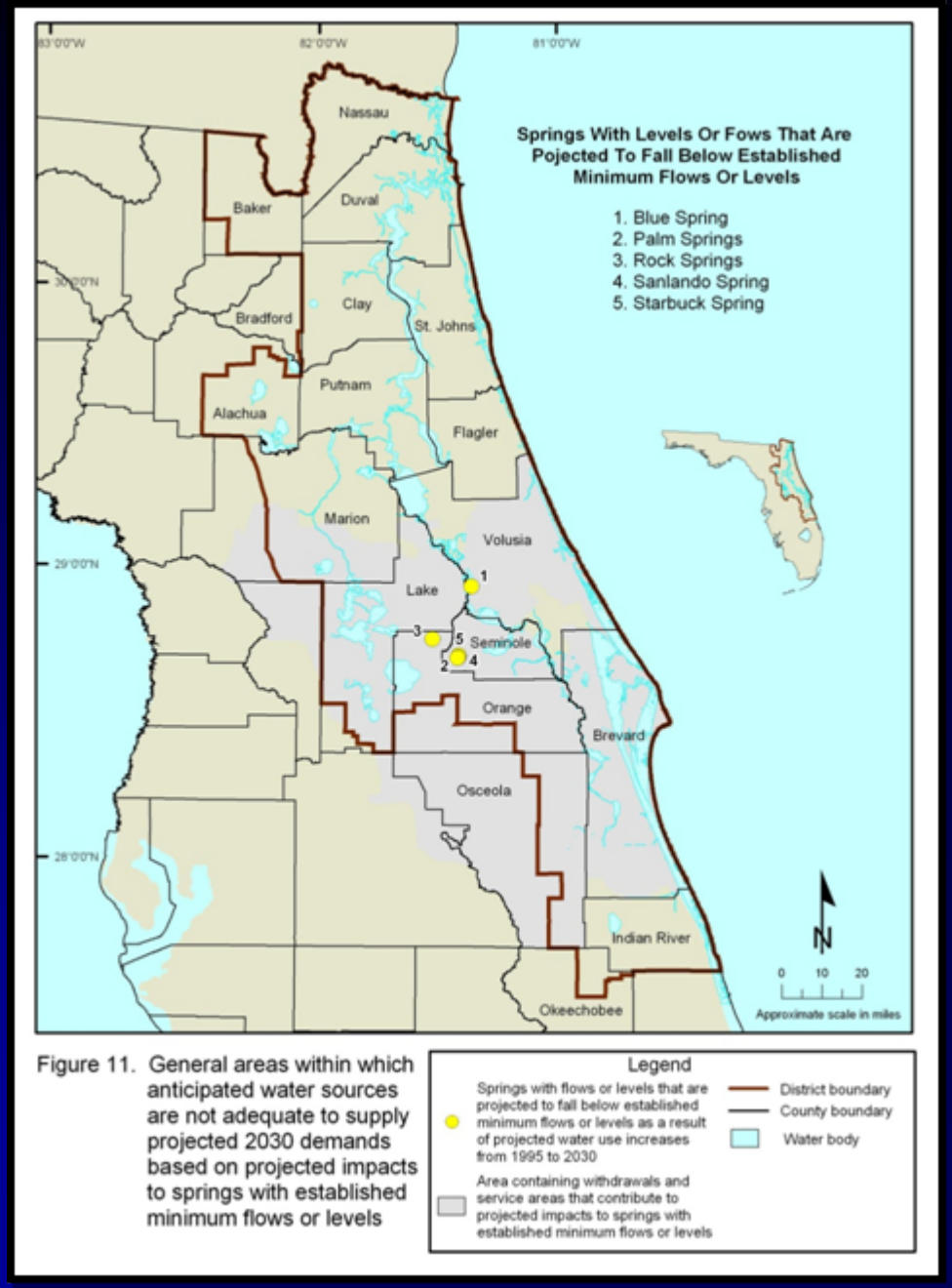


Figure 11. General areas within which anticipated water sources are not adequate to supply projected 2030 demands based on projected impacts to springs with established minimum flows or levels