



Draft Water Supply Assessment 2008

Planning for northeast Florida's water supply needs through 2030

Background

In 1997, the Florida Legislature began requiring the development of water supply assessments and water supply plans on five-year recurring schedules.

Since 1998, the St. Johns River Water Management District has performed districtwide water supply assessments every five years for the purpose of:

- Identifying future water supply needs for a 20-year planning horizon
- Identifying areas where projected uses cannot be sustained by proposed water sources without unacceptable impacts to water resources and related natural systems. These areas are called priority water resource caution areas, or PWRCA's.

The current draft Water Supply Assessment (WSA) 2008 is based on a planning period that extends through 2030. It is the second five-year update to WSA 1998.

1995 represents the base year of WSA 1998, WSA 2003 and draft WSA 2008. Natural systems and groundwater quality are impacted by the cumulative long-term change in water levels, thus the base year for assessment projections will continue to be 1995.

These assessments have traditionally been the foundation on which the District's water supply plans are built. The first District Water Supply Plan was approved in 2000 and was updated in 2005.

The upcoming 2010 District Water Supply Plan will focus on identifying strategies to assure that adequate and sustainable water supply is available to meet projected future water needs through 2030 without causing unacceptable impacts.

In the draft 2008 WSA, the northeast Florida area is identified as a potential PWRCA, which means the area may not be able to meet all future water demands without unacceptable impacts to water resources and related natural systems.

The WSA 2008 will remain in draft form until the completion of the water supply planning process, which will allow an opportunity for additional evaluations and local input.

Draft WSA 2008

The District has projected water use needs to the 2030 planning horizon based on population projections provided by the Bureau of Economic and Business Research at the University of Florida, which have been reviewed and generally agreed to by public water supply utilities throughout the District. Groundwater flow models are used to predict the changes in Floridan aquifer system water levels from 1995 to 2030 as the result of the projected changes in water withdrawals.

These predicted changes in water levels are used to determine if unacceptable impacts to water resources are likely to occur.

Summary of districtwide water use and population projections

Districtwide, population is projected to increase by 106 percent between 1995 and 2030. Total water use is projected to increase by 29 percent, from 1.35 billion gallons per day in 1995 to 1.74 billion gallons per day in 2030.

Representing the most significant increase in water use categories, public supply water use is projected to increase by 118 percent.

Summary of northeast Florida water use and population projections

County	1995 Population	2030 Population	% Change 1995-2030	1995 Total Water Use (mgd)	2030 Total Water Use (mgd)	% Change 1995-2030	1995 Public Supply Population	2030 Public Supply Population	%Change 1995-2030	1995 Public Supply Water Use (mgd)	2030 Public Supply Water Use (mgd)	%Change 1995-2030
Alachua	153,696	243,097	58	30.59	43.65	43	137,441	224,765	64	20.18	33.21	65
Baker	19,020	37,086	95	4.67	9.25	98	3,786	5,082	34	0.65	0.98	50
Bradford	1,031	1,481	44	0.42	0.49	17	0	400	400	0.04	0.09	125
Clay	123,400	301,999	145	27.48	60.89	122	55,863	231,186	314	11.83	39.38	233
Duval	725,925	1,200,256	65	162.04	238.44	47	633,716	1,116,251	76	106.73	174.74	64
Nassau	50,802	122,051	140	44.28	70.26	59	23,642	57,290	142	4.82	12.42	157
Putnam	67,747	93,518	38	83.15	54.77	-34	11,503	26,887	134	3.32	5.38	62
St. Johns	103,482	418,596	305	53.98	80.27	49	42,474	385,505	808	7.94	55.57	600
TOTAL	1,245,103	2,418,084	94	406.61	558.02	37	908,425	2,047,366	125	155.51	321.77	107

All water use in million gallons per day (mgd). Totals and percentages shown may not be exact due to rounding.



In northeast Florida, the county with the greatest projected population is Duval County, with 1.2 million people. However, St. Johns County is projected to have the greatest percentage of population increase, at 305 percent. Total population for the District's portion of eight counties – Alachua, Baker, Bradford, Clay, Duval, Nassau, Putnam and St. Johns – is projected to increase by 94 percent.

Total water use for these eight counties is projected to increase by 37 percent, with the greatest quantity in 2030 projected for Duval County and the greatest percentage increase projected for Clay County. Putnam County is projected to experience a 34 percent decrease, largely due to significant reductions in groundwater withdrawals at the Georgia-Pacific mill.

Public supply water use for the eight-county area is projected to increase by 107 percent by 2030. Duval County public water suppliers will need 175 million gallons per day, which represents more than half of the projected 2030 public supply water use in the eight counties. The greatest projected percentage increase by county is for St. Johns County, with 600 percent.

Projected changes in the Floridan aquifer

Based on the draft assessment's findings, widespread water level declines are projected for northeast Florida as a result of numerous projected increases in groundwater withdrawals in the area. The declines create a cone of depression in the pressure of water, known as potentiometric pressure, in the Floridan aquifer.

The map in Figure 1 shows several cones of depression that merge together in the Floridan aquifer. This indicates that the cumulative impacts, not just impacts caused by individual water suppliers, must be considered. In addition, the declines represent water use changes within the St. Johns District's boundaries only. Additional declines are expected to occur as a result of projected water use increases in neighboring Suwannee River Water Management District. However, the magnitude of these water use increases cannot be quantified at this time.

The draft assessment also finds that surficial aquifer water levels are projected to decline in some areas of northeast Florida in response to withdrawals from the underlying Floridan aquifer. The affected areas are those that supply the greatest recharge to the Floridan aquifer – areas in Alachua, Bradford, Clay and Putnam counties.

All of the counties in northeast Florida would experience or contribute to projections of impacts, including impacts to native vegetation, lakes, springs and lakes with established minimum flows and levels.

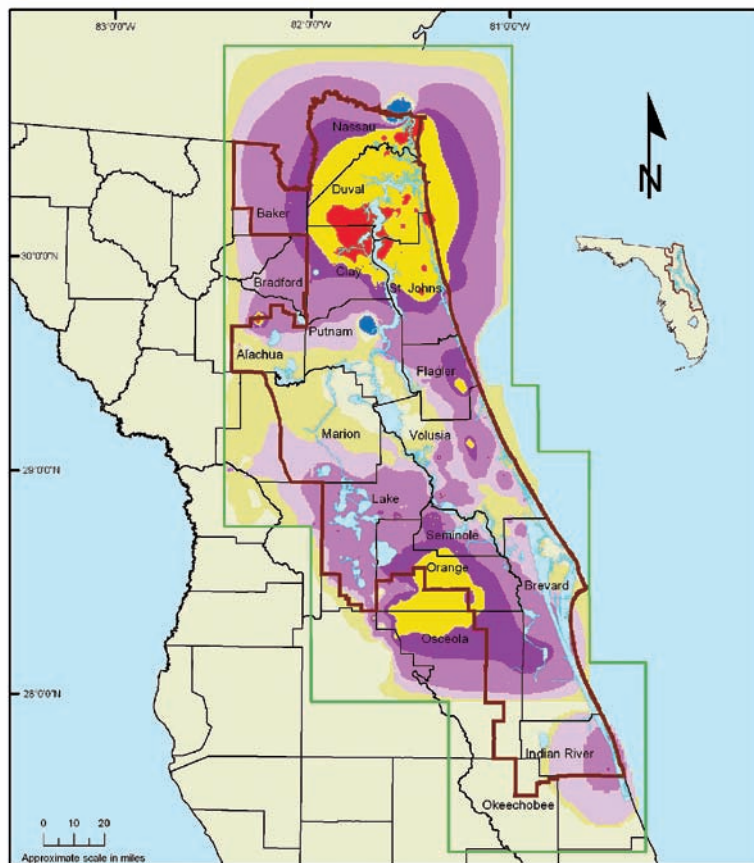
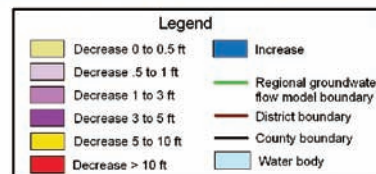


Figure 1. Projected changes in the elevation of the potentiometric surface of the Floridan aquifer system in response to projected increases in groundwater withdrawals, 1995-2030



Note: This map is a composite of the results of simulations of five regional groundwater flow models. In areas where the boundaries of these models overlap, professional judgment was applied to determine the extent of potentiometric surface changes.

2010 District Water Supply Planning Process

The District's northern area planning process for the 2010 District Water Supply Plan will launch June 18, 2009, at a comprehensive meeting in Gainesville. Subsequent meetings will be held at various locations. The process will concentrate on a 10-county area including the eight St. Johns District counties in northeast Florida, as well as portions of Columbia and Union counties in the Suwannee River Water Management District. Alachua, Bradford and Baker counties span both water management districts. The process will be coordinated with the Suwannee District and will be an open public process involving local governments, water supply utilities, self suppliers, other governments and other interested parties.

District objectives for the process are to allow review and further evaluation of projected water resource impacts; finalize identification of PWRCA's for the 2010 plan; complete WSA 2008 and include it as an appendix in the 2010 plan; and identify strategies to prevent unacceptable impacts and incorporate these strategies into the 2010 plan.

