Technical Fact Sheet SJ2010-FS1

2009 Annual Water Use Survey

September 30, 2010

St. Johns River Water Management District
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Introduction: This document reports 2009 water use data by category for the St. Johns River Water Management District (SJRWMD).

The following are notes and disclaimers regarding water use data:

General

- Water use statistics are subject to change as updated information becomes available. Changes in methodologies may make year-to-year data comparisons inappropriate.
- SJRWMD is not the only source of information for the reporting of *2009 Annual Water Use Survey*. Water use data are obtained from the following multiple sources: raw water withdrawal data submitted to SJRWMD on or before April 8, 2010, via EN50 forms; treated water data from Florida Department of Environmental Protection (DEP) monthly operating reports (MOR) and annual reuse report; data communicated via mail, e-mail, and phone surveys; and data stored in the SJRWMD reclaimed water destination database. SJRWMD attempts to compile the best available data, but it cannot guarantee that contributors use consistent measurement techniques or quality control standards. In most cases, very limited quality assurance of the data is conducted by SJRWMD and the information is reported as received.
- In cases for which water use data are not available from any other sources, SJRWMD uses professional analyses of historical data and trends to estimate values.
- A reported threshold of 0.1 million gallons per day (mgd) of average daily flow by individual water users was used for all water use categories, excluding agricultural irrigation, in reporting of the *2009 Annual Water Use Survey.*

For additional information, please contact David Hornsby, Division of Water Supply Management, at (386) 312-2371 or *dhornsby@sjrwmd.com*.

Term	Definition	Data Source/Methodology
mgd	Million gallons per day—all water use is expressed in average million gallons per day (mgd) unless otherwise noted.	NA

Term	Definition	Data Source/Methodology
Freshwater	Water with total dissolved solids (TDS) concentrations less than 1,000 milligrams per liter (mg/L)—freshwater may be withdrawn from either groundwater or surface water sources. This definition is based on the U.S. Geological Survey (USGS) definition as presented in USGS Water Supply Paper 2254, *Study and Interpretation of the Chemical Characteristics of Natural Water* by John D. Hem, and is used for purposes of reporting consistency with USGS. This definition is different from the definition used by SJRWMD for determining whether a source water is "brackish" when identifying an alternative water supply source. SJRWMD generally identifies source waters that do not always meet federal and state drinking water standards for chloride, sulfate, or TDS as "brackish" waters. Brackish water sources are considered as alternative water supply sources.	NA
Saline water	Water with more than 1,000 mg/L of TDS	NA
Reuse	This is the use of reclaimed water, which is treated wastewater that has received at least secondary treatment and basic disinfection for distribution for nonpotable uses and that has achieved a water resource benefit as described in SJRWMD Technical Publication SJ2006-2, *District Water Supply Plan, 2005.*	SJRWMD's methodology would have been based on quantities of reuse water reported by DEP in its 2009 Reuse Inventory Report, scheduled for publication in August 2010. However, the DEP reuse data were not available at the time that SJRWMD's water use survey was prepared.
Florida population	Estimated number of permanent residents living within the state of Florida	The source for population is University of Florida, Bureau of Economic Business and Research (BEBR), *Florida Estimates of Population,* April 1, 2009.

Term	Definition	Data Source/Methodology
SJRWMD population	Estimated number of permanent residents living within SJRWMD	Population estimates are intended for planning purposes only; 2009 county population estimates are from BEBR, *Florida Estimates of Population*, April 1, 2009. For counties within more than one water management district, the portion of the 2009 estimates within SJRWMD is derived by estimating SJRWMD's portion of the 2000 U.S. Census population at the block level.
Water use category	Classification of water use based on one of the following six categories—public supply, domestic self-supply and small public supply systems, agricultural irrigation self-supply, commercial/industrial/institutional self-supply, recreational self-supply, or thermoelectric power generation self-supply	NA
Public supply	Water withdrawn, treated, and delivered to service areas within SJRWMD by privately and publicly owned water supply utilities—includes both residential and nonresidential uses by utilities that withdraw more than 0.1 mgd from groundwater or surface water sources	Water use data in this category are obtained from MORs submitted to DEP and represent reporting by approximately 98% of the public supply utilities for which SJRWMD consumptive use permits, issued for quantities greater than 0.1 mgd, were in effect in 2009. Note: Water for use by the city of Cocoa in Brevard County is withdrawn in Orange County.

Term	Definition	Data Source/Methodology
Domestic self-supply and small public supply systems	Water use by individuals not served by a public supply water utility (i.e., a residence with a private well) and small public supply utility systems with average daily flows less than 0.1 mgd	Water use data in this category are estimated from residential population and residential public supply per capita water use rates at the county level. Residential water use for each public supply utility is calculated by multiplying the total public supply water use by the percent of the total water use allocated to residential use, as authorized in the SJRWMD-issued consumptive use permit. The resulting water use values for each public supply utility are then summed to the county level and divided by the total county permanent/residential public supply population to obtain the county-level residential per capita value. The residential per capita value is multiplied by the domestic self-supply population, resulting in the estimated water use for this category. The domestic self-supply population for each county is obtained by subtracting the total number of people served by public supply utilities in each county in 2009 from the total permanent/ residential population of each county, respectively. The districtwide average residential public supply per capita of 104 gallons per day was used for counties that have less than 5% of the county population within SJRWMD or that have no public supply water use.

Term	Definition	Data Source/Methodology
Commercial/ industrial/ institutional self-supply	Water used for commercial, industrial, or institutional purposes not provided by public supply utilities—this includes businesses, government facilities, military installations, schools, prisons, hospitals, and industrial uses such as mining, processing, and manufacturing. (Note: Surface water use by mining operations in the commercial/industrial/institutional self-supply category reported in this document represents 5% of the surface water use, to account for loss of water in the mining products. The remaining surface water is assumed to be recirculated in the mining process and, therefore, is considered nonconsumptive.)	Data in this category reflect water use information reported to SJRWMD by consumptive use permittees on EN50 forms, not including the use of reuse water.
Thermoelectric power generation self-supply	Water withdrawn from groundwater and surface water sources and used by power plants not supplied by public supply systems (Note: This does not include water used for once-through cooling, which is considered nonconsumptive.)	Data in this category reflect water use information reported to SJRWMD by power plant operators on EN50 forms or through SJRWMD survey, not including the use of reuse water.

Term	Definition	Data Source/Methodology
Agricultural irrigation self-supply	Water withdrawn from groundwater and surface water sources, used for supplemental crop irrigation	Water use for irrigation is assessed by crop type due to crop-specific consumption requirements. Monthly water use estimates are based on a modified Blaney-Criddle model. Climate data for running a modified Blaney-Criddle model is obtained from the National Oceanic and Atmospheric Administration (NOAA) and the Florida Climate Center. For instances in which climate data are unavailable, substitute data may be obtained from historical or average values or data from the next closest weather station. Benchmark Farms Program (BMF) crop-specific data is substituted for modified Blaney-Criddle data in Indian River, Lake, Putnam, St. Johns, and Volusia counties, where BMF crops are significantly represented. Crop type and acreage data are provided through SJRWMD surveys and geographic information system (GIS)-based crop layers, University of Florida–Institute of Food and Agricultural Sciences (IFAS), county agricultural extension agents, and U.S. Department of Agricultural (USDA) surveys.
Recreational self-supply	Water withdrawn from groundwater and surface water sources, used for golf course irrigation not supplied by public supply systems	Data in this category reflect water use information reported to SJRWMD by consumptive use permittees on EN50 forms or through SJRWMD survey, not including the use of reuse water.

Table 1

St. Johns River Water Management District
2009 Population by County

County	County Population	Percentage of County Population in SJRWMD	SJRWMD Population	Public Supply Population	Domestic Self-Supply and Small Public Supply Systems Population
Alachua	256,232	79.5%	203,807	193,617	10,190
Baker	25,899	98.1%	25,404	4,827	20,577
Bradford	29,085	4.2%	1,233	333	900
Brevard	555,657	100.0%	555,657	527,874	27,783
Clay	185,208	100.0%	185,208	131,498	53,710
Duval	900,518	100.0%	900,518	855,492	45,026
Flagler	94,901	100.0%	94,901	75,921	18,980
Indian River	141,634	100.0%	141,634	123,222	18,412
Lake	291,993	99.8%	291,263	235,923	55,340
Marion	330,440	69.8%	230,548	140,634	89,914
Nassau	72,588	100.0%	72,588	35,568	37,020
Okeechobee	39,703	1.9%	742	0	742
Orange	1,108,882	75.2%	833,325	749,993	83,332
Osceola	272,788	0.4%	955	0	955
Putnam	74,608	100.0%	74,608	13,429	61,179
St. Johns	183,572	100.0%	183,572	146,858	36,714
Seminole	423,759	100.0%	423,759	406,809	16,950
Volusia	507,105	100.0%	507,105	466,537	40,568
Total	***5,494,572***		***4,726,827***	***4,108,535***	***618,292***

Notes: 2009 population estimates are from BEBR, *Florida Estimates of Population*, April 1, 2009
Total population for the state of Florida in 2009 = 18,750,483.
Percent of total state of Florida population that lives within SJRWMD = 25%.
Percent of SJRWMD population served by public supply = 87%.
SJRWMD population is derived from the county population multiplied by the percentage of county population in SJRWMD. The percentage of county population, as presented, is rounded to the nearest tenth. Thus, in some cases, the presented SJRWMD population is slightly different than the product of the county population multiplied by the percentage of county population in SJRWMD.

Table 2

St. Johns River Water Management District
2009 Total Water Use by County
in Million Gallons per Day (mgd)

County	Freshwater (mgd)	Saline Water (mgd)	All Water Use (mgd)
Alachua	30.79	0.00	30.79
Baker	5.22	0.00	5.22
Bradford	0.92	0.00	0.92
Brevard	124.97	0.00	124.97
Clay	19.01	0.00	19.01
Duval	152.10	0.00	152.10
Flagler	23.09	1.93	25.02
Indian River	138.31	0.00	138.31
Lake	98.18	0.00	98.18
Marion	45.24	0.00	45.24
Nassau	48.42	1.17	49.59
Okeechobee	22.47	0.00	22.47
Orange	143.62	0.00	143.62
Osceola	23.26	0.00	23.26
Putnam	48.59	0.00	48.59
St. Johns	47.71	0.00	47.71
Seminole	71.02	0.00	71.02
Volusia	86.16	0.00	86.16
Total	**1,129.08**	**3.10**	**1,132.18**

Note: Reuse data are not reported here, because the DEP data were not available to SJRWMD at the time of publication.

Table 3

St. Johns River Water Management District
2009 Total Water Use by Category
in Million Gallons per Day (mgd)

Category	Freshwater (mgd)	Saline Water (mgd)	All Water Use (mgd)
Public supply	541.43	0.00	541.43
Domestic self-supply and small public supply systems	64.40	0.00	64.40
Commercial/industrial/institutional self-supply	92.40	3.10	95.50
Agricultural irrigation self-supply	380.78	0.00	380.78
Recreational self-supply	43.14	0.00	43.14
Thermoelectric power generation self-supply	6.93	0.00	6.93
Total	**1,129.08**	**3.10**	**1,132.18**

Note: Reuse data are not reported here, because the DEP data were not available to SJRWMD at the time of publication.

Table 4

St. Johns River Water Management District
2009 Public Supply and Domestic Self-Supply and Small Public Supply Systems Water Use in Million Gallons per Day (mgd)

County	Public Supply (mgd)	Domestic Self-Supply and Small Public Supply Systems* (mgd)
Alachua	24.85	0.83
Baker	0.95	3.64
Bradford	0.46	0.10
Brevard[a]	53.93	1.92
Clay	11.17	3.97
Duval	118.40	6.17
Flagler	8.46	1.20
Indian River	14.23	1.25
Lake	43.51	7.69
Marion	18.25	7.28
Nassau	7.38	6.74
Okeechobee	0.00	0.08
Orange[b]	111.60	8.17
Osceola	0.00	0.10
Putnam	2.31	6.61
St. Johns	16.15	3.49
Seminole	56.59	1.63
Volusia	53.19	3.53
Total	**541.43**	**64.40**

*For domestic self-supply and small public supply systems, all water is from groundwater sources.

[a]Includes 22.18 mgd withdrawn in Orange County for public supply use in Brevard County
[b]Does not include 22.18 mgd withdrawn in Orange County for public supply use in Brevard County

Note: Reuse data are not reported here, because the DEP data were not available to SJRWMD at the time of publication.

Table 5

St. Johns River Water Management District
2009 Commercial/Industrial/Institutional Self-Supply Water Use
in Million Gallons per Day (mgd)

County	Freshwater (mgd)	Saline Water (mgd)	All Water Use (mgd)
Alachua	0.28	0.00	0.28
Baker	0.40	0.00	0.40
Bradford	0.27	0.00	0.27
Brevard	4.96	0.00	4.96
Clay	0.45	0.00	0.45
Duval	15.73	0.00	15.73
Flagler	0.00	1.93	1.93
Indian River	0.00	0.00	0.00
Lake	5.72	0.00	5.72
Marion	5.80	0.00	5.80
Nassau	31.82	1.17	32.99
Okeechobee	0.00	0.00	0.00
Orange	2.13	0.00	2.13
Osceola	0.00	0.00	0.00
Putnam	23.14	0.00	23.14
St. Johns	0.57	0.00	0.57
Seminole	0.13	0.00	0.13
Volusia	1.00	0.00	1.00
Total	**92.40**	***3.10***	**95.50**

Note: Reuse data are not reported here, because the DEP data were not available to SJRWMD at the time of publication.

Table 6

St. Johns River Water Management District
2009 Agricultural Irrigation Self-Supply Water Use
in Million Gallons per Day (mgd)

County	Freshwater (mgd)
Alachua	4.24
Baker	0.23
Bradford	0.09
Brevard	60.62
Clay	2.75
Duval	2.27
Flagler	11.82
Indian River	113.84
Lake	31.51
Marion	11.14
Nassau	0.76
Okeechobee	22.39
Orange	18.86
Osceola	23.16
Putnam	15.90
St. Johns	24.57
Seminole	11.43
Volusia	25.20
Total	**380.78**

Note: Reuse data are not reported here, because the DEP data were not available to SJRWMD at the time of publication.

Table 7

St. Johns River Water Management District
2009 Crops Included in Agricultural
Irrigation Self-Supply Water Use

Vegetable Crops	Fruit Crops	Field Crops	Ornamentals and Grasses
Cabbage	Blueberries	Field corn	Fern
Carrots	Citrus	Peanuts	Ornamentals (field-grown)
Cucumbers	Grapes	Cotton	Ornamentals (container-grown)
Peppers	Peaches	Soybeans	Improved pasture
Potatoes	Pecans		Sod
Sweet corn	Strawberries		
Misc. vegetables	Watermelon		
	Misc. fruits and nuts		

Note: The above table identifies crops included in the estimates of 2009 agricultural irrigation self-supply water use.

Table 8

St. Johns River Water Management District
2009 Recreational Self-Supply Water Use
in Million Gallons per Day (mgd)

County	Freshwater (mgd)
Alachua	0.27
Baker	0.00
Bradford	0.00
Brevard	3.43
Clay	0.67
Duval	4.14
Flagler	1.61
Indian River	8.99
Lake	9.75
Marion	2.77
Nassau	1.72
Okeechobee	0.00
Orange	2.41
Osceola	0.00
Putnam	0.22
St. Johns	2.93
Seminole	1.24
Volusia	2.99
Total	**43.14**

Note: Reuse data are not reported here, because the DEP data were not available to SJRWMD at the time of publication.

Table 9

St. Johns River Water Management District
2009 Thermoelectric Power Generation Self-Supply Water Use
in Million Gallons per Day (mgd)

County	Freshwater* (mgd)	Saline Water* (mgd)	All Water Use (mgd)
Alachua	0.32	0.00	0.32
Baker	0.00	0.00	0.00
Bradford	0.00	0.00	0.00
Brevard	0.11	0.00	0.11
Clay	0.00	0.00	0.00
Duval	5.39	0.00	5.39
Flagler	0.00	0.00	0.00
Indian River	0.00	0.00	0.00
Lake	0.00	0.00	0.00
Marion	0.00	0.00	0.00
Nassau	0.00	0.00	0.00
Okeechobee	0.00	0.00	0.00
Orange	0.45	0.00	0.45
Osceola	0.00	0.00	0.00
Putnam	0.41	0.00	0.41
St. Johns	0.00	0.00	0.00
Seminole	0.00	0.00	0.00
Volusia	0.25	0.00	0.25
Total	***6.93***	***0.00***	***6.93***

*Nonconsumptive (returned to source) surface water usage is not reported.

Note: Reuse data are not reported here, because the DEP data were not available to SJRWMD at the time of publication.