TECHNICAL FACT SHEET SJ2006-FS2

ANNUAL WATER USE DATA
2005

St. Johns River Water Management District
2005 Annual Water Use Survey

Latest update: October 3, 2006

Introduction: The following information reports 2005 water use by category for the St. Johns River Water Management District (SJRWMD).

Notes and disclaimers regarding water use data

General

- Water use data is subject to change as updated information becomes available. Changes in methodologies may make year-to-year comparisons inappropriate.
- SJRWMD is not the source of the data reported in the *Annual Water Use Survey*. This data is obtained from multiple sources, including raw water withdrawal data submitted via SJRWMD EN50 forms (EN50s), treated water data from Florida Department of Environmental Protection regulation monthly operating reports (MORs), data communicated via mail, e-mail, and phone surveys, and data stored in the reclaimed water destination database. SJRWMD attempts to compile the best available data but cannot assure that contributors use consistent measurement techniques or quality control standards. In most cases, the data has not been quality-assured by SJRWMD and is reported as received.
- In cases where water use data is not available from any other source, SJRWMD performs expert judgment in estimating values based on historical data and trends.
- The 2005 county population estimates are from the University of Florida's Bureau of Economic and Business Research (BEBR). For counties within more than one water management district, the portion of the 2005 estimates within the SJRWMD was derived by adding SJRWMD projections of publicly supplied population to an estimated split in the self-supplied population using 2000 Census population estimates at the block level. The public supply and domestic self-supply population projections are the SJRWMD planning projections used in the *2003 Water Supply Assessment* adjusted by the percentage difference between the SJRWMD county totals and the latest BEBR county estimates (April 1, 2005) included in this report. (For example, if the BEBR estimate was 3% higher than the SJRWMD county total, that county's public supply and self-supply population totals were both increased by 3% to agree with the latest BEBR data.)

Public Supply

- The monthly Public Supply Water Use report is no longer published. Monthly water use data for that report was collected for 25 public supply utilities for analytical purposes during past water shortage declarations. The report was presented each month to the Governing Board immediately preceding and during times of water shortage declaration to make the Board aware of the impacts of hydrologic conditions and the effects of the water conservation provisions of these declarations on water use. Currently, no water shortage declaration is in effect.
- Only water withdrawn within SJRWMD is reported in the *Annual Water Use Survey* for utilities that overlap water management district boundaries.
- Treated water values will generally be slightly lower than raw water withdrawals for a particular facility. To compensate for the loss of water between raw water use and treated water use when MORs are used as the data source, SJRWMD adjusts treated water use values by using

a correcting factor, or multiplier, which is derived from the percentage of loss reported to SJRWMD by the entities reporting treated water information.

- A threshold of 0.1 million gallons per day (mgd) of average daily flow was used for Public Supply and Commercial/ Industrial/Institutional self-supply water use categories for the *2005 Annual Water Use Survey* report. In previous years, the threshold for these categories was 0.01 mgd average daily flow.
- Some uses formerly classified as Public Supply and Commercial/Industrial/Institutional self-supply water use have been reclassified as Domestic Self-Supply for 2005.
- In the past, the *Annual Water Use Survey* reported public supply water use data taken from MORs. Since 2003 most of the data reported comes from EN50s. MOR data continues to be used when EN50 data is not available.

Agriculture and Recreation

- Agricultural acreage estimates are collected via surveys sent to Agricultural Extension Service agents, reviews of Florida Agricultural Statistics Service (FAAS) data, input from growers, and estimated from historical information.
- Monthly agricultural water use data is calculated using a modified Blaney-Criddle model and data from SJRWMD's Benchmark Farms Program (BMF).
- Climate data for running a modified Blaney-Criddle model is obtained from the National Oceanic and Atmospheric Administration and the Florida Climate Center. In instances where climate data is missing, substitute data may be obtained from historical or average values or data from the next closest weather station.
- BMFs crop-specific data is substituted for modified Blaney-Criddle data in counties where BMF crops are significantly represented.
- Agricultural water use estimates included some water for irrigation of private lawns for 2004; that use has been deleted from 2005 agricultural water use estimates.
- Currently, recreational water use is exclusively golf course irrigation. Recreational water use was not clearly defined in the past, and it sometimes included uses other than golf courses, such as parks and ball fields.

For additional information, please contact Penni Hauck, Division of Water Supply Management, at (386) 329-4873 or phauck@sjrwmd.com.

Term	Definition	Data Source/Methodology
mgd	Million gallons per day. All water use is expressed in million gallons per day unless otherwise noted.	N/A
Freshwater	Water with 1,000 milligrams per liter (mg/L) or less of total dissolved solids (TDS). Freshwater may be withdrawn from either ground or surface water sources.	N/A
Saline water	Water with more than 1,000 mg/L of TDS. All reported saline water is withdrawn from surface water sources.	N/A

Term	Definition	Data Source/Methodology
Groundwater	Water from sources located below the earth's surface, such as the Floridan aquifer. Groundwater withdrawals reported here contain 1,000 mg/L or less of total dissolved solids (TDS) and are, therefore, considered freshwater.	N/A
Surface water	Water from sources such as rivers or lakes, located on the earth's surface. Surface water may be either fresh or saline.	N/A
Reuse/reclaimed water	Treated wastewater distributed for nonpotable uses, such as residential and recreational irrigation.	Reclaimed water use data obtained directly from wastewater treatment facility operators and major reclaimed water users by EN50s and staff surveys.
Florida population	The estimated number of permanent residents living within the state of Florida.	University of Florida Bureau of Economic Business and Research, *Florida Estimates of Population,* April 1, 2005.
Water use category	Classifications based on the following six types of water use: public supply, domestic self-supply, agricultural self-supply, recreational self-supply, commercial/industrial/institutional self-supply and thermoelectric power generation self-supply.	N/A
Public supply	Water supplied by privately and publicly owned public water supply utilities. Includes both residential and nonresidential uses by utilities that withdraw more than 0.1 mgd from ground or surface water sources. Estimated to the nearest 0.01 mgd.	Water use data obtained from EN50s submitted to SJRWMD by consumptive use permittees, and MORs submitted to the Florida Department of Environmental Protection (FDEP).

Term	Definition	Data Source/Methodology
Domestic self-supply	Water withdrawn from privately owned residential wells.	The water use data in this category is estimated from residential population and public supply per capita water use figures. Residential water use for each public supplier is calculated by multiplying the total public supply water use by the percent of the total water use that is allocated to residential use, as reported in consumptive use permits. The resulting water use values for each public supplier are then summed to the county level and divided by the total county permanent/ residential public supply population to obtain the 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 is obtained by subtracting the number of people served by public supply utilities from the total permanent/ residential population of the county. Per capita values of 100 gallons per day (gpd) are used for counties having no public supply water use.
Commercial/ industrial/ institutional self-supply	Water used for commercial, industrial and institutional purposes that is not provided by public supply utilities. This category includes businesses, government facilities, military installations, schools, prisons, hospitals, and industrial uses, such as mining, processing, and manufacturing facilities.	Data reflects actual water use reported by consumptive use permittees on EN50 reports.

Term	Definition	Data Source/Methodology
Agricultural irrigation self-supply	Water withdrawals from ground and surface water sources that are used for supplemental crop irrigation and are not supplied by public supply systems.	Water use for irrigation is assessed by crop due to specific consumption requirements. Corresponding estimates are based on a modified Blaney-Criddle model and Benchmark Farms Program data that is supplemented by U.S. Department of Agriculture-Soil Conservation Service (USDA-SCS) and National Oceanic and Atmospheric Administration (NOAA) data. Crop type and acreage data are provided through FAAS and a SJRWMD survey of county agricultural extension agents.
Recreational irrigation self-supply	Water withdrawn from ground and surface water sources that is used for golf course irrigation and which is not supplied by public supply systems.	Data reflects actual water use submitted by consumptive use permittees on EN50 reports.
Thermoelectric power generation self-supply	Water withdrawn from ground and surface water sources that is used by power plants and not supplied by public supply systems. This does not include water used for once-through cooling, which is considered nonconsumptive.	Data reflects actual water use reported by power plant operators on EN50 reports.

Table 1

St. Johns River Water Management District
2005 Population by County

County	County Population	Percentage of County Population in SJRWMD	SJRWMD Population	Public Supply Population	Domestic Self-Supply Population
Alachua	240,764	76.96%	185,292	164,478	20,814
Baker	23,953	92.94%	22,262	4,162	18,100
Bradford	28,118	5.00%	1,406	326	1,080
Brevard	531,970	100.0%	531,970	512,525	19,445
Clay	169,623	100.0%	169,623	128,106	41,517
Duval	861,150	100.0%	861,150	812,508	48,642
Flagler	78,617	100.0%	78,617	74,392	4,225
Indian River	130,043	100.0%	130,043	111,132	18,911
Lake	263,017	99.48%	261,649	209,527	52,122
Marion	304,926	72.22%	220,218	116,556	103,662
Nassau	65,759	100.0%	65,759	27,085	38,674
Okeechobee	37,765	2.04%	770	0	770
Orange	1,043,437	75.92%	792,177	715,904	76,273
Osceola	235,156	1.00%	2,352	0	2,352
Putnam	73,764	100.0%	73,764	11,456	62,308
St. Johns	157,278	100.0%	157278	132,848	24,430
Seminole	411,744	100.0%	411,744	381,405	30,339
Volusia	494,649	100.0%	494,649	460,694	33,955
Total	5,151,733		4,460,723	3,863,104	597,619

State of Florida total population, 2005: 17,918,227
Percent of state of Florida population living within SJRWMD: 25%
Percent of SJRWMD population served by public supply: 87%

Table 2

St. Johns River Water Management District
2005 Total Water Use by County
in Million Gallons per Day (mgd)

County	Freshwater			Saline Surface Water	Reuse	All Sources
	Ground	Surface	Total	Total	Total	Total
Alachua	31.51	0.20	31.71	0.00	4.71	36.42
Baker	6.09	0.92	7.01	0.00	0.00	7.01
Bradford	2.63	0.02	2.65	0.00	0.00	2.65
Brevard	95.54	22.62	118.16	0.00	1.31	119.47
Clay	22.71	0.39	23.10	0.00	0.40	23.50
Duval	165.11	6.39	171.50	0.00	0.91	172.41
Flagler	15.51	3.75	19.26	7.12	0.55	26.93
Indian River	71.59	111.99	183.58	0.00	1.46	185.04
Lake	74.83	10.32	85.15	0.00	3.70	88.85
Marion	35.40	1.19	36.59	0.00	0.64	37.23
Nassau	52.01	1.84	53.85	1.19	3.43	58.47
Okeechobee	16.95	0.00	16.95	0.00	0.00	16.95
Orange	144.62	4.57	149.19	0.00	13.60	162.79
Osceola	51.14	0.74	51.88	0.00	0.00	51.88
Putnam	23.44	28.28	51.72	0.00	0.30	52.02
St. Johns	32.34	3.21	35.55	0.00	1.57	37.12
Seminole	68.28	0.94	69.22	0.00	4.06	73.28
Volusia	76.64	5.58	82.22	0.00	25.96	108.18
Total	986.34	202.95	1189.29	8.31	62.60	1260.20

Table 3

St. Johns River Water Management District
2005 Total Water Use by Category
in Million Gallons per Day (mgd)

Category	Freshwater			Saline Surface Water	Reuse	All Sources
	Ground	Surface	Total	Total	Total	Total
Public supply	565.12	15.86	580.98	0.00	3.17	584.15
Domestic self-supply	70.74	0.00	70.74	0.00	0.00	70.74
Commercial/industrial/ Institutional self-supply	80.15	30.38	110.53	8.31	4.32	123.16
Agricultural irrigation self-supply	252.71	127.66	380.37	0.00	0.00	380.37
Recreational irrigation self-supply	16.08	28.23	44.31	0.00	42.43	86.74
Thermoelectric power generation self-supply	1.66	0.78	2.44	0.00	12.68	15.12
Total	986.30	202.91	1189.21	8.31	62.60	1260.12

Table 4

St. Johns River Water Management District
2005 Public Supply and Domestic Self-Supply Water Use
in Million Gallons per Day (mgd)

	Public Supply Freshwater			Domestic Self-Supply Freshwater (All Ground)
County	Ground	Surface*	Total	Total
Alachua	25.01	0.00	25.01	2.02
Baker	0.86	0.00	0.86	3.37
Bradford	0.45	0.00	0.45	.89
Brevard	42.76	15.85	58.61	1.01
Clay	13.96	0.00	13.96	3.57
Duval	137.92	0.00	137.92	7.54
Flagler	8.92	0.00	8.92	0.29
Indian River	16.76	0.00	16.76	1.68
Lake	40.54	0.00	40.54	6.36
Marion	18.33	0.00	18.33	9.33
Nassau	6.50	0.00	6.50	8.20
Okeechobee	0.00	0.00	0.00	0.08
Orange **	121.10	0.02	121.12	8.16
Osceola	0.00	0.00	0.00	0.24
Putnam	2.98	0.00	2.98	10.34
St. Johns	14.34	0.00	14.34	2.05
Seminole	56.14	0.00	56.14	2.70
Volusia	58.55	0.00	58.55	2.75
Total	565.12	15.87	580.99	70.58

* Does not include surface water used to augment reclaimed water systems.
** Brevard County water use includes surface water and groundwater used by the city of Cocoa and withdrawn in Orange County.

Table 5

St. Johns River Water Management District
2005 Commercial/Industrial/Institutional Self-Supply Water Use
in Million Gallons per Day (mgd)

County	Freshwater			Saline Water	Reuse	All Sources
	Ground	Surface	Total	Surface	Total	Total
Alachua	0.34	0.00	0.34	0.00	3.96	4.30
Baker	0.35	0.00	0.35	0.00	0.00	0.35
Bradford	0.88	0.00	0.88	0.00	0.00	0.88
Brevard	3.67	0.91	4.58	0.00	0.00	4.58
Clay	2.73	0.00	2.73	0.00	0.00	2.73
Duval	15.49	2.77	18.26	0.00	0.00	18.26
Flagler	0.01	0.00	0.01	7.12	0.00	7.13
Indian River	0.00	0.00	0.00	0.00	0.00	0.00
Lake	9.54	0.00	9.54	0.00	0.00	9.54
Marion	2.68	0.15	2.83	0.00	0.00	2.83
Nassau	36.17	0.13	36.30	1.19	0.00	37.49
Okeechobee	0.00	0.00	0.00	0.00	0.00	0.00
Orange	3.06	1.03	4.09	0.00	0.00	4.09
Osceola	0.00	0.00	0.00	0.00	0.00	0.00
Putnam	3.49	25.09	28.58	0.00	0.00	28.58
St. Johns	0.63	0.30	0.93	0.00	0.00	0.93
Seminole	0.39	0.00	0.39	0.00	0.20	0.59
Volusia	0.72	0.00	0.72	0.00	0.16	0.88
Total	80.15	30.38	110.53	8.31	4.32	123.16

Table 6

St. Johns River Water Management District
2005 Agricultural Irrigation Self-Supply Water Use
in Million Gallons per Day (mgd)

	Freshwater			Acreage	
County	Ground	Surface	Total	Farmed	Irrigated
Alachua	3.72	0.03	3.75	34,532	4,514
Baker	1.50	0.92	2.42	1,337	1,175
Bradford	0.05	0.02	0.07	138	138
Brevard	45.12	3.35	48.47	110,330	25,330
Clay	2.32	0.00	2.32	40,241	2,430
Duval	1.95	0.17	2.12	1,871	1,270
Flagler	6.11	3.19	9.30	32,473	4,450
Indian River	52.03	105.61	157.64	138,415	79,198
Lake	14.61	4.43	19.04	148,496	21,631
Marion	3.54	0.08	3.62	7,364	7,306
Nassau	0.02	0.00	0.02	80	44
Okeechobee	16.87	0.00	16.87	7,199	7,199
Orange	10.57	2.59	13.16	6,440	6,440
Osceola	50.88	.74	51.62	145,927	21,049
Putnam	6.52	2.34	8.86	9,168	8,214
St. Johns	15.02	0.00	15.02	25,773	25,348
Seminole	8.39	0.00	8.39	7,168	3,968
Volusia	13.52	4.20	17.72	13,461	8,439
Total	252.74	127.67	380.41	730,413	228,143

Table 7

St. Johns River Water Management District
2005 Recreational Irrigation Self-Supply Water Use
in Million Gallons per Day (mgd)

County	Freshwater			Reuse	All Sources
	Ground	Surface	Total	Total	Total
Alachua	0.25	0.17	0.42	0.20	.62
Baker	0.01	0.00	0.01	0.00	0.01
Bradford	.36	0.00	.36	0.00	.36
Brevard	2.84	2.51	5.35	1.24	6.60
Clay	0.13	0.39	.52	0.40	.92
Duval	1.71	3.45	5.16	0.91	6.07
Flagler	0.18	0.56	0.74	0.55	1.29
Indian River	1.12	6.38	7.50	1.46	8.96
Lake	3.78	5.89	9.66	3.70	13.37
Marion	1.52	0.96	2.48	0.64	3.12
Nassau	1.12	1.71	2.83	3.43	6.26
Okeechobee	0.00	0.00	0.00	0.00	0.00
Orange	1.28	0.93	2.21	0.99	3.20
Osceola	0.00	0.00	0.00	0.00	0.00
Putnam	0.09	0.07	0.16	0.30	0.45
St. Johns	0.30	2.91	3.20	1.57	4.78
Seminole	0.66	0.94	1.59	1.36	2.96
Volusia	0.74	1.38	2.11	25.68	27.79
Total	16.08	28.25	44.31	42.43	86.77

Table 8

St. Johns River Water Management District
2005 Thermoelectric Power Generation Self-Supply Water Use
in Million Gallons per Day (mgd)

County	Freshwater			Reuse Total	All Sources Total
	Ground	Surface	Total		
Alachua	0.17	0.00	0.17	0.00	0.17
Baker	0.00	0.00	0.00	0.00	0.00
Bradford	0.00	0.00	0.00	0.00	0.00
Brevard	0.14	0.00	0.14	0.07	0.21
Clay	0.00	0.00	0.00	0.00	0.00
Duval	0.50	0.00	0.50	0.00	0.50
Flagler	0.00	0.00	0.00	0.00	0.00
Indian River	0.00	0.00	0.00	0.00	0.00
Lake	0.00	0.00	0.00	0.00	0.00
Marion	0.00	0.00	0.00	0.00	0.00
Nassau	0.00	0.00	0.00	0.00	0.00
Okeechobee	0.00	0.00	0.00	0.00	0.00
Orange*	0.45	0.00	0.45	12.61	13.06
Osceola	0.02	0.00	0.02	0.00	0.02
Putnam	0.02	.78	0.80	0.00	0.80
St. Johns	0.00	0.00	0.00	0.00	0.00
Seminole	0.00	0.00	0.00	0.00	0.00
Volusia	0.36	0.00	.36	0.00	0.36
Total	1.66	.78	2.44	12.68	15.12

Water returned to source is nonconsumptive use and, therefore, not reported.
* Includes reclaimed water use for Stanton Energy Center. Source: Agency Power Plant Siting Report, May 16, 2006, (draft), prepared by SJRWMD.

Table 9

St. Johns River Water Management District
2005 Crops Included in Estimates of Water Use
for Agricultural Irrigation Self-Supply

Vegetable Crops	Fruit Crops	Field Crops	Ornamentals and Grasses
Cabbage	Blueberry	Field corn	Ferns
Carrot	Citrus	Peanut	Ornamental (field grown)
Cucumber	Grape	Tobacco	Ornamental (container grown)
Pepper	Peach	Misc.	Improved pasture
Potatoe	Pecan		Sod
Sweet Corn	Strawberry		
Misc.	Watermelon		
	Misc.		