A decorative graphic consisting of a grid of water droplets. The droplets are arranged in a 5x5 grid, with the top row and bottom row having five droplets each, and the middle three rows having four droplets each. The droplets are light gray with a white highlight, giving them a three-dimensional appearance.

# **Annual Water Use Survey**

**1994**

Technical Publication SJ96-3

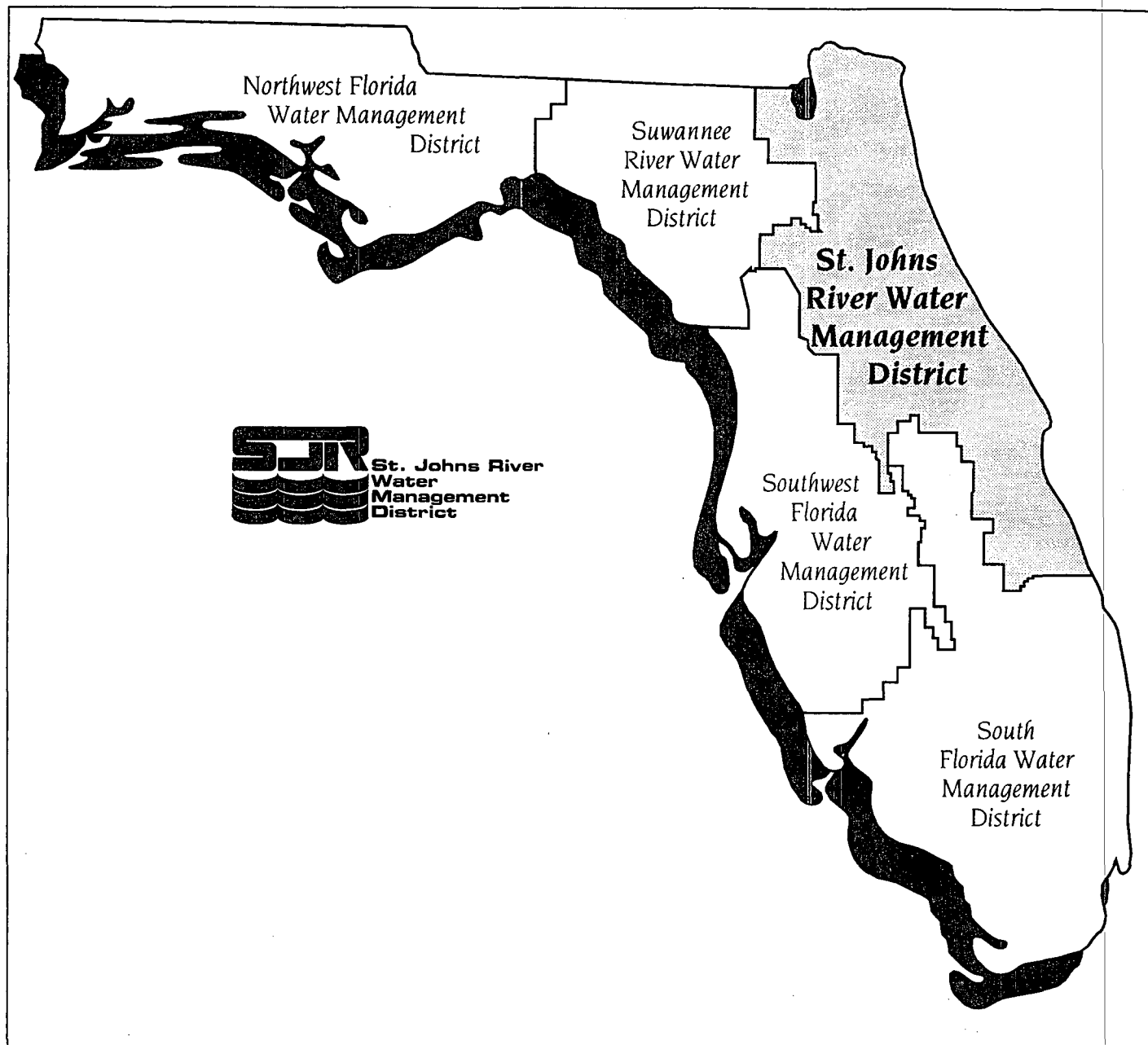
**ANNUAL WATER USE SURVEY: 1994**

by

Bruce L. Florence

St. Johns River Water Management District  
Palatka, Florida

1996



The **St. Johns River Water Management District (SJRWMD)** was created by the Florida Legislature in 1972 to be one of five water management districts in Florida. It includes all or part of 19 counties in northeast Florida. The mission of SJRWMD is to manage water resources to ensure their continued availability while maximizing environmental and economic benefits. It accomplishes its mission through regulation; applied research; assistance to federal, state, and local governments; operation and maintenance of water control works; and land acquisition and management.

Technical Publications are published to disseminate information collected by SJRWMD in pursuit of its mission. Copies of this report can be obtained from:

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P.O. Box 1429  
Palatka, FL 32178-1429  
Phone: (904) 329-4132

## EXECUTIVE SUMMARY

Water use data have been published annually by the St. Johns River Water Management District (SJRWMD) since 1978. This report assesses water use in SJRWMD for 1994; it presents the total quantities of water used. The information is arranged by source (ground or surface), category of use, and county. Water use covers all water withdrawals from ground or surface water sources and is expressed in million gallons per day (mgd).

The total amount of water used in SJRWMD in 1994, including fresh and saline water, was 3,190.25 mgd. Of that total, 1,521.21 mgd, or 48%, was fresh water. The total surface water use for SJRWMD was 2,072.66 mgd, of which 1,699.04 mgd was saline and 403.62 mgd was fresh. The total amount of ground water withdrawn in SJRWMD was 1,117.59 mgd. All ground water was fresh water.

The largest use of fresh ground water was for public supply—418.35 mgd, or 37% of the total fresh ground water use in SJRWMD. Agricultural fresh ground water use was 360.27 mgd, or 32% of the ground water total.

The largest use of fresh surface water was for agriculture—210.72 mgd, or 52% of the total fresh surface water use in SJRWMD. Most surface water used was saline water, used primarily for thermoelectric power generation (1,666.79 mgd).

Brevard County had the largest total water use, at 1,425.49 mgd, and the highest total freshwater use, at 255.90 mgd.



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## INTRODUCTION

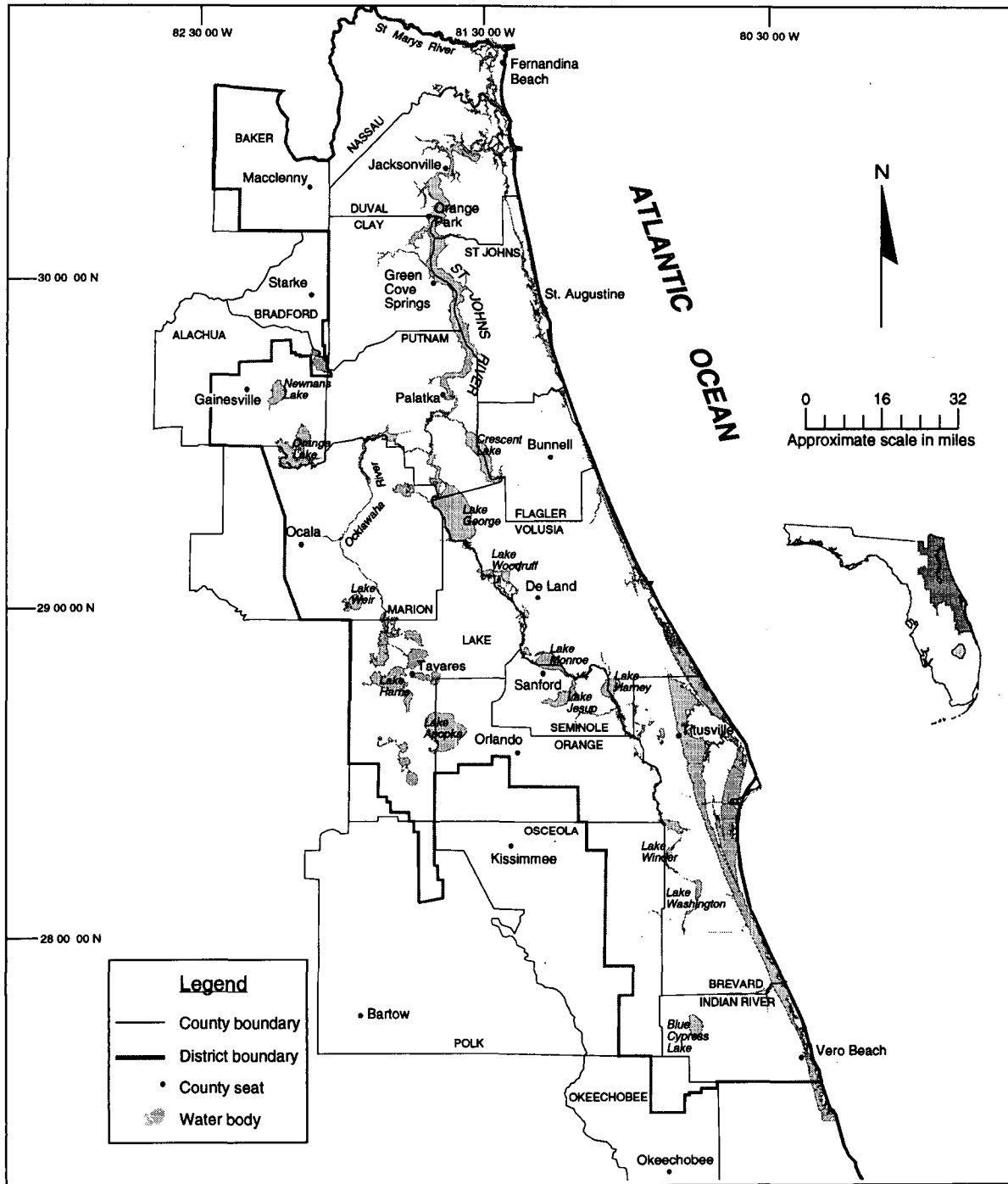
Water use data have been published annually by the St. Johns River Water Management District (SJRWMD) since 1978. This report assesses water use in SJRWMD for 1994; it presents the total quantities of water used. The information is arranged by source (ground or surface), category of use, and county.

Water use covers all water withdrawals from ground or surface water sources and is expressed in million gallons per day (mgd). This unit, mgd, is based on the average annual water use (see glossary).

SJRWMD includes all or part of 19 counties in northeast Florida (Figure 1). The following counties are wholly or partly\* included in SJRWMD:

Alachua*	AL	Nassau	NS
Baker*	BK	Okeechobee*	OK
Bradford*	BF	Orange*	OR
Brevard	BV	Osceola*	OS
Clay	CL	Polk*	PK
Duval	DU	Putnam*	PT
Flagler	FL	St. Johns	SJ
Indian River	IR	Seminole	SM
Lake*	LK	Volusia	VL
Marion*	MR		

# ANNUAL WATER USE SURVEY: 1994



**Figure 1. The St. Johns River Water Management District**

## WATER USE CATEGORIES

Water withdrawal information is reported for seven categories of use:

- Public supply
- Domestic self-supply
- Commercial/industrial use
- Agricultural irrigation
- Recreational irrigation
- Thermoelectric power generation
- Abandoned artesian wells

For all categories but public supply, water is not provided by a public supply system.

### PUBLIC SUPPLY

The public supply category consists of water supplied by utilities to homes and industries. The reported amounts are a minimum, because some utilities report water withdrawals from the ground water system as water enters the treatment plant and others report only the amount of water delivered from the plant, which can be less than the actual withdrawals. Utilities that serve 400 or more people or that withdraw more than 0.01 mgd from ground or surface water sources are included in the public supply category. Public supply water use data come from utility records and are estimated to the nearest 0.01 mgd.

In 1994, 181 public supply utilities served 2,889,409 people, or 84% of the total population in SJRWMD (Table 1 and appendix). The rest of the population is assumed to use domestic self-supplied systems. County, city, and municipal population data are estimated from Florida Bureau of Economics and Business Research figures (University of Florida 1994, 1995a). Public supply data are estimated from the average number of service connections reported in the utility records, multiplied by the average number of persons per household (University of Florida 1995b).

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**Table 1. Population in the St. Johns River Water Management District (SJRWMD) by county, 1994**

County	County Population	SJRWMD Population	Percentage of County Population in SJRWMD	Public Supply Population	Domestic Self-Supply Population
Alachua	193,879	157,430	81	142,080	15,350
Baker	19,700	18,715	95	4,226	14,489
Bradford	24,210	1,816	7	374	1,442
Brevard	436,333	436,333	100	429,149	7,184
Clay	117,779	117,779	100	77,637	40,142
Duval	710,592	710,592	100	653,606	56,986
Flagler	35,292	35,292	100	25,152	10,140
Indian River	97,415	97,415	100	60,681	36,734
Lake	171,168	169,456	99	136,037	33,419
Marion	217,862	170,586	78	75,309	95,277
Nassau	47,371	47,371	100	23,773	23,598
Okeechobee	32,325	485	2	0	485
Orange	740,167	592,134	80	518,354	73,780
Osceola	131,111	3,016	2	0	3,016
Polk	437,204	4,372	1	1,568	2,804
Putnam	68,980	68,980	100	24,817	44,163
St. Johns	94,758	94,758	100	90,129	4,629
Seminole	316,555	316,555	100	291,699	24,856
Volusia	396,631	396,631	100	334,818	61,813
Total	4,289,332	3,439,716		2,889,409	550,307

Source: University of Florida 1994

## DOMESTIC SELF-SUPPLY

The domestic self-supply category includes water withdrawn by individual domestic wells or provided by utilities that serve fewer than 400 people. All domestic self-supplied water is assumed to be ground water, and it is assumed that these wells are drilled into the easiest accessible aquifer that could produce potable water. Small utilities and domestic wells are not inventoried, so water use in this category is estimated from population and per capita water use figures.

Populations are based initially on the 1990 census data. SJRWMD follows watershed boundaries and not county boundaries; therefore, some counties are only partially included in SJRWMD. SJRWMD population figures for these counties are based on the estimated population percentages contained in Florence (1996).

Domestic self-supplied water use is derived by (1) subtracting the number of people served by public supply systems from the water use population of the county, to obtain a domestic self-supplied population, and (2) multiplying the result by the county per capita water use. Per capita water use is derived by dividing the public supply water use by the public supply population.

## COMMERCIAL/INDUSTRIAL USE

The commercial/industrial use category consists of the larger commercial and industrial users not served by public supply utilities. The commercial category includes businesses and institutions, such as government facilities, military installations, schools, prisons, and hospitals. The industrial category includes mining, processing, and manufacturing facilities; it does not include water used for power generation by thermoelectric power plants.

Only commercial/industrial facilities that use, on average, more than 0.01 mgd of ground or surface water were inventoried. Fifty-three industrial users and 43 commercial users, including 42 institutions, are included in this report of 1994 water use (see appendix). Of the commercial/industrial users, four users had an average water use in 1994 that was less than 0.01 mgd. Water used for transporting materials from the mine pit to the plant and for dewatering mine pits is considered conveyance and is not included in estimates of water use.

The data for this category are based on reported water use or permitted allowances. The data were collected using information from the consumptive use permits (CUPs) issued by SJRWMD to the facilities and information from monthly operating reports received by SJRWMD, the Florida Department of Environmental Protection (FDEP), or the Florida Department of Health and Rehabilitative Services (HRS). Industries not reporting to FDEP, HRS, or SJRWMD were contacted by SJRWMD staff.

## AGRICULTURAL IRRIGATION

The agricultural water use category consists of estimated water withdrawals from ground and surface sources for crop irrigation. This water is not provided by public supply utilities. Estimates of the acreage



## ANNUAL WATER USE SURVEY: 1994

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planted in various crops are multiplied by estimates of the water necessary to irrigate those crops per acre.

Water use for irrigation is assessed by crop, because crops have specific consumptive use requirements (USDA 1970). There are 32 crop categories assessed, and these are divided into four groups (Table 2):

- Vegetable crops
- Fruit crops
- Field crops
- Ornamentals and grasses

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**Table 2. Crops included in estimates of water use for agricultural irrigation**

Vegetable Crops	Fruit Crops	Field Crops	Ornamentals and Grasses
Cabbage	Blueberries	Field corn	Ferns
Carrots	Citrus	Peanuts	Foliage
Cucumbers	Grapes	Rice	Woody ornamentals
Peppers	Peaches	Sorghum	Improved pasture
Potatoes	Pecans	Soybeans	Sod
Tomatoes	Strawberries	Sugar cane	Turf grass (other than golf)
Sweet corn	Watermelons	Tobacco	
Watercress	Miscellaneous fruits	Wheat	
Miscellaneous vegetables		Miscellaneous grains	

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Acreage data are supplied primarily by the Cooperative Extension Service of the Institute of Food and Agricultural Sciences (IFAS) at the University of Florida, supplemented by information from SJRWMD and the Florida Department of Agriculture and Consumer Services (FDACS 1995a-c). In some instances, discrepancies exist between IFAS and SJRWMD crop acreage estimates, for example, fern acreage in Volusia County and irrigated pasture acreage in Indian River and Brevard counties. IFAS figures have been used in the 1994 survey to maintain consistency with previous surveys.

The estimates of irrigation necessary for each crop acre are calculated using the modified Blaney-Criddle irrigation model (USDA 1970) and data from the SJRWMD Benchmark Farms irrigation monitoring program (Singleton 1995), supplemented by other information from the U.S. Department of Agriculture Soil Conservation Service (USDA 1970, 1982) and the National Oceanographic and Atmospheric Administration (NOAA 1994a–g).

## RECREATIONAL IRRIGATION

The recreational irrigation category includes water used to irrigate turf grass for golf courses. This water is not provided by public supply utilities. Prior to the 1992 *Annual water use survey* report, turf grass irrigation was included in the agricultural water use category as “turf grass (golf).” In the 1992 survey, the recreational irrigation category included turf grass used for golf and other purposes. Since 1992, recreational irrigation only includes turf grass for golf courses. Recreational water use is assumed to be fresh water and does not include estimates of reclaimed water use.

The acreage data are supplied primarily by the Cooperative Extension Service of IFAS at the University of Florida, supplemented by information from the CUP files at SJRWMD and from the Florida Department of Agriculture and Consumer Services (FDACS 1995a–c). The estimate of irrigation necessary for the crop acreage is calculated using the modified Blaney-Criddle irrigation model (USDA 1970).

## THERMOELECTRIC POWER GENERATION

The thermoelectric power generation category of water use consists of water used by power plants primarily for cooling. This water is not provided by public supply utilities. These figures are derived from information in the CUP files at SJRWMD or from data supplied by the power companies to SJRWMD, FDEP, or HRS in monthly operating reports. In 1994, water use data were collected for 12 self-supplied thermoelectric power plants.

## ABANDONED ARTESIAN WELLS

The abandoned artesian wells category includes water flowing from abandoned artesian wells. According to available data, all abandoned artesian wells are supplied by the Floridan aquifer system. Water flowing from abandoned artesian wells is estimated based on an average of metered flow from monitored wells multiplied by an estimated number of wells. For counties where known flows exist, the average of the known flows in that county is used to estimate flow from the wells of unknown flow. For counties where no flows have been measured, the districtwide average for all wells of known flow is used. In 1994, the districtwide average for all wells of known flow was about 0.26 mgd per well (Davis 1995).

Prior to 1990, the estimated amount of water flowing from abandoned artesian wells was included in the miscellaneous category of water use along with other types of water use.

Abandoned artesian well reports are dated by the year in which the fiscal year ends (e.g., October 1993 through September 1994 is the 1994 report).

## 1994 WATER USE BY SOURCE

Water in SJRWMD is withdrawn from both surface and ground water sources. Water quality from either source is defined as fresh, saline, or slightly saline.

For the purposes of this report, fresh water (ground or surface) is defined as any water containing 1,000 milligrams per liter (mg/L) or less of total dissolved solids (TDS) (see glossary). Slightly saline water is defined as water with a chloride concentration between 250 and 1,000 mg/L or a TDS concentration between 500 and 3,000 mg/L. Small amounts of slightly saline ground water are either diluted with fresh water or treated by reverse osmosis to public supply standards. For other uses, slightly saline water is not treated. In this report, slightly saline water that has been treated is included in the reported quantities of fresh water. In reports published before 1987, slightly saline water was reported as saline.

Some of the surface water use recorded in this report is saline water. Saline water is defined as water with a TDS concentration of more than 3,000 mg/L.

## TOTAL WATER USE

Total water use in 1994 was 3,190.25 mgd, of which 2,072.66 mgd came from surface water sources and 1,117.59 mgd came from ground water sources (Table 3). These figures do not include reuse of reclaimed water. Over one-half of the total water use was saline (1,669.04 mgd), and the remaining water use was fresh water (1,521.21 mgd).

The largest use of saline surface water was for thermoelectric power generation—1,666.79 mgd (Table 4), or nearly all of the total saline surface water use in SJRWMD.

# ANNUAL WATER USE SURVEY: 1994

**Table 3. Total 1994 water use by county, St. Johns River Water Management District (in million gallons per day)**

County	Fresh Water			Saline Water	Total Water Use
	Ground	Surface	Total	Surface	
Alachua	32.39	0.12	32.51	0.00	32.51
Baker	4.16	0.43	4.59	0.00	4.59
Bradford	0.37	0.00	0.37	0.00	0.37
Brevard*	225.84	30.06	255.90	1,169.59	1,425.49
Clay	23.60	0.36	23.96	0.00	23.96
Duval	156.97	0.95	157.92	439.46	597.38
Flagler	13.74	1.03	14.77	0.00	14.77
Indian River	104.98	143.85	248.83	57.74	306.57
Lake	76.86	12.49	89.35	0.00	89.35
Marion	36.63	1.11	37.74	0.00	37.74
Nassau	45.99	0.21	46.20	2.25	48.45
Okeechobee	12.96	0.00	12.96	0.00	12.96
Orange†	127.21	32.41	159.62	0.00	159.62
Osceola	5.62	9.55	15.17	0.00	15.17
Polk	5.25	0.49	5.74	0.00	5.74
Putnam	31.19	47.16	78.35	0.00	78.35
St. Johns	49.80	1.02	50.82	0.00	50.82
Seminole	81.37	1.19	82.56	0.00	82.56
Volusia	82.66	121.19	203.85	0.00	203.85
Total	1,117.59	403.62	1,521.21	1,669.04	3,190.25

Note: 0.00 value means pumpage was insignificant (<0.01 million gallons per day [mgd]) or did not occur

\*Includes 23.54 mgd withdrawn from Orange County for public supply use in Brevard County

†Does not include 38.43 mgd used in the South Florida Water Management District

**Table 4. Total 1994 water withdrawals by category, St. Johns River Water Management District (in million gallons per day)**

Category	Fresh Water			Saline Water*
	Ground	Surface	Total	Surface
Public supply	418.35	15.71	434.06	0.00
Domestic self-supply	85.35	0.00	85.35	0.00
Commercial/industrial use	90.79	35.08	125.87	2.25
Agricultural irrigation	360.27	210.72	570.99	0.00
Recreational irrigation	24.72	11.85	36.57	0.00
Thermoelectric power generation	12.11	130.26	142.37	1,666.79
Abandoned artesian wells	126.00	0.00	126.00	0.00
Total	1,117.59	403.62	1,521.21	1,669.04

\*Saline water is all from surface water sources

The largest use of fresh water was for agricultural irrigation—570.99 mgd (Table 4), or 38% of the total fresh water. The second largest use of fresh water was for public supply—434.06 mgd, or 29% of the total freshwater use in SJRWMD.

## **SURFACE WATER**

In 1994, surface water accounted for a total of 2,072.66 mgd of water use (Table 3). This use included water from both fresh and saline surface water sources. Nineteen percent (403.62 mgd) of the total surface water used in SJRWMD came from fresh surface water sources. The remaining 81% of surface water came from saline sources. All of the saline water discussed in this report came from surface water sources.

### **Fresh Water**

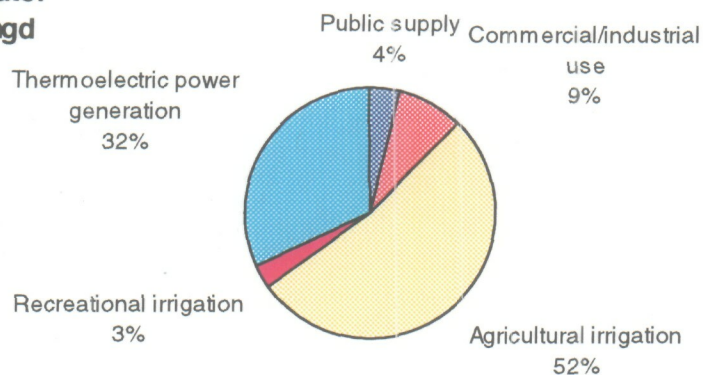
The county using the most fresh surface water (143.85 mgd) was Indian River County (Table 3). Virtually all of this water was for agricultural irrigation (see appendix). Volusia County used 121.19 mgd of fresh surface water, 97% of which was for thermoelectric power generation. Combined water use in these two counties totaled 265.04 mgd, or 66% of the total fresh surface water use in SJRWMD in 1994.

The largest category of fresh surface water use was agricultural irrigation, which accounted for 210.72 mgd (Table 4), or 52% (Figure 2) of the total fresh surface water use in SJRWMD. The second largest category of fresh surface water use was thermoelectric power generation, which accounted for 130.26 mgd, or 32% of the total. Commercial/industrial fresh surface water use accounted for 35.08 mgd, or 9% of the total fresh surface water use in SJRWMD. Fresh surface water withdrawn for public supply accounted for 15.71 mgd, or 4% of the total fresh surface water used. Fresh surface water withdrawn for recreational irrigation accounted for 11.85 mgd, or 3% of the total fresh surface water used.



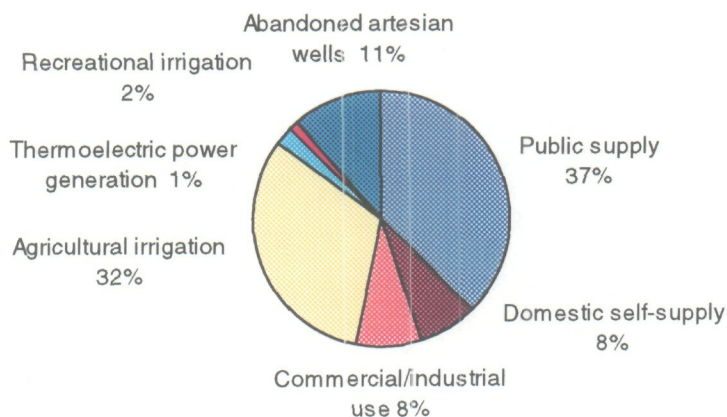
**Fresh Surface Water**

**Total = 403.62 mgd**



**Fresh Ground Water**

**Total = 1,117.59 mgd**



**Figure 2. Total freshwater use, 1994.** *Most of the fresh water used in the St. Johns River Water Management District came from ground water sources. Surface water is used primarily for agricultural irrigation and thermoelectric power generation.*

## Saline Water

Total saline water use in SJRWMD in 1994 was 1,669.04 mgd (Tables 3 and 4). Saline surface water is primarily used in SJRWMD for thermoelectric power generation or for commercial/industrial plant operation. Thermoelectric power plants use large amounts of saline water for cooling purposes. This saline water is recorded as a water use in this report even though nearly all of the cooling water is returned to its original source.

Brevard County had the highest saline surface water use—1,169.59 mgd (Table 3)—for thermoelectric power generation at two plants (see appendix):

- Florida Power and Light (653.07 mgd)
- Orlando Utilities Commission (516.52 mgd)

Duval County had the next highest saline surface water use—439.46 mgd (Table 3)—for thermoelectric power generation at two plants (see appendix):

- Jacksonville Electric Authority—Eastport Power Plant (394.23 mgd)
- St. Johns River Power Park (45.23 mgd)

Indian River County had a saline surface water use of 57.74 mgd at the Vero Beach Municipal Power Plant, and Nassau County had saline water use of 2.25 mgd at the ITT Rayonier paper mill (see appendix).

## GROUND WATER

There are three ground water aquifer systems in SJRWMD: the surficial, the intermediate, and the Floridan. Most ground water used in SJRWMD comes from the Floridan aquifer system.

In 1994, ground water accounted for a total of 1,117.59 mgd of water use (Table 3), or 73% of the total freshwater use in SJRWMD. Generally, almost all ground water withdrawals are from freshwater sources.

The counties in SJRWMD where the most ground water was used were Brevard, Duval, Indian River, and Orange (Table 3). Each of these

## ANNUAL WATER USE SURVEY: 1994

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counties used more than 100 mgd of ground water, for a combined total of 615 mgd for the three counties, or 55% of the total ground water use in SJRWMD in 1994.

The largest category of ground water use in 1994 in SJRWMD was public supply, which accounted for about 418.35 mgd (Table 4), or 37% of the total ground water use (Figure 2). The second largest category of ground water use was agricultural irrigation, accounting for 360.27 mgd, or 32% of the total ground water use. Abandoned artesian wells accounted for 126.00 mgd, or 11% of the total ground water use; commercial/industrial water use accounted for 90.79 mgd, or 8% of the total; domestic self-supply accounted for 85.35 mgd, or 8% of the total; recreational irrigation accounted for 24.72 mgd, or 2% of the total; and thermoelectric power generation accounted for 12.11 mgd, or 1% of the total ground water use.

## 1994 WATER USE BY CATEGORY

In the following five categories of water use, most or all of the water used is fresh water:

- Public supply
- Domestic self-supply
- Agricultural irrigation
- Recreational irrigation
- Abandoned artesian wells

In the following two categories of water use, both fresh and saline water are used:

- Commercial/industrial use
- Thermoelectric power generation

### PUBLIC SUPPLY

The public supply category consists of water supplied by utilities to homes and industries. Total water use from ground and surface sources for public supply in 1994 was 434.06 mgd (Tables 4 and 5). All public supply water was fresh water, and most of the water supplied in 1994 (96%) was ground water (Table 4). Fresh surface water (15.71 mgd) was used for public supply in Brevard County (see appendix). Eighty-nine percent of the ground water used in SJRWMD for public supply was withdrawn from the Floridan aquifer system; the remaining 11% was withdrawn from the intermediate and surficial aquifer systems (SJRWMD 1992). The public supply category of ground water use accounted for 37% of the total ground water use in SJRWMD in 1994 (Figure 2).

The figures in this report for fresh ground water use include a small amount of slightly saline ground water that was treated by reverse osmosis or blended with fresh water for use in public supply systems. In the SJRWMD *Annual water use survey* reports published before 1987, this slightly saline ground water was reported as saline water.

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### Per Capita

The average per capita water use in SJRWMD in 1994, based on the population served by public supply, was 150 gallons per day (Table 5). This amount includes water used for residential as well as non-residential purposes.

**Table 5. Public supply and domestic self-supply water use in the St. Johns River Water Management District, 1994**

County	Public Supply Population	Public Supply Water Use (mgd)	Per Capita (gallons per day)	Domestic Self-Supply Population	Domestic Self-Supply Water Use (mgd)
Alachua	142,080	21.68	153	15,350	2.35
Baker	4,226	0.71	168	14,489	2.43
Bradford	374	0.04	107	1,442	0.15
Brevard	429,149	49.94*	116	7,184	0.83
Clay	77,637	11.14	143	40,142	5.74
Duval	653,606	99.09	152	56,986	8.66
Flagler	25,152	4.20	167	10,140	1.69
Indian River	60,681	9.91	163	36,734	5.99
Lake	136,037	20.23	149	33,419	4.98
Marion	75,309	11.56	154	95,277	14.67
Nassau	23,773	4.53	191	23,598	4.51
Okeechobee	0	0.00	150 <sup>†</sup>	485	0.07
Orange	518,354	92.91 <sup>‡</sup>	179	73,780	13.21
Osceola	0	0.00	150 <sup>†</sup>	3,016	0.45
Polk	1,568	0.23	147	2,804	0.41
Putnam	24,817	3.41	137	44,163	6.05
St. Johns	90,129	9.72	108	4,629	0.50
Seminole	291,699	48.49	166	24,856	4.13
Volusia	334,818	46.27	138	61,813	8.53
Total	2,889,409	434.06	150 <sup>§</sup>	550,307	85.35**

Note: mgd = million gallons per day

\*Includes 23.54 mgd withdrawn in Orange County

<sup>†</sup>Districtwide per capita (see <sup>§</sup> footnote)

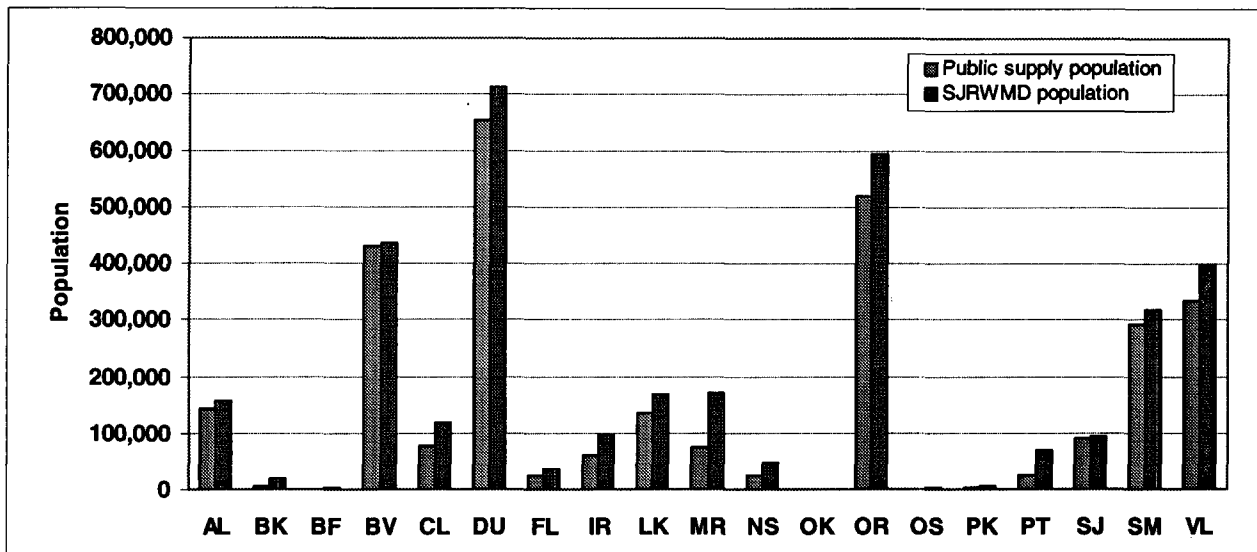
<sup>‡</sup>Does not include 23.54 mgd withdrawn in Orange County for use in Brevard County

<sup>§</sup>Represents districtwide per capita based on counties for which per capita data were available

\*\*Total quantity of county domestic self-supply water use, not based on districtwide per capita

## Water Use by County

The counties with the largest populations in SJRWMD—and consequently the counties with the largest public supply water use—are Duval and Orange counties (Table 5 and Figure 3). Together, these counties represent about 41% of the SJRWMD public supply water use population.



**Figure 3. Population served by public supply in the St. Johns River Water Management District (SJRWMD), 1994.** Duval and Orange are the largest counties in population in SJRWMD. Okeechobee and Osceola counties do not have a public supply population in SJRWMD. County abbreviations are listed on page 1.

Combined water use for public supply in Duval (99.09 mgd) and Orange (92.91 mgd) counties was 192.00 mgd, or 44% of the public supply water use in SJRWMD in 1994. Orange County falls within two water management districts; 38.43 mgd of public supply water use in Orange County was used in the South Florida Water Management District and, therefore, is not included in the totals in this report (see appendix). Also, some of the water withdrawn in Orange County (23.54 mgd) was for the City of Cocoa public supply system in Brevard County (Table 5).



The City of Jacksonville (Duval County), which has the largest public supply utility in SJRWMD, supplied its 476,394 customers with 71.55 mgd of fresh ground water in 1994 (see appendix).

## DOMESTIC SELF-SUPPLY

In 1994, an estimated 550,307 people used 85.35 mgd of domestic self-supplied water (Tables 4 and 5), or 8% of the total fresh ground water use in SJRWMD (Figure 2). All of the domestic self-supplied water was assumed to be ground water.

Marion County had the largest self-supplied population—95,277 people (Tables 1 and 5). Orange County had the second largest, with 73,780 people, followed by Volusia County with 61,813 people.

## COMMERCIAL/INDUSTRIAL USE

The total freshwater use in the commercial/industrial category was 125.87 mgd (Tables 4 and 6), or 8% of the total freshwater use in SJRWMD. Of this total, 90.79 mgd was ground water and 35.08 mgd was fresh surface water. In addition, 2.25 mgd of saline water was used in this category.

Most of the water used in this category supplied the pulp and paper industries in Putnam, Nassau, and Duval counties. In 1994, water use for pulp and paper production included 55.62 mgd of fresh ground water, 31.77 mgd of fresh surface water, and 2.25 mgd of saline surface water (see appendix). The second largest water user in this category was the mining industry, which accounted for 14.22 mgd of fresh ground water and 3.31 mgd of fresh surface water. Together, pulp and paper production and mining accounted for 104.92 mgd of fresh water, or 83% of the commercial/industrial freshwater use in SJRWMD.

The largest amount of fresh water used for commercial/industrial purposes (42.38 mgd) was in Putnam County (Table 6). Nassau (34.55 mgd) and Duval (24.56 mgd) counties also had significant amounts of freshwater use in this category. Of the total fresh water used for commercial/industrial purposes in SJRWMD, 81% (101.49 mgd) was in these three counties.

**Table 6. Commercial/industrial water use in the St. Johns River Water Management District, 1994 (in million gallons per day)**

County	Fresh Water			Saline Water
	Ground	Surface*	Total	Surface
Alachua	1.92	0.00	1.92	0.00
Baker	0.20	0.00	0.20	0.00
Bradford	0.00	0.00	0.00	0.00
Brevard	0.87	0.00	0.87	0.00
Clay	4.99	0.00	4.99	0.00
Duval	24.56	0.00	24.56	0.00
Flagler	0.20	0.00	0.20	0.00
Indian River	0.72	0.00	0.72	0.00
Lake	7.89	1.14	9.03	0.00
Marion	2.23	0.00	2.23	0.00
Nassau	34.55	0.00	34.55	2.25
Okeechobee	0.02	0.00	0.02	0.00
Orange	3.12	0.00	3.12	0.00
Osceola	0.00	0.00	0.00	0.00
Polk	0.19	0.00	0.19	0.00
Putnam	8.44	33.94	42.38	0.00
St. Johns	0.05	0.00	0.05	0.00
Seminole	0.17	0.00	0.17	0.00
Volusia	0.67	0.00	0.67	0.00
Total	90.79	35.08	125.87	2.25

Note: 0.00 value means pumpage was insignificant (<0.01 million gallons per day) or did not occur

\*Does not include water used in mining for dewatering and transport

## AGRICULTURAL IRRIGATION

Almost all the water used for agricultural irrigation in SJRWMD was fresh water. Information from the CUP files at SJRWMD indicates that a small but undetermined amount of moderately saline water (TDS >1,000 but <3,000 mg/L) was used for agricultural irrigation in Indian River County. Total freshwater use for agricultural irrigation was estimated at 570.99 mgd, or 38% of the total freshwater use in SJRWMD in 1994 (Tables 4 and 7). Of this total, 360.27 mgd, or 63% of the total water used for agriculture, was ground water. It was assumed that most ground water used for agricultural irrigation came from the Lower and Upper Floridan aquifers.

## ANNUAL WATER USE SURVEY: 1994

**Table 7. Agricultural irrigation water use in the St. Johns River Water Management District, 1994 (in million gallons per day)**

County	Fresh Water			Acreage	
	Ground	Surface	Total	Farmed	Irrigated
Alachua	5.25	0.03	5.28	38,350	5,445
Baker	0.67	0.43	1.10	14,745	665
Bradford	0.11	0.00	0.11	160	160
Brevard	136.51	11.41	147.92	139,763	88,493
Clay	0.54	0.00	0.54	44,011	369
Duval	1.92	0.12	2.04	13,450	1,552
Flagler	7.39	0.15	7.54	24,705	7,240
Indian River	63.20	142.49	205.69	134,543	95,032
Lake	41.20	10.25	51.45	81,131	30,417
Marion	4.58	0.56	5.14	71,349	5,173
Nassau	0.25	0.00	0.25	6,761	205
Okeechobee	12.87	0.00	12.87	34,485	7,485
Orange	13.46	31.97	45.43	68,181	29,935
Osceola	5.17	9.55	14.72	126,800	12,180
Polk	4.42	0.49	4.91	8,312	3,136
Putnam	11.56	0.66	12.22	51,465	9,315
St. Johns	28.20	0.00	28.20	30,700	26,200
Seminole	6.65	0.19	6.84	11,429	4,675
Volusia	16.32	2.42	18.74	12,321	10,461
Total	360.27	210.72	570.99	912,661	338,138

Note: 0.00 value means pumpage was insignificant (<0.01 million gallons per day) or did not occur

### Water Use by County

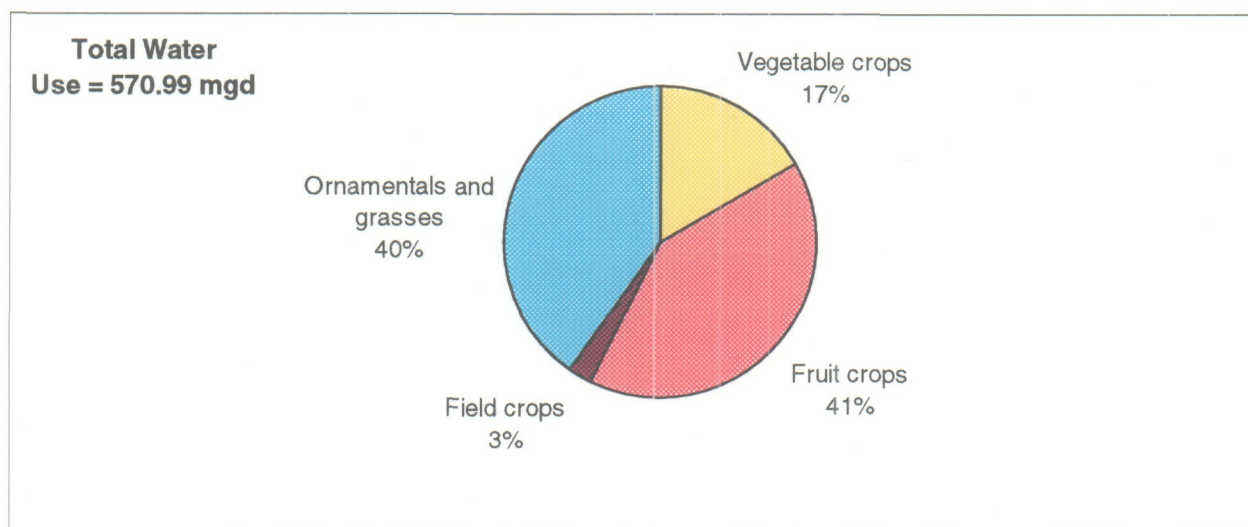
The largest water use for agricultural irrigation occurred in Indian River County—205.69 mgd of fresh water (Table 7), or 36% of the agricultural water use in SJRWMD. Most of this amount, 142.49 mgd, was fresh surface water. The second largest water use for agriculture was in Brevard County—147.92 mgd, most of which was ground water. The combined water use in these two counties was 353.61 mgd, or 62% of the total agricultural irrigation water use in SJRWMD in 1994.

### Water Use by Acreage and Crop

An estimated 912,661 acres were farmed in SJRWMD in 1994, of which 338,138 acres were irrigated (see Table 7 and appendix). Of the total acreage irrigated, 226,956 acres were irrigated by flood systems, 58,613 acres were irrigated by low pressure/low volume systems, and

52,569 acres were irrigated by sprinkler systems. The amount of irrigated acres decreased from 363,356 acres in 1993 (including turf grass [other])—a net decrease of 25,218 acres (Florence 1996).

The largest water use for a crop type was for fruit crops, which accounted for 41% of the agricultural water use (Figure 4). The largest water use for a single crop was for citrus irrigation, which accounted for 226.03 mgd, or 40% of the agricultural water use in SJRWMD (see appendix). Irrigation of improved pasture land accounted for 187.45 mgd, or 33% of the agricultural water use.



**Figure 4. Agricultural irrigation water use in the St. Johns River Water Management District for four crop types, 1994.** *Fruit crops accounted for 41% of agricultural irrigation water use in 1994.*

## RECREATIONAL IRRIGATION

Water used in the recreational irrigation category totaled 36.57 mgd, or about 2% of the total freshwater use in SJRWMD (Tables 4 and 8). Of this amount, 24.72 mgd was ground water.

## ANNUAL WATER USE SURVEY: 1994

**Table 8. Recreational irrigation water use in the St. Johns River Water Management District, 1994 (in million gallons per day)**

County	Fresh Water			Acreage	
	Ground	Surface	Total	Farmed	Irrigated
Alachua	0.70	0.09	0.79	480	328
Baker	0.15	0.00	0.15	124	60
Bradford	0.07	0.00	0.07	40	30
Brevard	1.77	2.94	4.71	1,800	1,475
Clay	0.68	0.36	1.04	530	380
Duval	3.41	0.83	4.24	2,992	1,413
Flagler	0.13	0.88	1.01	362	362
Indian River	2.76	1.36	4.12	1,637	1,276
Lake	1.35	1.10	2.45	1,591	769
Marion	0.76	0.55	1.31	1,500	500
Nassau	1.36	0.21	1.57	645	565
Okeechobee	0.00	0.00	0.00	0	0
Orange	2.29	0.44	2.73	1,533	939
Osceola	0.00	0.00	0.00	0	0
Polk	0.00	0.00	0.00	0	0
Putnam	0.20	0.00	0.20	196	76
St. Johns	1.75	1.02	2.77	1,192	1,011
Seminole	3.98	1.00	4.98	2,875	1,678
Volusia	3.36	1.07	4.43	2,960	1,563
Total	24.72	11.85	36.57	20,457	12,425

Note: 0.00 value means pumpage was insignificant (<0.01 million gallons per day) or did not occur

The largest water use for recreational irrigation occurred in Seminole County—4.98 mgd (Table 8). The second largest water use was in Brevard County—4.71 mgd.

Approximately 12,425 of 20,457 acres were irrigated using sprinkler systems (see appendix). The amount of reported irrigated acres was almost the same in 1993 and 1994.

## THERMOELECTRIC POWER GENERATION

Total water use for the 12 self-supplied power plants accounted for 1,666.79 mgd of saline surface water, 130.26 mgd of fresh surface water, and 12.11 mgd of fresh ground water (Tables 4 and 9). The largest amount of saline water used for thermoelectric power generation was in Brevard County—1,169.59 mgd. The largest amount of freshwater use was in Volusia County—123.40 mgd.

**Table 9. Thermoelectric power generation water use in the St. Johns River Water Management District, 1994 (in million gallons per day)**

County	Fresh Water			Saline Water
	Ground	Surface	Total	Surface
Alachua	0.23	0.00	0.23	0.00
Baker	0.00	0.00	0.00	0.00
Bradford	0.00	0.00	0.00	0.00
Brevard	0.32	0.00	0.32	1,169.59
Clay	0.00	0.00	0.00	0.00
Duval	4.62	0.00	4.62	439.46
Flagler	0.00	0.00	0.00	0.00
Indian River	0.21	0.00	0.21	57.74
Lake	0.00	0.00	0.00	0.00
Marion	0.00	0.00	0.00	0.00
Nassau	0.00	0.00	0.00	0.00
Okeechobee	0.00	0.00	0.00	0.00
Orange	0.37	0.00	0.37	0.00
Osceola	0.00	0.00	0.00	0.00
Polk	0.00	0.00	0.00	0.00
Putnam	0.66	12.56	13.22	0.00
St. Johns	0.00	0.00	0.00	0.00
Seminole	0.00	0.00	0.00	0.00
Volusia	5.70	117.70	123.40	0.00
Total	12.11	130.26	142.37	1,666.79

Note: 0.00 value means pumpage was insignificant (<0.01 million gallons per day) or did not occur

## ABANDONED ARTESIAN WELLS

Water flowing from 712 abandoned artesian wells totaled an estimated 126.00 mgd in SJRWMD (Tables 4 and 10). The total known flow for 52 wells was 8.61 mgd. The estimated flow from 660 wells was 117.39 mgd. All water was fresh ground water (Davis 1995).

SJRWMD began its Abandoned Artesian Well Plugging Program in 1976. As of 1994, 2,384 abandoned artesian wells had been identified, of which 946 wells had been plugged or repaired by SJRWMD, 726 had been plugged or repaired by the well owners, and 712 are still flowing (Davis 1995). From October 1, 1993, to September 30, 1994, an estimated 21.37 mgd of fresh water had been saved as a result of properly plugging or abandoning these wells. As of September 1994, a total estimated 238.12 mgd of fresh water had been saved as a result of properly plugging or abandoning these wells.

# ANNUAL WATER USE SURVEY: 1994

**Table 10. Flow from abandoned artesian wells in the St. Johns River Water Management District, 1994 (in million gallons per day)**

County	Number of Wells of Known Flow	Known Flow (mgd)	Number of Wells of Unknown Flow	Estimated Flow (mgd)	Total Estimated Flow (mgd)
Alachua	0	0.00	1*	0.26	0.26
Baker	0	0.00	0	0.00	0.00
Bradford	0	0.00	0	0.00	0.00
Brevard	22	4.08	188	47.23	51.31
Clay	0	0.00	5*	0.51	0.51
Duval	0	0.00	23*	14.71	14.71
Flagler	0	0.00	4*	0.13	0.13
Indian River	8	3.34	39	18.85	22.19
Lake	0	0.00	28*	1.21	1.21
Marion	0	0.00	13*	2.83	2.83
Nassau	0	0.00	10*	0.79	0.79
Okeechobee	0	0.00	0	0.00	0.00
Orange	0	0.00	29*	1.85	1.85
Osceola	0	0.00	1*	0.00	0.00
Polk	0	0.00	0	0.00	0.00
Putnam	2	0.06	17	0.81	0.87
St. Johns	1	0.14	28	9.44	9.58
Seminole	18	0.96	254	16.99	17.95
Volusia	1	0.03	20	1.78	1.81
Total	52	8.61 <sup>†</sup>	660	117.39 <sup>†</sup>	126.00 <sup>†</sup>

Note: 0.00 value means pumpage was insignificant (<0.01 million gallons per day [mgd]) or did not occur

\*SJRWMD average flow (0.26 mgd) used for estimated flow

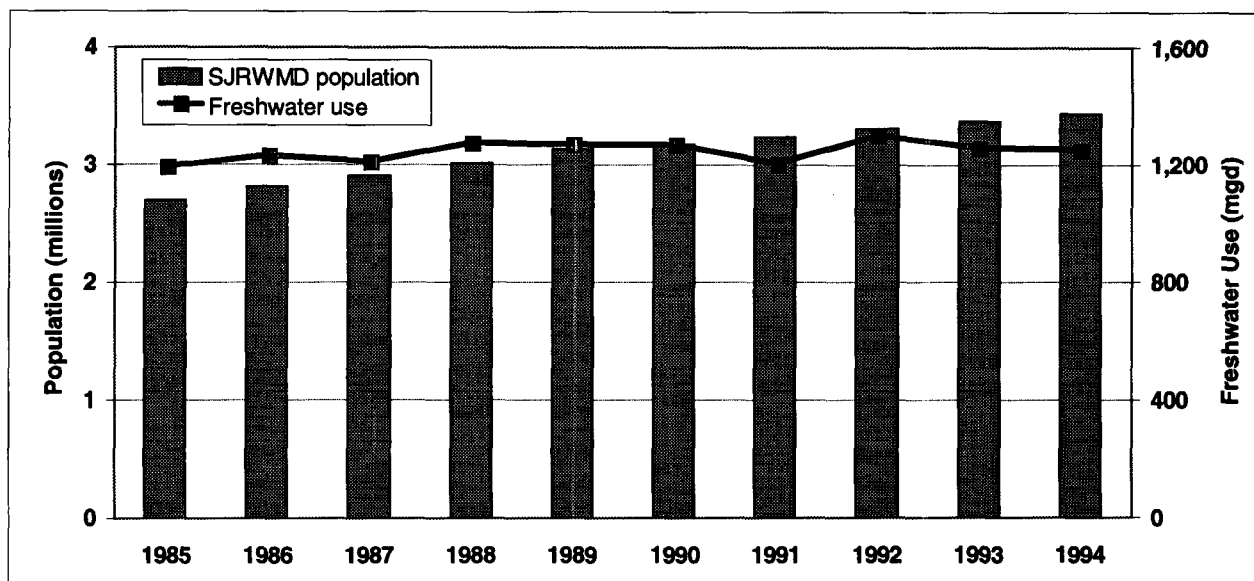
<sup>†</sup>Davis (1995) data are presented to four decimal places. Mathematical inaccuracies are due to rounding. See Davis (1995) for precise numbers

Source: Davis 1995

## TRENDS

### 1985 TO 1994

Total freshwater use increased by 12% over the period 1985 through 1994 (Table 11). The increase has been gradual and fairly consistent over the years, but the increase has occurred at a slower rate than population growth (Figure 5). The estimated SJRWMD population increased by 28% between 1985 and 1994. In general, the increase in total freshwater use has been driven by increases in public supply water use offset by the decrease in agricultural irrigation water use.



**Figure 5. Freshwater use and population in the St. Johns River Water Management District (SJRWMD), 1985–94.** *Water use has increased at a slower average rate than population. Note: thermoelectric power generation and abandoned artesian well water uses are not included.*

Although the trend for the 10-year (yr) period has been one of gradual increase in water use, annual fluctuations occur in response to seasonal patterns and distribution of rainfall. The normal yearly rainfall for the period 1961–90 is 49.84 inches (in.) (SJRWMD 1994). The average



**Table 11. Population and freshwater use (in million gallons per day) in the St. Johns River Water Management District (SJRWMD), 1985–94**

Category	1985	1986	1987	1988	1989*	1990	1991	1992	1993	1994	Average
SJRWMD population	2,690,133	2,813,578	2,919,028	3,023,277	3,135,756	3,166,715	3,243,380	3,313,721	3,375,486	3,439,716	Not applicable
Public supply population	2,201,080	2,315,929	2,403,847	2,498,520	2,598,404	2,665,791	2,700,294	2,785,107	2,858,527	2,889,409	Not applicable
Domestic self-supply population	485,923	497,646	515,181	521,607	537,352	500,924	543,086	528,614	516,959	550,307	Not applicable
Public supply per capita	163	165	167	164	166	167	153	152	154	150	Not applicable
Fresh ground water	991.04	1,003.12	1,012.03	1,054.55	1,103.35	1,085.97	1,027.22	1,042.67	1,099.52	1,117.59	1,053.71
Fresh surface water	363.76	379.62	353.47	379.15	360.47	459.00	373.41	469.22	404.15	403.62	394.59
Total fresh water	1,354.80	1,382.74	1,365.50	1,433.70	1,463.82	1,544.97	1,400.63	1,511.89	1,503.67	1,521.21	1,448.29
Public supply	358.53	381.99	400.39	409.29	431.12	444.14	414.15	424.63	440.86	434.06	413.92
Domestic self-supply	81.76	82.33	85.71	86.73	90.24	83.86	84.51	84.92	82.20	85.35	84.76
Commercial/industrial	172.34	148.46	145.67	150.11	148.66	137.65	144.24	148.20	133.74	125.87	145.49
Agricultural and recreational irrigation†	584.68	617.97	581.24	630.92	600.09	605.31	561.12	642.04	607.18	607.56	603.81
Thermoelectric power generation‡	124.41	133.72	134.37	135.78	137.11	213.31	139.99	136.43	136.96	142.37	143.45
Abandoned artesian wells	33.08	18.27	18.12	20.87	56.60	60.70	56.62	75.67	102.73	126.00	56.87

Note: Over the years, some of the methods for determining water use have changed. Check each source before making any detailed comparisons.

\*Corrected abandoned artesian well data for 1989 came from Steele (pers. com. 1992); fresh ground water for 1989, total fresh water for 1989, and respective averages reflect this change.

†In 1992, recreational irrigation water use became a separate category; it had previously been included under agricultural irrigation. For this table, the quantities for 1992–94 are a sum of both categories.

‡Data are incomplete.

Source: Marella 1985, 1986, 1988, 1990; Florence 1990, 1991, 1992, 1994, 1995, 1996

rainfall for the 10-yr period 1985–94 of 50.62 in. (Table 12) is nearly 2% above normal. The arithmetic mean of total freshwater use for this 10-yr period is 1,448.29 mgd. The highest total water use occurred in 1990, at 1,544.97 mgd, 7% above the 10-yr average. That year was the driest year of the period, with an average of 38.85 in. of rainfall (Table 12), or 22% below normal and 23% below the 10-yr average.

The second highest amount of water use occurred in 1994, at 1,521.21 mgd, 5% above the 10-yr average. The year 1991 was the wettest year during the period, with an average rainfall of 63.21 in. (Table 12), or 27% above normal and 25% above the 10-yr average. The lowest amount of water use occurred in 1985, at 1,354.80 mgd, or 6% below the 10-yr average.

Public supply water use increased steadily from 1985 to 1990, after which it began to level off (Figure 6 and Table 11). Water use for this category was highest in 1990 (444.14 mgd) and lowest in 1985 (358.53 mgd). The arithmetic mean for this 10-yr period is 413.92 mgd; water use in 1994 was 5% above the mean. There appears to be a general decline in per capita water use. Districtwide per capita use (for all use categories) for 1991 to 1994 ranged from 150 to 154 gallons per day, whereas the average use between 1985 and 1990 ranged from 163 to 167 gallons per day.

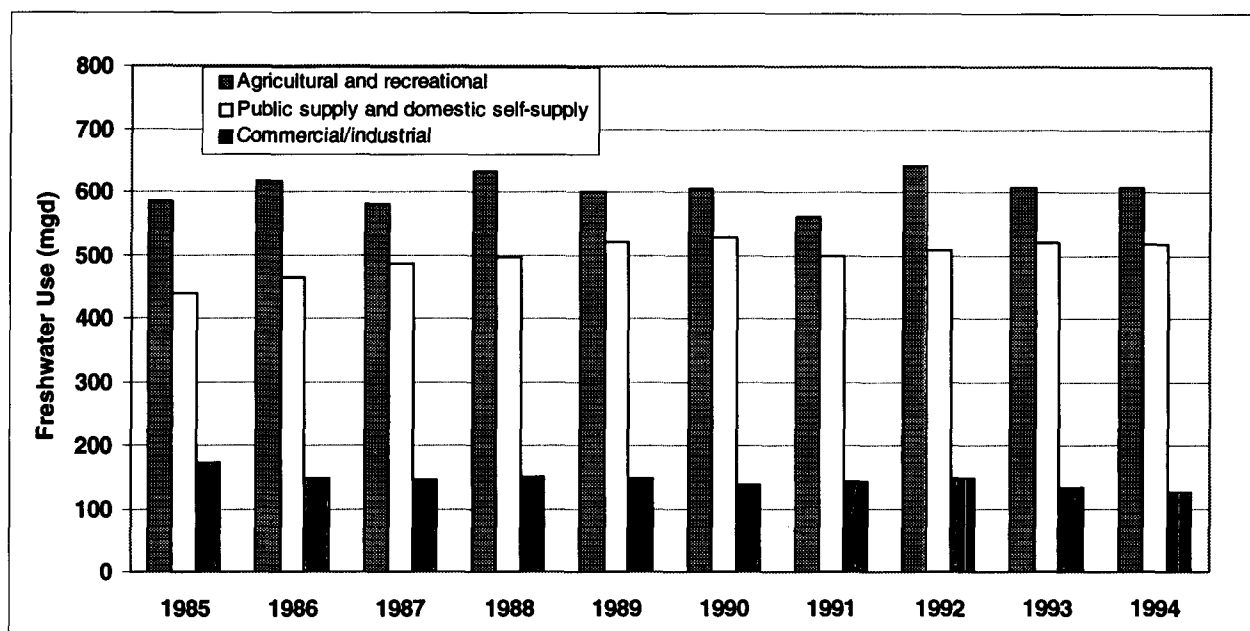
Domestic self-supply water use has fluctuated between 81.76 (1986) and 90.24 (1989) mgd over the 10-yr period (Table 11). The arithmetic mean for this 10-yr period was 84.76 mgd; water use in 1994 was less than 1% above the mean.

Commercial/industrial water use has remained relatively constant, with little fluctuation over the 10-yr period, with the exception of 1985 (Figure 6 and Table 11). Water use for this category was highest in 1985 (172.34 mgd) and lowest in 1994 (125.87 mgd). The arithmetic mean for this 10-yr period is 145.49 mgd; water use in 1994 was 13% below the mean.

**Table 12. Average annual rainfall from ten rainfall stations in the St. Johns River Water Management District, 1985–94 (in inches)**

Station	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	Average
Clermont	50.64	48.58	52.92	58.89	49.89	44.58	43.34	53.78	38.63	65.47	50.67
Daytona	45.38	48.00	45.72	40.91	44.65	36.12	67.19	46.41	35.71	66.64	47.67
Titusville	56.64	40.37	50.32	59.80	45.62	47.24	73.20	58.84	40.18	74.20	54.64
Glen St. Mary	48.12	49.33	53.97	59.00	43.10	31.61	74.16	61.82	53.43	53.08	52.76
Gainesville	49.83	52.31	46.63	61.21	46.38	47.56	57.00	51.65	42.42	50.12	50.51
Jacksonville Airport	58.39	44.10	43.39	60.68	51.45	31.20	79.63	63.18	50.12	67.30	54.94
Melbourne	51.52	30.90	50.38	36.11	43.00	48.00	58.58	49.36	33.90	79.13	48.09
Ocala	48.09	45.94	50.58	55.23	51.88	33.94	48.86	45.07	40.78	55.80	47.62
Orlando	47.19	49.83	56.79	52.49	45.66	31.68	60.90	52.96	42.23	67.93	50.77
Sanford	49.48	43.90	46.23	60.00	40.65	36.59	69.28	68.88	34.49	35.49	48.50
Average	50.53	45.33	49.69	54.43	46.23	38.85	63.21	55.20	41.19	61.52	50.62

Source: Jenab and Clapp 1996 (draft); NOAA 1994h



**Figure 6. Freshwater use in the St. Johns River Water Management District by category, 1985–94.** *Water use for agricultural and recreational irrigation has fluctuated from year to year in response to rainfall. Water use for public supply and domestic self-supply increased steadily from 1985 to 1990, after which it began to level off. Commercial/industrial use has decreased slightly, on the average.*

Agricultural and recreational (turf grass) irrigation water use (combined) over the 10-yr period has fluctuated but has remained relatively constant (Figure 6 and Table 11). Water use for this category was highest in 1992 (642.04 mgd) and lowest in 1991 (561.12 mgd). The arithmetic mean for this 10-yr period is 603.81 mgd; water use in 1994 for this category was less than 1% above the mean.

Thermoelectric power generation and abandoned artesian well data over the 10-yr period are either incomplete or the methods for determining water use have varied. Therefore, comparisons of data for these categories would be inappropriate.

## 1993 TO 1994

From 1993 to 1994, total freshwater use in SJRWMD increased from 1,503.67 mgd to 1,521.21 mgd, or about 1%. Fresh ground water use increased from 1,099.52 mgd to 1,117.59 mgd, or 2%. Fresh surface water use decreased from 404.15 mgd to 403.62 mgd, or less than 1%. Saline surface water use decreased from 1,746.20 mgd (Florence 1996) to 1,669.04 mgd (Table 3), or 5%.

Three categories of freshwater use increased from 1993 to 1994:

- Domestic self-supplied freshwater use increased 4%, from 82.20 mgd in 1993 to 85.35 mgd in 1994.
- Thermoelectric power generation freshwater use increased 4% from 136.96 mgd in 1993 to 142.37 mgd in 1994. Saline surface water withdrawals, however, decreased 5%, from 1,746.11 mgd in 1993 to 1,666.79 mgd in 1994.
- Abandoned artesian well estimated flows increased 23%, from 102.73 mgd in 1993 to 126.00 mgd in 1994. The increase was due largely to a number of large-diameter wells which were added to the inventory. These flows probably existed in prior years, but had not been identified.

Two categories of freshwater use decreased from 1993 to 1994:

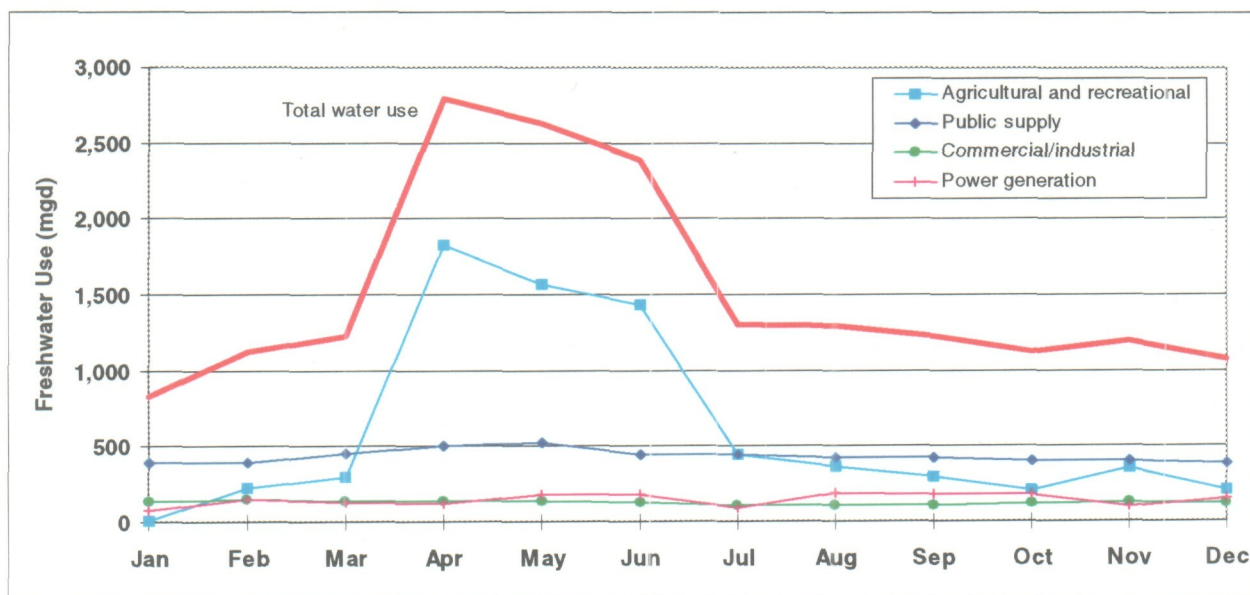
- Public supply freshwater use decreased 2%, from 440.86 mgd in 1993 to 434.06 mgd in 1994. This decrease, which does not appear to be significant, was likely a result of high amounts of rainfall that occurred during the summer months, and water conservation measures.
- Commercial/industrial freshwater use decreased 6%, from 133.74 mgd in 1993 to 125.87 mgd in 1994. Saline surface water withdrawals dramatically increased from 0.09 mgd in 1993 to 2.25 mgd in 1994. This increase is attributed to ITT Rayonier (Nassau County) withdrawing more saline surface water for industrial purposes.

Agricultural and recreational irrigation freshwater use, was essentially unchanged—607.18 mgd in 1993, 607.56 mgd in 1994.

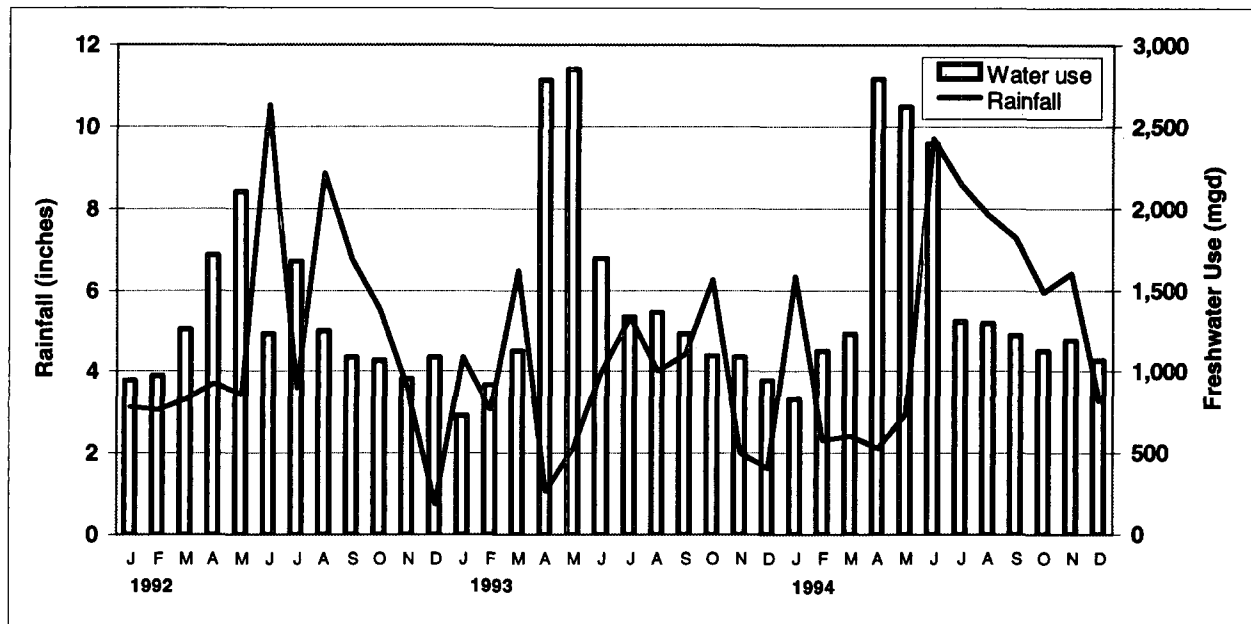
## SEASONAL TRENDS

Seasonal trends are evaluated based on the monthly totals. The monthly totals for each water use category were summed and divided by 365 days to get an average value in million gallons per day.

In 1994, total freshwater use was highest in April (Figure 7). Monthly trends in total water use follow the trends in agricultural water use, which depend on rainfall and growing season. March, April, and May tend to be both Florida's dry season and peak crop irrigation months, so irrigation demand usually increases during these months (Figure 8). In 1994, the peak agricultural water use continued through the month of June. Demand for residential lawn irrigation also tends to increase during these months, generating an increase in public supply water use.



**Figure 7. Total monthly freshwater use and freshwater use by category in the St. Johns River Water Management District, 1994.** *Total monthly fluctuations in water use follow the fluctuations in agricultural irrigation.*



**Figure 8. Total monthly freshwater use and average rainfall in the St. Johns River Water Management District, 1992–94. Water use is usually higher during periods of low rainfall.**

## Public Supply

Public supply water use in SJRWMD in 1994 fluctuated from a low of 384.18 mgd in December to a high of 524.34 mgd in May (Table 13 and Figures 7 and 9). Typically, water use increases during the warm season (April through October), when outdoor residential use is at a high.

## Commercial/Industrial Use

Commercial/industrial freshwater use in SJRWMD in 1994 varied from a low of 109.38 mgd in August to a high of 146.01 mgd in February (Table 14 and Figures 7 and 10).

## Agricultural and Recreational Irrigation

Agricultural and recreational irrigation water use in SJRWMD in 1994 had a greater seasonal fluctuation than any other water use category—from a low of 8.56 mgd in January to a high of 1,822.34 mgd in April (Table 15 and Figures 7 and 11). These fluctuations are typical of

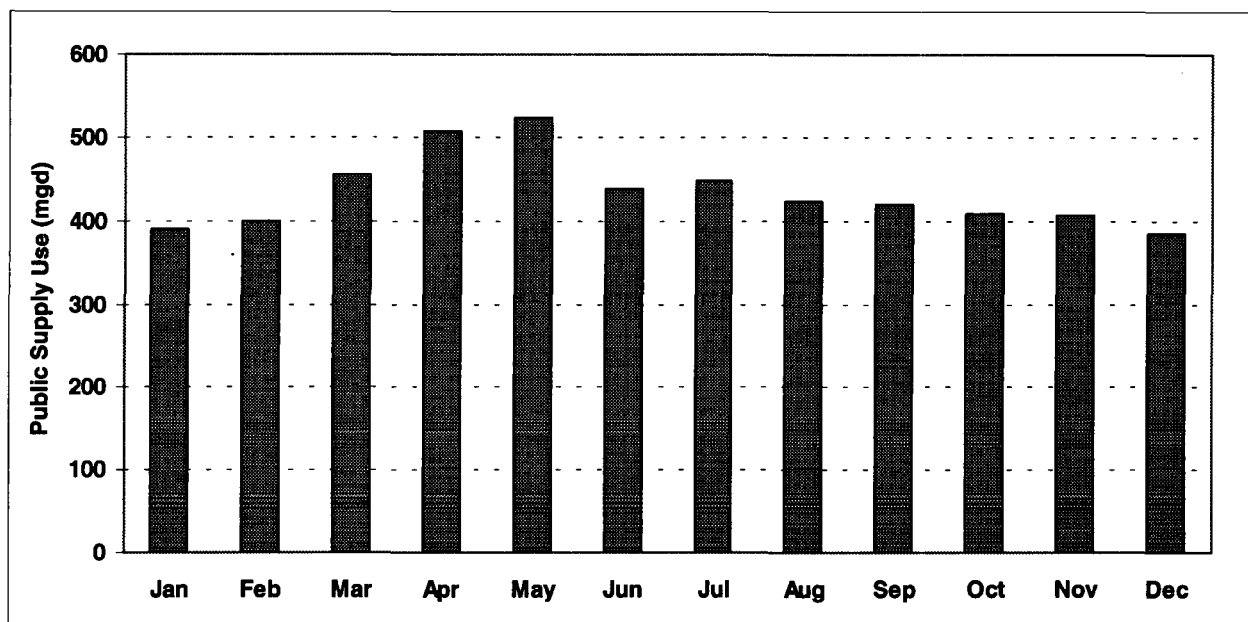
**Table 13. Monthly public supply water use by county, 1994 (in million gallons per day)**

County	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alachua	19.25	20.06	22.04	24.16	25.24	21.92	21.49	21.45	22.78	21.66	21.13	18.82
Baker	0.60	0.66	0.70	0.81	0.86	0.77	0.68	0.70	0.72	0.67	0.70	0.60
Bradford	0.03	0.03	0.04	0.05	0.06	0.04	0.04	0.04	0.03	0.03	0.03	0.03
Brevard	45.71	45.72	52.99	56.32	55.73	50.62	50.82	48.94	48.97	50.55	47.60	44.91
Clay	9.03	9.27	11.59	13.69	15.35	10.71	11.17	11.46	11.54	10.21	10.09	9.47
Duval	87.52	89.39	102.23	110.04	116.64	100.63	103.97	104.32	102.45	93.75	90.36	86.77
Flagler	3.46	3.63	4.08	4.50	4.67	3.89	4.16	4.79	4.19	3.91	4.78	4.40
Indian River	10.41	10.59	10.28	9.89	10.40	9.34	10.50	9.55	9.24	9.47	9.88	9.15
Lake	17.44	18.44	22.26	27.09	28.84	21.54	19.44	17.44	18.43	17.93	18.22	16.79
Marion	9.95	10.59	12.13	13.84	14.47	11.88	11.37	10.73	11.16	10.66	11.20	10.40
Nassau	3.90	3.59	3.95	4.80	5.25	5.56	5.56	4.96	4.44	4.10	4.07	4.10
Okeechobee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orange	84.46	85.39	96.98	110.93	111.82	94.64	97.03	87.72	85.58	85.06	89.01	86.15
Osceola	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Polk	0.22	0.24	0.23	0.28	0.19	0.31	0.13	0.21	0.20	0.22	0.31	0.25
Putnam	3.33	3.15	3.21	3.61	3.90	3.33	3.28	3.52	3.76	3.36	3.32	3.19
St. Johns	8.36	8.64	10.03	11.25	11.46	9.61	10.32	10.15	9.80	9.11	9.19	8.68
Seminole	44.14	43.57	51.93	60.56	65.16	48.43	51.34	44.27	43.67	43.89	44.90	39.95
Volusia	42.67	45.50	50.83	54.84	54.30	46.04	47.14	44.19	43.75	43.33	42.28	40.52
Total	390.48	398.46	455.50	506.66	524.34	439.26	448.44	424.44	420.71	407.91	407.07	384.18



Table 14. Monthly commercial/industrial water use by county, 1994 (in million gallons per day)

County	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alachua	1.91	1.90	1.92	1.94	2.02	1.98	1.95	1.94	1.88	1.89	1.86	1.85
Baker	0.23	0.22	0.18	0.18	0.21	0.21	0.20	0.20	0.23	0.17	0.20	0.19
Bradford	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brevard	0.94	1.17	1.11	1.26	0.42	0.99	0.81	0.94	0.67	0.80	0.67	0.65
Clay	4.30	5.97	6.36	5.62	5.61	5.19	4.63	4.50	4.14	4.06	5.33	4.22
Duval	26.82	29.13	26.86	24.82	22.24	22.96	21.59	22.04	23.94	24.56	26.33	24.07
Flagler	0.16	0.18	0.21	0.20	0.20	0.21	0.21	0.21	0.21	0.19	0.18	0.18
Indian River	0.76	0.96	0.51	0.40	0.74	0.98	0.70	0.74	0.52	0.73	0.79	0.79
Lake	9.13	9.46	9.56	9.35	8.42	9.71	9.13	9.44	9.05	8.16	7.90	9.11
Marion	1.75	2.85	2.95	3.88	1.94	2.14	1.54	2.09	1.99	2.10	2.14	1.29
Nassau	39.84	43.71	34.28	33.22	34.29	36.91	29.07	28.37	29.31	36.83	37.88	31.68
Okeechobee	0.02	0.03	0.02	0.03	0.03	0.03	0.02	0.03	0.02	0.02	0.02	0.01
Orange	4.04	3.53	2.62	4.09	4.22	2.32	2.01	1.76	1.94	1.90	4.34	4.79
Osceola	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Polk	0.27	0.24	0.24	0.21	0.21	0.17	0.16	0.13	0.13	0.15	0.16	0.18
Putnam	47.10	45.71	46.68	48.50	60.05	41.62	37.41	36.00	35.95	36.11	36.84	36.70
St. Johns	0.04	0.05	0.03	0.04	0.04	0.04	0.07	0.05	0.04	0.04	0.04	0.04
Seminole	0.11	0.18	0.34	0.20	0.24	0.19	0.17	0.25	0.16	0.13	0.11	0.08
Volusia	0.66	0.72	0.66	0.62	0.69	0.71	0.62	0.69	0.67	0.67	0.65	0.67
Total	138.08	146.01	134.53	134.56	141.57	126.36	110.29	109.38	110.85	118.51	125.44	116.50



**Figure 9. Monthly freshwater use for public supply in the St. Johns River Water Management District, 1994.** *Water use increases when outdoor residential use increases, typically during the warmer months of the year.*

irrigation water use and are inversely correlated to rainfall. January was atypically wet and almost no agricultural irrigation occurred during the month.

### Thermoelectric Power Generation

Thermoelectric power generation freshwater use in SJRWMD in 1994 fluctuated from a low of 81.22 mgd in January to a high of 182.85 mgd in August (Table 16 and Figures 7 and 12). Fluctuations in water use are related to power plant shutdowns for maintenance or increased power demands during periods of extremely high or low temperature.

**Table 15. Monthly agricultural and recreational water use by county, 1994 (in million gallons per day)**

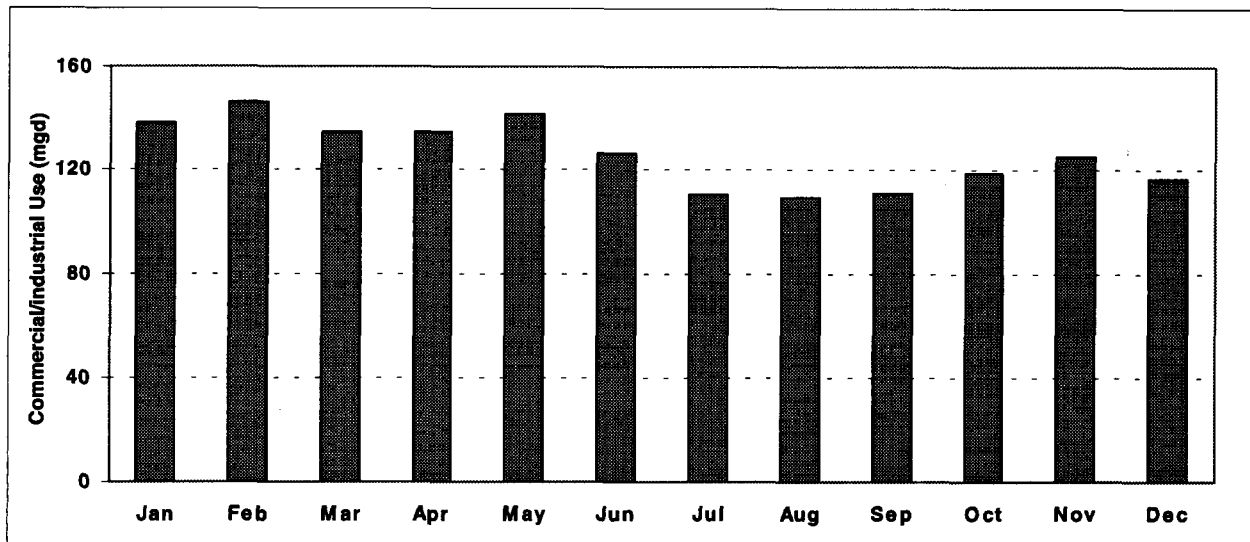
County	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alachua	0.10	0.42	1.08	20.04	19.60	15.79	4.23	4.17	3.89	1.31	1.32	0.57
Baker	0.00	0.12	0.43	2.43	2.98	2.59	2.10	1.88	1.44	0.03	0.83	0.19
Bradford	0.00	0.06	0.11	0.71	0.39	0.25	0.12	0.12	0.19	0.00	0.08	0.06
Brevard	0.41	12.28	17.00	581.14	544.60	565.46	28.87	18.33	21.22	11.52	22.93	15.38
Clay	0.04	0.41	0.71	3.47	3.96	3.46	2.05	1.57	1.65	0.20	1.05	0.47
Duval	0.00	1.44	3.54	13.73	15.33	15.53	8.83	5.43	6.32	0.07	3.49	1.41
Flagler	0.00	5.86	14.07	31.95	20.10	12.12	1.88	1.58	4.84	7.59	8.73	1.65
Indian River	0.76	81.50	69.96	549.50	444.36	420.33	214.81	204.66	147.23	101.92	171.05	114.05
Lake	1.95	16.25	15.62	93.36	95.24	97.23	59.42	45.00	35.57	29.40	40.37	17.33
Marion	0.11	1.45	1.77	21.16	16.84	16.88	5.18	3.81	3.56	2.01	3.19	1.18
Nassau	0.00	0.46	1.00	3.45	3.87	3.35	2.80	2.39	2.24	0.39	1.40	0.51
Okeechobee	0.00	3.80	2.94	38.83	31.73	31.30	10.11	10.06	7.20	4.90	8.28	5.45
Orange	4.66	18.13	16.97	133.33	128.04	107.45	54.97	18.10	18.78	12.75	43.00	22.07
Osceola	0.00	1.20	0.88	54.75	51.57	54.01	3.37	3.01	2.49	1.59	2.59	1.64
Polk	0.00	3.36	1.06	8.34	8.65	10.22	4.74	6.28	5.66	2.45	5.59	2.55
Putnam	0.02	14.07	28.99	46.54	29.23	8.66	4.77	4.46	4.92	3.42	5.31	2.95
St. Johns	0.01	38.26	95.63	153.09	90.12	19.05	4.80	4.34	6.47	3.69	8.35	1.94
Seminole	0.30	6.66	7.12	23.79	22.67	21.90	13.52	12.61	10.59	9.16	12.16	4.97
Volusia	0.20	18.82	18.99	42.73	37.46	28.69	19.67	17.21	14.90	14.75	14.41	11.32
Total	8.56	224.55	297.87	1,822.34	1,566.74	1,434.27	446.24	365.01	299.16	207.15	354.13	205.69

**Table 16. Monthly thermoelectric power generation water use by county, 1994 (in million gallons per day)**

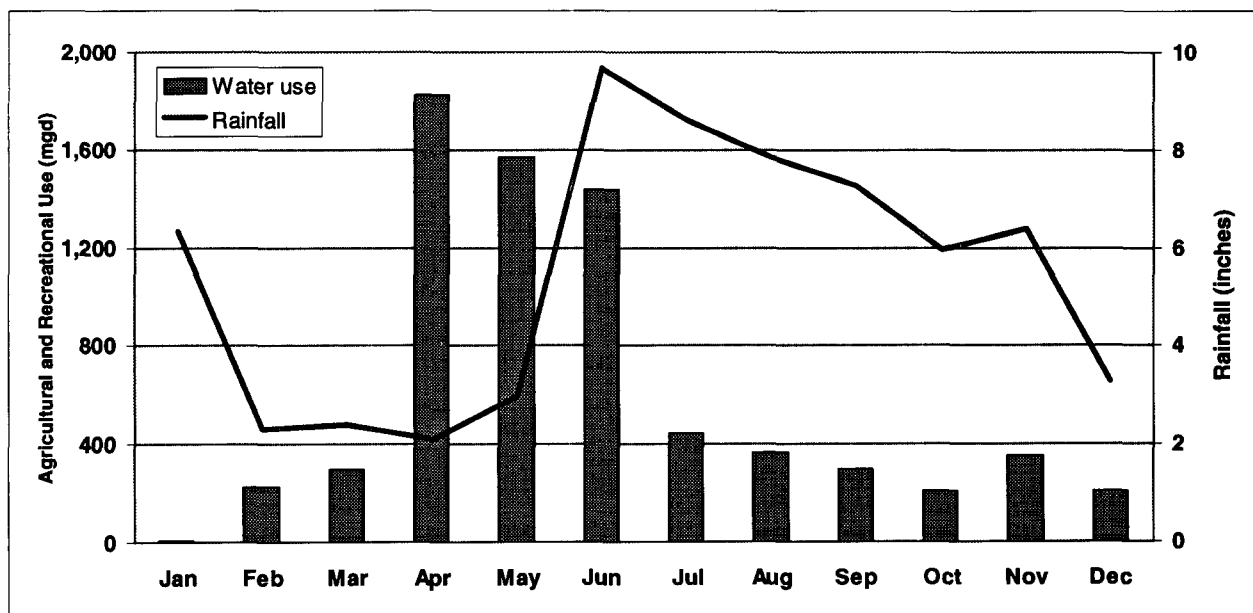
County	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alachua	0.11	0.05	0.24	0.40	0.17	0.36	0.45	0.30	0.16	0.36	0.14	0.02
Brevard	0.34	0.31	0.29	0.35	0.37	0.32	0.31	0.35	0.35	0.28	0.31	0.27
Duval	4.97	4.93	3.99	3.48	4.74	4.44	5.43	4.40	4.70	5.03	4.62	4.70
Indian River	0.16	0.06	0.08	0.06	0.39	0.66	0.46	0.17	0.11	0.18	0.05	0.15
Orange	0.31	0.31	0.30	0.63	0.52	0.32	0.34	0.34	0.40	0.34	0.32	0.30
Putnam	0.56	0.58	0.71	0.71	0.69	0.76	0.84	0.74	0.50	0.56	0.55	0.71
Volusia	5.98	6.01	6.13	6.21	5.95	6.11	5.71	5.76	5.28	4.71	4.73	5.77
<b>Total Fresh Ground Water</b>	<b>12.43</b>	<b>12.25</b>	<b>11.74</b>	<b>11.84</b>	<b>12.83</b>	<b>12.97</b>	<b>13.54</b>	<b>12.06</b>	<b>11.50</b>	<b>11.46</b>	<b>10.72</b>	<b>11.92</b>
Putnam	10.08	10.84	13.39	8.65	10.89	14.36	14.60	15.83	17.53	13.78	9.01	11.58
Volusia	58.71	124.07	101.65	96.13	156.60	152.18	61.69	154.96	148.91	152.76	76.79	128.67
<b>Total Fresh Surface Water</b>	<b>68.79</b>	<b>134.91</b>	<b>115.04</b>	<b>104.78</b>	<b>167.49</b>	<b>166.54</b>	<b>76.29</b>	<b>170.79</b>	<b>166.44</b>	<b>166.54</b>	<b>85.80</b>	<b>140.25</b>
<b>Total Fresh Water</b>	<b>81.22</b>	<b>147.16</b>	<b>126.78</b>	<b>116.62</b>	<b>180.32</b>	<b>179.51</b>	<b>89.83</b>	<b>182.85</b>	<b>177.94</b>	<b>178.00</b>	<b>96.52</b>	<b>152.17</b>
Brevard	1,256.87	1,239.63	1,187.87	1,198.45	1,156.62	1,296.15	1,238.58	1,211.13	1,230.79	1,139.84	1,052.29	836.78
Duval	179.32	366.47	427.69	174.96	335.78	626.21	643.93	721.67	607.21	246.02	485.25	456.31
Indian River	37.20	41.88	48.17	80.50	69.38	47.58	56.34	47.41	38.26	87.85	95.38	42.36
<b>Total Saline Surface Water</b>	<b>1,473.39</b>	<b>1,647.98</b>	<b>1,663.73</b>	<b>1,453.91</b>	<b>1,561.78</b>	<b>1,969.94</b>	<b>1,938.85</b>	<b>1,980.21</b>	<b>1,876.26</b>	<b>1,473.71</b>	<b>1,632.92</b>	<b>1,335.45</b>

Note: Counties not listed did not have any thermoelectric power generation water use in St. Johns River Water Management District in 1994

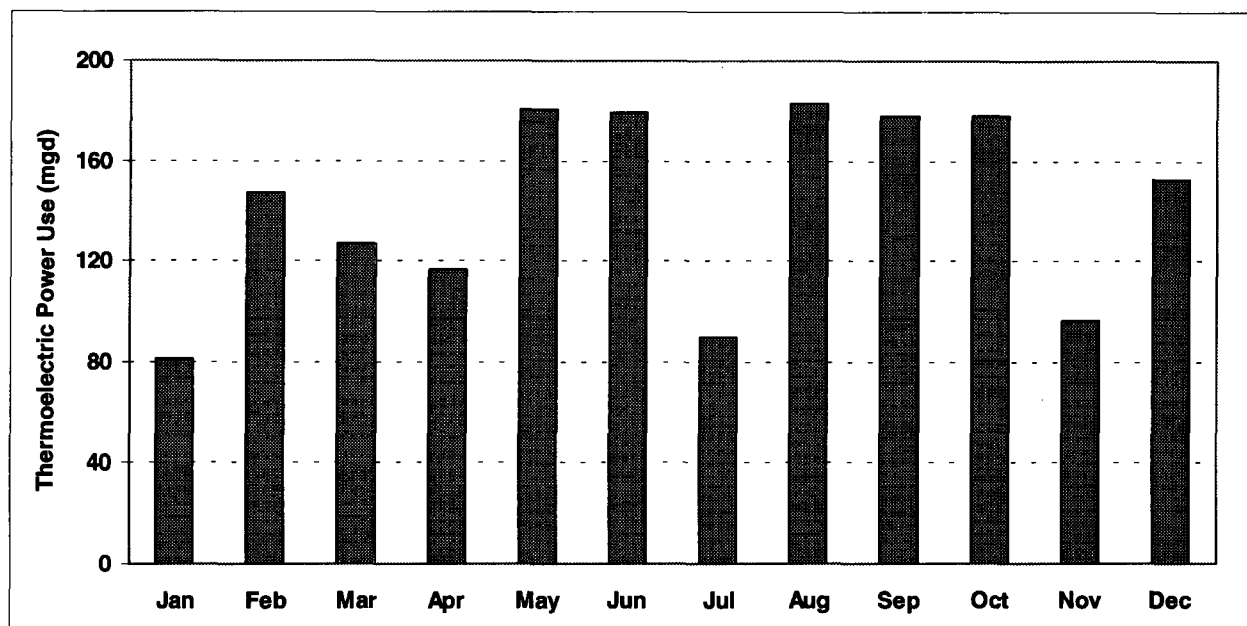
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**Figure 10. Monthly freshwater use for commercial/industrial purposes in the St. Johns River Water Management District, 1994. Commercial/industrial water use fluctuates over the year.**



**Figure 11. Monthly freshwater use for agricultural and recreational irrigation in the St. Johns River Water Management District, 1994. Agricultural irrigation water use is related to the amount of rainfall and seasonal demand.**



**Figure 12. Monthly freshwater use for thermoelectric power generation in the St. Johns River Water Management District, 1994.** *Monthly fluctuations in water use for power generation are due to increased seasonal power demands or plant shutdowns for maintenance.*

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## GLOSSARY

**Abandoned artesian well.** An artesian well, with or without a mechanism for controlling discharge, that allows water to flow continuously at the land surface or into other aquifers through internal flow because of improper well construction or condition. Also called *wild flowing well*, *free-flowing well*, or *uncontrolled artesian well*.

**Aquifer.** A reservoir of ground water. In the St. Johns River Water Management District, there are three major aquifer systems: the Floridan, the intermediate, and the surficial. In this report, data for the intermediate and surficial aquifers are combined.

**Average annual water use.** The estimated annual average daily use determined by dividing the total quantity of water withdrawn from ground or surface water sources during the year (in gallons) by 365 days, except in a leap year. Total quantity is calculated by summing monthly totals reported in million gallons per month. Water use is reported in million gallons per day.

**Desalinization.** The process of removing dissolved salts, notably sodium chloride, from seawater and brackish waters.

**Fresh water.** Water with a total dissolved solids (TDS) concentration less than or equal to 1,000 milligrams per liter (mg/L). The freshwater category includes both potable and nonpotable water.

**Per capita use.** The average amount of water used per person during a standard time period, generally per day. Public supply per capita use refers to the amount of water withdrawn for all uses by public supply water, divided by the population served.

**Reverse osmosis.** A water treatment process which uses pressure to separate inorganic salts and/or simple organic compounds from water.

**Saline water.** Water with a chloride concentration greater than 1,000 mg/L or a TDS concentration greater than 3,000 mg/L.



**Self-supplied water.** Water withdrawn from a ground or surface water source by a user and not obtained from a public supply.

**Slightly saline water.** Water with a chloride concentration between 250 and 1,000 mg/L or a TDS concentration between 500 and 3,000 mg/L. This water is nonpotable, but treatable. Slightly saline water is either diluted with fresh water or treated by a desalinization process to potable standards for public supply. For other uses, this water is generally not treated. In this report, treated or diluted slightly saline water is included in the reported quantities of fresh water.

**Water use.** The quantity of water used and the way in which the water is used in the St. Johns River Water Management District. In most cases, water use equals withdrawals; however, in some cases, water is withdrawn in one county for use in another county. In the latter case, notations are made; otherwise, water use equals withdrawal.

**Water withdrawal.** The amount of water withdrawn from a source (ground or surface). Withdrawals are equivalent to *intake*, *water diversion*, or *pumpage*, terms commonly associated with industrial, agricultural irrigation, and public supply use, respectively. Water withdrawals are considered water use for this report.

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## APPENDIX: 1994 WATER USE BY COUNTY

This appendix presents the detailed water use data from which this report is constructed. SJRWMD totals are first presented for population, land area (University of Florida 1994), water withdrawals by category, and agricultural acreage and water use by crop.

Then, for each county, tables present population and land area totals, water withdrawals by category, the reported water use of large water users, and agricultural acreage and water use by crop. On the county water user tables, the withdrawal source is fresh water unless designated (by footnote) as saline water. Monthly freshwater use is graphed for public supply water use except for Okeechobee and Osceola counties, which have only a small area within SJRWMD and where the numbers are very small. Some totals may not equal 100% because of rounding.

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**ANNUAL WATER USE SURVEY: 1994**

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## Appendix—St. Johns River Water Management District

### STATE OF FLORIDA

Total population 13,878,905  
Total area 53,937 mi<sup>2</sup>

### St. Johns River Water Management District

Population		Land Area (acres)	
Total	3,439,716	Total area	7,096,817 (11,089 mi <sup>2</sup> )
Public supply	2,889,409	Farmed	933,118
Self-supplied	550,307	Irrigated	350,563
Per capita (gallons per day)	150		

### 1994 Water Withdrawals (in mgd) by Category

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	418.35	15.71	434.06	0.00
Domestic self-supply	85.35	0.00	85.35	0.00
Commercial/industrial use	90.79	35.08	125.87	2.25
Agricultural irrigation	360.27	210.72	570.99	0.00
Recreational irrigation	24.72	11.85	36.57	0.00
Thermoelectric power generation	12.11	130.26	142.37	1,666.79
Abandoned artesian wells	126.00	0.00	126.00	0.00
Total	1,117.59	403.62	1,521.21	1,669.04
Total ground	1,117.59			
Total surface		2,072.66		
SJRWMD total		3,190.25		

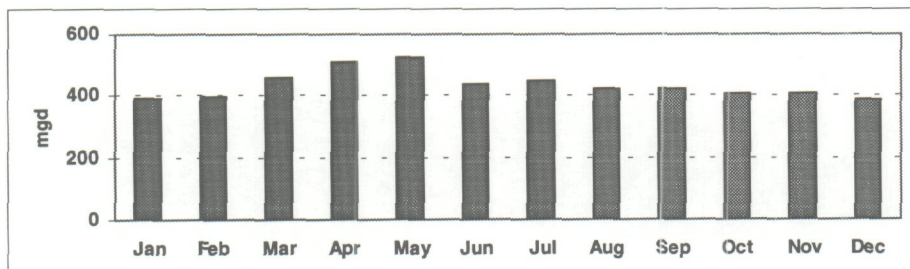


Figure A1. Monthly public supply water use in the St. Johns River Water Management District, 1994

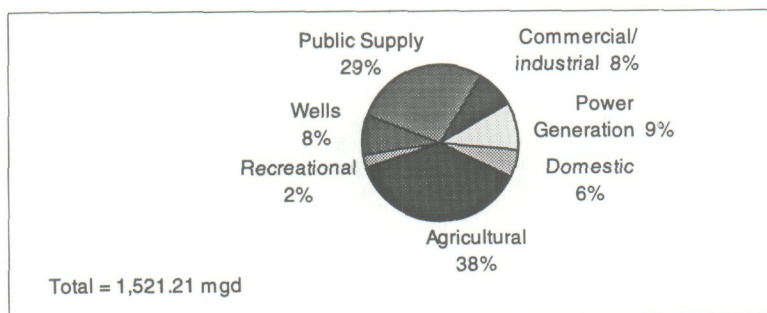


Figure A2. St. Johns River Water Management District—percentages, by category, of freshwater use, 1994

## ANNUAL WATER USE SURVEY: 1994

### 1994 Total St. Johns River Water Management District Agricultural and Recreational Water Use

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	6,341	6,011	4.29	0.10	4.39
Carrots	15,250	8,625	2.10	9.18	11.28
Cucumbers	2,218	1,846	1.43	0.15	1.58
Peppers	380	355	0.39	0.00	0.39
Potatoes	31,175	31,175	32.40	0.00	32.40
Tomatoes	98	95	0.12	0.00	0.12
Sweet corn	17,030	10,290	5.19	13.97	19.16
Watercress	150	150	0.71	0.00	0.71
Miscellaneous vegetables	25,727	17,742	11.00	14.66	25.66
Fruit Crops					
Blueberries	856	809	0.73	0.00	0.73
Citrus	112,258	104,981	100.28	125.75	226.03
Grapes	148	145	0.28	0.00	0.28
Peaches	65	65	0.14	0.00	0.14
Pecans	2,915	390	0.85	0.00	0.85
Strawberries	122	122	0.09	0.00	0.09
Watermelons	4,165	3,380	2.12	0.04	2.16
Miscellaneous fruits	415	305	1.03	0.02	1.05
Field Crops					
Field corn	17,740	8,740	8.35	3.55	11.90
Peanuts	2,250	209	0.20	0.00	0.20
Rice	50	50	0.20	0.00	0.20
Sorghum	7,200	350	0.19	0.18	0.37
Soybeans	300	200	0.13	0.13	0.26
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	168	120	0.04	0.08	0.12
Wheat	1,150	1,000	0.84	0.00	0.84
Miscellaneous grains	7,894	510	0.33	0.15	0.48
Ornamentals and Grasses					
Ferns	8,434	8,130	14.58	2.93	17.51
Foliage	1,616	1,616	4.75	0.37	5.12
Woody ornamentals	3,522	3,133	6.75	0.88	7.63
Improved pasture	633,580	118,318	152.15	35.30	187.45
Sod	6,847	6,717	6.10	2.84	8.94
Turf grass (other)	2,597	2,559	2.51	0.44	2.95
Total Agricultural	912,661	338,138	360.27	210.72	570.99
Recreational					
Turf grass (golf)	20,457	12,425	24.72	11.85	36.57
Grand total	933,118	350,563	384.99	222.57	607.56
Sprinkler acreage	64,994				
Flood acreage	226,956				
Low volume acreage	58,613				
Total irrigated acreage	350,563				

**ALACHUA COUNTY**

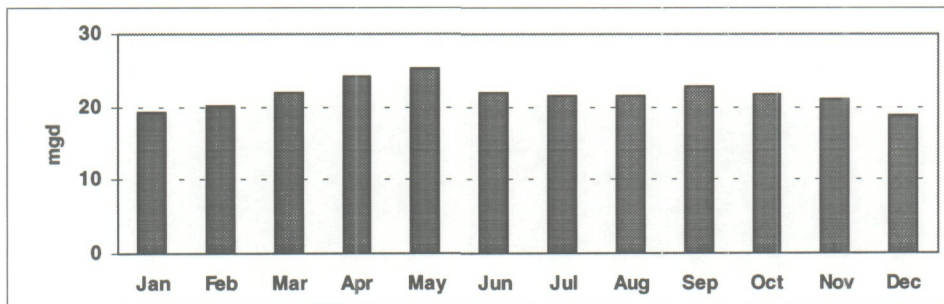
Total population 193,879  
Total area 874 mi<sup>2</sup>

**St. Johns River Water Management District**

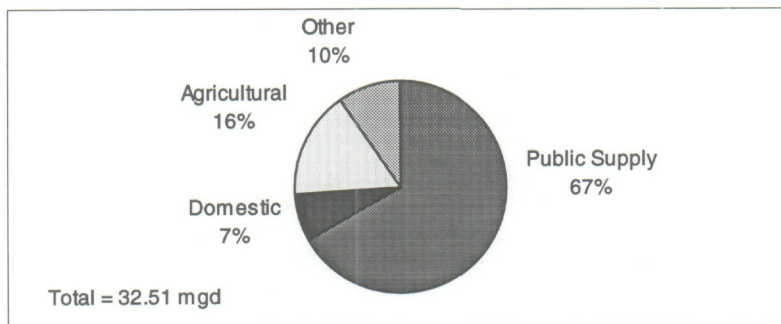
Population		Land Area (acres)	
Total	157,430	Total area	280,799 (439 mi <sup>2</sup> )
Public supply	142,080	Farmed	38,830
Self-supplied	15,350	Irrigated	5,773
Per capita (gallons per day)	153		

**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	21.68	0.00	21.68	0.00
Domestic self-supply	2.35	0.00	2.35	0.00
Commercial/industrial use	1.92	0.00	1.92	0.00
Agricultural irrigation	5.25	0.03	5.28	0.00
Recreational irrigation	0.70	0.09	0.79	0.00
Thermoelectric power generation	0.23	0.00	0.23	0.00
Abandoned artesian wells	0.26	0.00	0.26	0.00
Total	32.39	0.12	32.51	0.00
Total ground	32.39			
Total surface	0.12			
County total	32.51			



**Figure A3. Monthly public supply water use in Alachua County, 1994**



**Figure A4. Alachua County—percentages, by category, of freshwater use, 1994. The "other" category includes abandoned artesian wells, commercial/industrial, thermoelectric power generation, and recreational irrigation water use.**

## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in Alachua County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Arredondo Utility	Public supply	700	0.05	Floridan aquifer	0.00	
Gainesville, City of	Public supply	137,295	21.16	Floridan aquifer	0.00	
Hawthorne, City of	Public supply	1,388	0.18	Floridan aquifer	0.00	
Kincaid Hills subdivision	Public supply	900	0.11	Floridan aquifer	0.00	
Micanopy, Town of	Public supply	851	0.08	Floridan aquifer	0.00	
Oak Park MHP	Public supply	621	0.07	Floridan aquifer	0.00	
West Gate MHP	Public supply	325	0.03	Floridan aquifer	0.00	
Total Public Supply		142,080	21.68		0.00	
Tacachale	Institutional		0.21	Floridan aquifer	0.00	
University of Florida	Institutional		1.71	Floridan aquifer	0.00	
Total Commercial/Industrial			1.92		0.00	
Gainesville Regional Utilities, J.R. Kelly plant	Power generation		0.23	Floridan aquifer	0.00	
Total Power Generation			0.23		0.00	

Note: MHP = mobile home park

## 1994 Agricultural and Recreational Water Use in Alachua County

	Total Acres		Water Use (mgd)		Total
	Farmed	Irrigated	Ground	Surface	
Vegetable Crops					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	300	300	0.15	0.00	0.15
Peppers	250	250	0.23	0.00	0.23
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	200	200	0.24	0.00	0.24
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	1,300	1,300	1.28	0.00	1.28
Fruit Crops					
Blueberries	450	450	0.38	0.00	0.38
Citrus	0	0	0.00	0.00	0.00
Grapes	30	30	0.05	0.00	0.05
Peaches	15	15	0.03	0.00	0.03
Pecans	2,600	300	0.62	0.00	0.62
Strawberries	5	5	0.00	0.00	0.00
Watermelons	1,100	1,100	0.68	0.00	0.68
Miscellaneous fruits	90	80	0.21	0.00	0.21
Field Crops					
Field corn	1,200	100	0.08	0.00	0.08
Peanuts	200	75	0.07	0.00	0.07
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	1,500	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Foliage	4	4	0.01	0.00	0.01
Woody ornamentals	100	100	0.17	0.03	0.20
Improved pasture	28,500	680	0.60	0.00	0.60
Sod	100	50	0.05	0.00	0.05
Turf grass (other)	406	406	0.40	0.00	0.40
Total Agricultural	38,350	5,445	5.25	0.03	5.28
Recreational					
Turf grass (golf)	480	328	0.70	0.09	0.79
Grand total	38,830	5,773	5.95	0.12	6.07
Sprinkler acreage	5,218				
Flood acreage	0				
Low volume acreage	555				
Total irrigated acreage	5,773				

**ANNUAL WATER USE SURVEY: 1994**

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**BAKER COUNTY**

Total population 19,700  
Total area 585 mi<sup>2</sup>

**St. Johns River Water Management District**

<u>Population</u>		<u>Land Area (acres)</u>	
Total	18,715	Total area	341,453 (534 mi <sup>2</sup> )
Public supply	4,226	Farmed	14,869
Self-supplied	14,489	Irrigated	725
Per capita (gallons per day)	168		

**1994 Water Withdrawals (in mgd) by Category**

	<u>Fresh Water</u>		<u>Saline Water</u>	
	<u>Ground</u>	<u>Surface</u>	<u>Total Fresh</u>	<u>Surface</u>
Public supply	0.71	0.00	0.71	0.00
Domestic self-supply	2.43	0.00	2.43	0.00
Commercial/industrial use	0.20	0.00	0.20	0.00
Agricultural irrigation	0.67	0.43	1.10	0.00
Recreational irrigation	0.15	0.00	0.15	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.00	0.00	0.00	0.00
Total	4.16	0.43	4.59	0.00
Total ground	4.16			
Total surface	0.43			
County total	4.59			

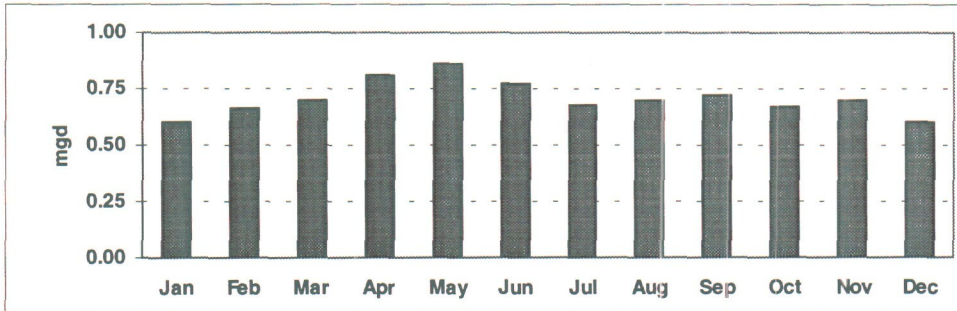


Figure A5. Monthly public supply water use in Baker County, 1994

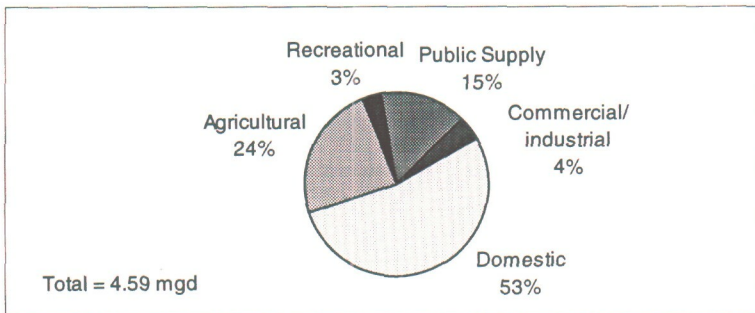


Figure A6. Baker County—percentages, by category, of freshwater use, 1994



## ANNUAL WATER USE SURVEY: 1994

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### 1994 Water Users in Baker County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
MacClenny, City of	Public supply	4,106	0.68	Floridan aquifer	0.00	
MacClenny subdivision	Public supply	120	0.03	Floridan aquifer	0.00	
Total Public Supply		4,226	0.71		0.00	
Florida Wire and Cable	Industrial		0.03	Floridan aquifer	0.00	
Northeast Florida State Hospital	Institutional		0.17	Floridan aquifer	0.00	
Total Commercial/Industrial			0.20		0.00	

## 1994 Agricultural and Recreational Water Use in Baker County

	Total Acres		Water Use (mgd)		Total
	Farmed	Irrigated	Ground	Surface	
<b>Vegetable Crops</b>					
Cabbage	10	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	30	0	0.00	0.00	0.00
Peppers	25	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	3	0	0.00	0.00	0.00
Sweet corn	100	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	522	100	0.10	0.00	0.10
<b>Fruit Crops</b>					
Blueberries	25	0	0.00	0.00	0.00
Citrus	0	0	0.00	0.00	0.00
Grapes	0	0	0.00	0.00	0.00
Peaches	3	3	0.00	0.00	0.00
Pecans	50	0	0.00	0.00	0.00
Strawberries	2	2	0.00	0.00	0.00
Watermelons	400	60	0.03	0.00	0.03
Miscellaneous fruits	0	0	0.00	0.00	0.00
<b>Field Crops</b>					
Field corn	800	0	0.00	0.00	0.00
Peanuts	50	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	100	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	128	80	0.00	0.08	0.08
Wheat	150	0	0.00	0.00	0.00
Miscellaneous grains	1,584	0	0.00	0.00	0.00
<b>Ornamentals and Grasses</b>					
Ferns	0	0	0.00	0.00	0.00
Foliage	0	0	0.00	0.00	0.00
Woody ornamentals	763	420	0.54	0.35	0.89
Improved pasture	10,000	0	0.00	0.00	0.00
Sod	0	0	0.00	0.00	0.00
Turf grass (other)	0	0	0.00	0.00	0.00
<b>Total Agricultural</b>	<b>14,745</b>	<b>665</b>	<b>0.67</b>	<b>0.43</b>	<b>1.10</b>
<b>Recreational</b>					
Turf grass (golf)	124	60	0.15	0.00	0.15
<b>Grand total</b>	<b>14,869</b>	<b>725</b>	<b>0.82</b>	<b>0.43</b>	<b>1.25</b>
 Sprinkler acreage	663				
Flood acreage	0				
Low volume acreage	62				
Total irrigated acreage	725				

**ANNUAL WATER USE SURVEY: 1994**

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**BRADFORD COUNTY**

Total population 24,210  
Total area 293 mi<sup>2</sup>

**St. Johns River Water Management District**

Population		Land Area (acres)	
Total	1,816	Total area	3,750 (6 mi <sup>2</sup> )
Public supply	374	Farmed	200
Self-supplied	1,442	Irrigated	190
Per capita (gallons per day)	107		

**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	0.04	0.00	0.04	0.00
Domestic self-supply	0.15	0.00	0.15	0.00
Commercial/industrial use	0.00	0.00	0.00	0.00
Agricultural irrigation	0.11	0.00	0.11	0.00
Recreational irrigation	0.07	0.00	0.07	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.00	0.00	0.00	0.00
Total	0.37	0.00	0.37	0.00
Total ground	0.37			
Total surface	0.00			
County total	0.37			

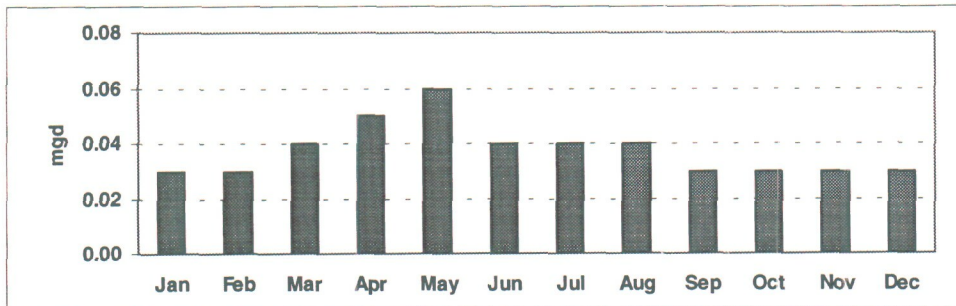


Figure A7. Monthly public supply water use in Bradford County, 1994

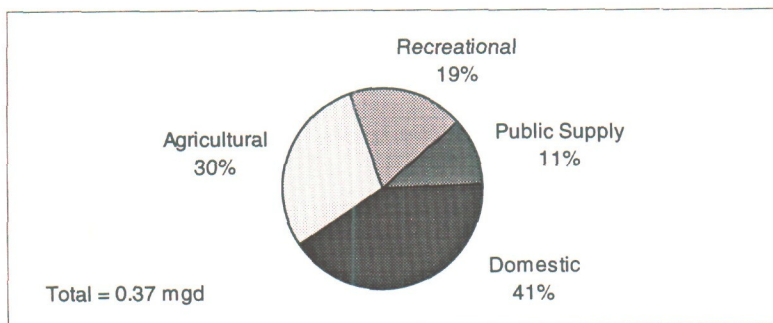


Figure A8. Bradford County—percentages, by category, of freshwater use, 1994

## ANNUAL WATER USE SURVEY: 1994

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### 1994 Water Users in Bradford County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Keystone Club Estates	Public supply	374	0.04	Floridan aquifer	0.00	
Total Public Supply		374	0.04		0.00	

## 1994 Agricultural and Recreational Water Use in Bradford County

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	50	50	0.02	0.00	0.02
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	50	50	0.05	0.00	0.05
Fruit Crops					
Blueberries	0	0	0.00	0.00	0.00
Citrus	0	0	0.00	0.00	0.00
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	50	50	0.03	0.00	0.03
Watermelons	0	0	0.00	0.00	0.00
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	0	0	0.00	0.00	0.00
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Foliage	0	0	0.00	0.00	0.00
Woody ornamentals	0	0	0.00	0.00	0.00
Improved pasture	0	0	0.00	0.00	0.00
Sod	0	0	0.00	0.00	0.00
Turf grass (other)	10	10	0.01	0.00	0.01
Total Agricultural	160	160	0.11	0.00	0.11
Recreational					
Turf grass (golf)	40	30	0.07	0.00	0.07
Grand total	200	190	0.18	0.00	0.18
Sprinkler acreage	190				
Flood acreage	0				
Low volume acreage	0				
Total irrigated acreage	190				

**ANNUAL WATER USE SURVEY: 1994**

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## BREVARD COUNTY

Total population 436,333  
Total area 1,019 mi<sup>2</sup>

### St. Johns River Water Management District

Population		Land Area (acres)	
Total	436,333	Total area	652,160 (1,019 mi <sup>2</sup> )
Public supply	429,149	Farmed	141,563
Self-supplied	7,184	Irrigated	89,968
Per capita (gallons per day)	116		

### 1994 Water Withdrawals (in mgd) by Category

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply*	34.23	15.71	49.94	0.00
Domestic self-supply	0.83	0.00	0.83	0.00
Commercial/industrial use	0.87	0.00	0.87	0.00
Agricultural irrigation	136.51	11.41	147.92	0.00
Recreational irrigation	1.77	2.94	4.71	0.00
Thermoelectric power generation	0.32	0.00	0.32	1,169.59
Abandoned artesian wells	<u>51.31</u>	<u>0.00</u>	<u>51.31</u>	<u>0.00</u>
Total	225.84	30.06	255.90	1,169.59
Total ground	225.84			
Total surface	<u>1,199.65</u>			
County total	1,425.49			

\*Includes slightly saline water (250 to 1,000 mg/L chlorides) treated through reverse osmosis and diluted with fresh water. Includes 23.54 mgd of water withdrawn in Orange County for public supply use in Brevard County

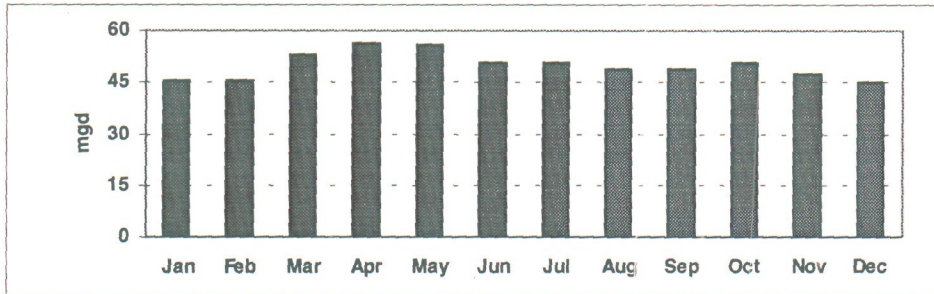


Figure A9. Monthly public supply water use in Brevard County, 1994

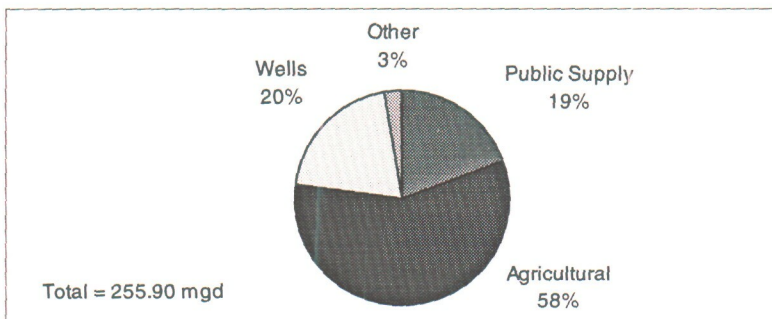


Figure A10. Brevard County—percentages, by category, of freshwater use, 1994. The "other" category includes commercial/industrial, thermoelectric power generation, recreational irrigation, and domestic self-supply water use.



## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in Brevard County

User Utility/Facility	Category	Population	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Aquarina Utilities	Public supply	204	0.02	Floridan aquifer and R/O	0.00	
Avatar Utilities	Public supply	8,789	0.52	Surficial aquifer	0.00	
Cocoa Wellfield*	Public supply	149,672	23.54	Floridan aquifer	0.00	
Melbourne, City of	Public supply	149,723	0.00		15.71	Lake Washington
North Brevard Utilities	Public supply	6,391	0.66	Surficial aquifer	0.00	
Palm Bay Utilities	Public supply	72,706	4.75	Floridan and surficial aquifers	0.00	
South Brevard Utilities	Public supply	799	0.06	Floridan aquifer and R/O	0.00	
Titusville, City of	Public supply	40,865	4.68	Floridan aquifer	0.00	
<b>Total Public Supply</b>		<b>429,149</b>	<b>34.23</b>		<b>15.71</b>	
Praxair, Inc.	Industrial		0.85	Surficial aquifer	0.00	
FDOT I-95 rest facility	Institutional		0.02	Surficial aquifer	0.00	
<b>Total Commercial/Industrial</b>			<b>0.87</b>		<b>0.00</b>	
FPL, Cape Canaveral	Power generation		0.20	Surficial aquifer	653.07	Indian River <sup>†</sup>
OUC, Indian River	Power generation		0.12	Surficial aquifer	516.52	Indian River <sup>†</sup>
<b>Total Power Generation</b>			<b>0.32</b>		<b>1,169.59</b>	

Note: R/O = reverse osmosis  
 FDOT = Florida Department of Transportation  
 FPL = Florida Power & Light  
 OUC = Orlando Utilities Commission

\*Water withdrawn from Orange County

<sup>†</sup>Saline water

## 1994 Agricultural and Recreational Water Use in Brevard County

	Total Acres		Water Use (mgd)		Total
	Farmed	Irrigated	Ground	Surface	
Vegetable Crops					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	1,000	1,000	1.04	0.00	1.04
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	100	100	0.13	0.00	0.13
Fruit Crops					
Blueberries	0	0	0.00	0.00	0.00
Citrus	11,000	6,450	9.93	3.86	13.79
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	40	40	0.04	0.00	0.04
Watermelons	320	300	0.28	0.04	0.32
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	2,500	2,500	3.60	0.00	3.60
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	1,000	1,000	0.84	0.00	0.84
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Foliage	10	10	0.03	0.00	0.03
Woody ornamentals	190	190	0.52	0.00	0.52
Improved pasture	121,700	75,000	118.51	6.24	124.75
Sod	1,300	1,300	0.85	1.26	2.11
Turf grass (other)	603	603	0.74	0.01	0.75
Total Agricultural	139,763	88,493	136.51	11.41	147.92
Recreational					
Turf grass (golf)	1,800	1,475	1.77	2.94	4.71
Grand total	141,563	89,968	138.28	14.35	152.63
Sprinkler acreage	3,528				
Flood acreage	82,140				
Low volume acreage	<u>4,300</u>				
Total irrigated acreage	89,968				

**ANNUAL WATER USE SURVEY: 1994**

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**CLAY COUNTY**

Total population 117,779  
Total area 601 mi<sup>2</sup>

**St. Johns River Water Management District**

Population		Land Area (acres)	
Total	117,779	Total area	384,640 (601 mi <sup>2</sup> )
Public supply	77,637	Farmed	44,541
Self-supplied	40,142	Irrigated	749
Per capita (gallons per day)	143		

**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	11.14	0.00	11.14	0.00
Domestic self-supply	5.74	0.00	5.74	0.00
Commercial/industrial use	4.99	0.00	4.99	0.00
Agricultural irrigation	0.54	0.00	0.54	0.00
Recreational irrigation	0.68	0.36	1.04	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.51	0.00	0.51	0.00
Total	23.60	0.36	23.96	0.00

Total ground 23.60  
Total surface 0.36  
County total 23.96

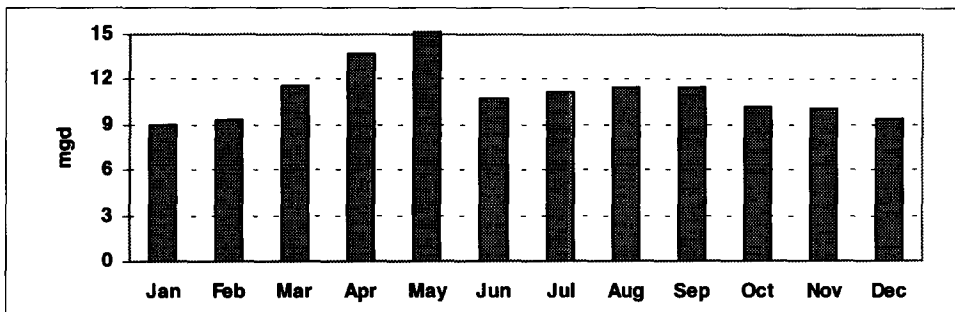


Figure A11. Monthly public supply water use in Clay County, 1994

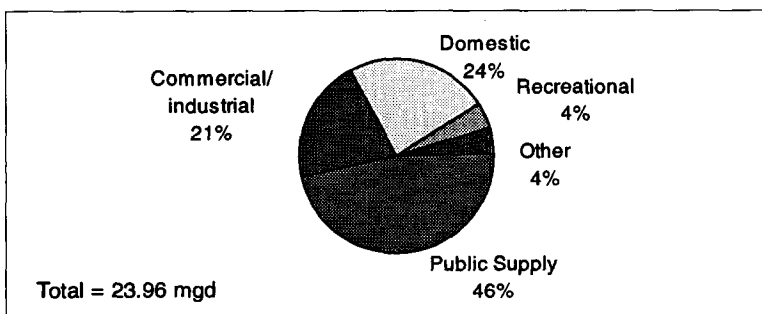


Figure A12. Clay County—percentages, by category, of freshwater use, 1994. The "other" category includes abandoned artesian wells and agricultural irrigation water use.

## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in Clay County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Clay County Utilities Authority	Public supply	51,148	7.98	Floridan aquifer	0.00	
Clay Utilities	Public supply	4,823	0.02	Floridan aquifer	0.00	
Green Cove Springs, Town of	Public supply	4,730	0.81	Floridan aquifer	0.00	
Keystone Heights, Town of	Public supply	2,819	0.34	Floridan aquifer	0.00	
Lake Asbury	Public supply	2,153	0.26	Floridan aquifer	0.00	
Magnolia Apartments	Public supply	800	0.08	Floridan aquifer	0.00	
McRae Landing	Public supply	277	0.03	Floridan aquifer	0.00	
Orange Park, City of	Public supply	9,505	1.45	Floridan aquifer	0.00	
Penney Farms, Town of	Public supply	667	0.04	Floridan aquifer	0.00	
Penney Retirement Community	Public supply	450	0.07	Floridan aquifer	0.00	
The Ravines Village & Resort	Public supply	265	0.06	Floridan aquifer	0.00	
Total Public Supply		77,637	11.14		0.00	
E. I. DuPont	Industrial*		1.63	Floridan aquifer	0.00	
FRI, Goldhead Sand	Industrial*		1.34	Floridan aquifer	0.00	
J-M Manufacturing	Industrial		0.09	Floridan aquifer	0.00	
Paramont Poultry	Industrial		0.01	Floridan aquifer	0.00	
Reynolds Industrial Park	Industrial		0.26	Floridan aquifer	0.00	
RGC Mineral Sands	Industrial*		1.31	Floridan aquifer	0.00	
Camp Blanding Military Base	Institutional		0.35	Floridan aquifer	0.00	
Total Commercial/Industrial			4.99		0.00	

Note: FRI = Florida Rock Industries

\*Mining industry

1994 Agricultural and Recreational Water Use in Clay County

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	200	60	0.06	0.00	0.06
Fruit Crops					
Blueberries	15	13	0.01	0.00	0.01
Citrus	0	0	0.00	0.00	0.00
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	0	0	0.00	0.00	0.00
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	800	0	0.00	0.00	0.00
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	2,800	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Foliage	50	50	0.14	0.00	0.14
Woody ornamentals	0	0	0.00	0.00	0.00
Improved pasture	40,000	100	0.16	0.00	0.16
Sod	0	0	0.00	0.00	0.00
Turf grass (other)	146	146	0.17	0.00	0.17
Total Agricultural	44,011	369	0.54	0.00	0.54
Recreational					
Turf grass (golf)	530	380	0.68	0.36	1.04
Grand total	44,541	749	1.22	0.36	1.58
Sprinkler acreage	636				
Flood acreage	110				
Low volume acreage	3				
Total irrigated acreage	749				

## ANNUAL WATER USE SURVEY: 1994

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**DUVAL COUNTY**

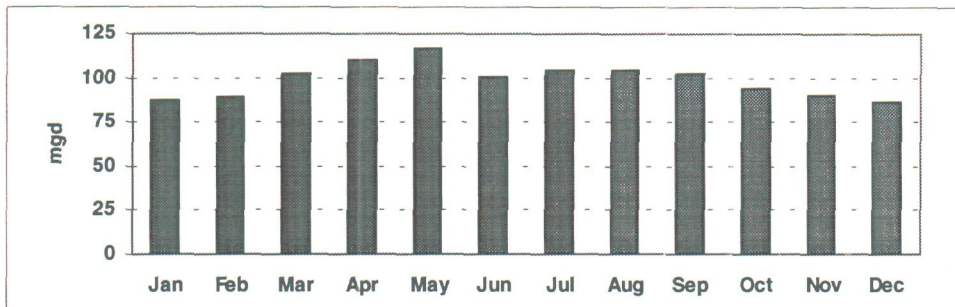
Total population 710,592  
 Total area 774 mi<sup>2</sup>

**St. Johns River Water Management District**

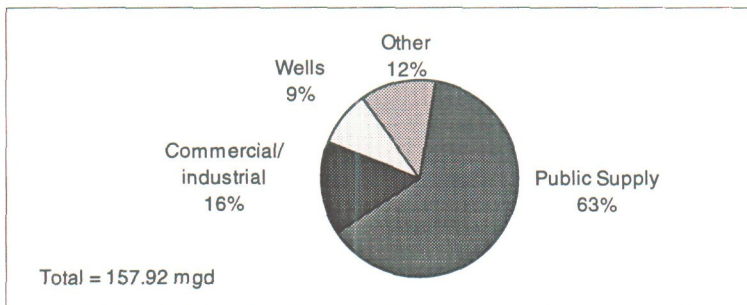
<u>Population</u>		<u>Land Area (acres)</u>	
Total	710,592	Total area	495,360 (774 mi <sup>2</sup> )
Public supply	653,606	Farmed	16,442
Self-supplied	56,986	Irrigated	2,965
Per capita (gallons per day)	152		

**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	99.09	0.00	99.09	0.00
Domestic self-supply	8.66	0.00	8.66	0.00
Commercial/industrial use	24.56	0.00	24.56	0.00
Agricultural irrigation	1.92	0.12	2.04	0.00
Recreational irrigation	3.41	0.83	4.24	0.00
Thermoelectric power generation	4.62	0.00	4.62	439.46
Abandoned artesian wells	<u>14.71</u>	<u>0.00</u>	<u>14.71</u>	<u>0.00</u>
Total	156.97	0.95	157.92	439.46
Total ground	156.97			
Total surface	<u>440.41</u>			
County total	597.38			



**Figure A13. Monthly public supply water use in Duval County, 1994**



**Figure A14. Duval County—percentages, by category, of freshwater use, 1994. The "other" category includes thermoelectric power generation, domestic self-supply, recreational irrigation, and agricultural irrigation water use.**



# ANNUAL WATER USE SURVEY: 1994

## 1994 Water Users in Duval County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Atlantic Beach, City of	Public supply	15,661	3.06	Floridan aquifer	0.00	
Baldwin, City of	Public supply	1,550	0.18	Floridan aquifer	0.00	
Beauleuc Utilities	Public supply	7,304	0.67	Floridan aquifer	0.00	
Canal Utilities	Public supply	9,210	1.74	Floridan aquifer	0.00	
Jacksonville Beach, City of	Public supply	19,483	2.88	Floridan aquifer	0.00	
Jacksonville Suburban Utilities	Public supply	77,150	13.06	Floridan aquifer	0.00	
Jacksonville, City of	Public supply	476,394	71.55	Floridan aquifer	0.00	
Lamplighter MHP	Public supply	735	0.08	Floridan aquifer	0.00	
Neighborhood Utilities	Public supply	531	0.04	Floridan aquifer	0.00	
Neptune Beach, City of	Public supply	7,329	1.41	Floridan aquifer	0.00	
Normandy Village Utilities	Public supply	4,226	0.38	Floridan aquifer	0.00	
Oaks of Atlantic Beach	Public supply	878	0.08	Floridan aquifer	0.00	
Ortega Utilities	Public supply	8,965	0.92	Floridan aquifer	0.00	
Regency Utilities	Public supply	4,964	0.90	Floridan aquifer	0.00	
Springtree Village	Public supply	2,530	0.21	Floridan aquifer	0.00	
Southern States Utilities	Public supply	16,696	1.93	Floridan aquifer	0.00	
Total Public Supply		653,606	99.09		0.00	
Building Products (Celotex)	Industrial		0.12	Floridan aquifer	0.00	
Bush Boake & Allen, Inc.	Industrial		2.43	Floridan aquifer	0.00	
Castleton Beverages Company	Industrial		0.06	Floridan aquifer	0.00	
Gate Maritime	Industrial		0.07	Floridan aquifer	0.00	
Jefferson Smurfit	Industrial*		5.71	Floridan aquifer	0.00	
JPA, Blount Island	Industrial		0.09	Floridan aquifer	0.00	
Reinhold Chemical Company	Industrial		0.16	Floridan aquifer	0.00	
SCM Glidco Organics	Industrial		1.73	Floridan aquifer	0.00	
Seminole Kraft Paper Company	Industrial*		9.71	Floridan aquifer	0.00	
Simplex Mfg. Company	Industrial		0.28	Floridan aquifer	0.00	
Swisher & Son Mfg. Company	Industrial		0.09	Floridan aquifer	0.00	
Cecil Field NAS	Institutional		0.65	Floridan aquifer	0.00	
Dinsmore Correctional Facility	Institutional		0.01	Floridan aquifer	0.00	
FDOT I-10 rest facility†	Institutional		0.00	Floridan aquifer	0.00	
Jacksonville International Airport	Institutional		0.17	Floridan aquifer	0.00	
Jacksonville NAS	Institutional		1.29	Floridan aquifer	0.00	
Jacksonville University	Institutional		0.45	Floridan aquifer	0.00	
Jacksonville Zoo†	Institutional		0.00	Floridan aquifer	0.00	
Mayport NAS	Institutional		1.54	Floridan aquifer	0.00	
Total Commercial/Industrial			24.56		0.00	

**1994 Water Users in Duval County—Continued**

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
JEA, Eastport Power	Power generation		0.92	Floridan aquifer	394.23	St. Johns River <sup>†</sup>
SJR Power Park	Power generation		3.70	Floridan aquifer	45.23	St. Johns River <sup>†</sup>
Total Power Generation			4.62		439.46	

Note: MHP = mobile home park  
 JPA = Jacksonville Port Authority  
 NAS = Naval Air Station  
 FDOT = Florida Department of Transportation  
 JEA = Jacksonville Electric Authority  
 SJR = St. Johns River

\*Pulp and paper industry

<sup>†</sup>Pumpage less than 0.01 mgd

<sup>‡</sup>Saline water

# ANNUAL WATER USE SURVEY: 1994

## 1994 Agricultural and Recreational Water Use in Duval County

	Total Acres		Water Use (mgd)		Total
	Farmed	Irrigated	Ground	Surface	
<b>Vegetable Crops</b>					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	200	10	0.01	0.00	0.01
<b>Fruit Crops</b>					
Blueberries	18	13	0.02	0.00	0.02
Citrus	0	0	0.00	0.00	0.00
Grapes	10	7	0.02	0.00	0.02
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	0	0	0.00	0.00	0.00
Miscellaneous fruits	0	0	0.00	0.00	0.00
<b>Field Crops</b>					
Field corn	200	0	0.00	0.00	0.00
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	200	200	0.17	0.00	0.17
<b>Ornamentals and Grasses</b>					
Ferns	0	0	0.00	0.00	0.00
Foliage	12	12	0.03	0.00	0.03
Woody ornamentals	60	60	0.15	0.00	0.15
Improved pasture	12,000	500	0.63	0.00	0.63
Sod	600	600	0.69	0.12	0.81
Turf grass (other)	150	150	0.20	0.00	0.20
<b>Total Agricultural</b>	<b>13,450</b>	<b>1,552</b>	<b>1.92</b>	<b>0.12</b>	<b>2.04</b>
<b>Recreational</b>					
Turf grass (golf)	2,992	1,413	3.41	0.83	4.24
<b>Grand total</b>	<b>16,442</b>	<b>2,965</b>	<b>5.33</b>	<b>0.95</b>	<b>6.28</b>
Sprinkler acreage	2,891				
Flood acreage	40				
Low volume acreage	34				
Total irrigated acreage	2,965				

**FLAGLER COUNTY**

Total population 35,292  
Total area 485 mi<sup>2</sup>

**St. Johns River Water Management District**

Population		Land Area (acres)	
Total	35,292	Total area	310,400 (485 mi <sup>2</sup> )
Public supply	25,152	Farmed	25,067
Self-supplied	10,140	Irrigated	7,602
Per capita (gallons per day)	167		

**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	4.20	0.00	4.20	0.00
Domestic self-supply	1.69	0.00	1.69	0.00
Commercial/industrial use	0.20	0.00	0.20	0.00
Agricultural irrigation	7.39	0.15	7.54	0.00
Recreational irrigation	0.13	0.88	1.01	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.13	0.00	0.13	0.00
Total	13.74	1.03	14.77	0.00
Total ground	13.74			
Total surface	1.03			
County total	14.77			

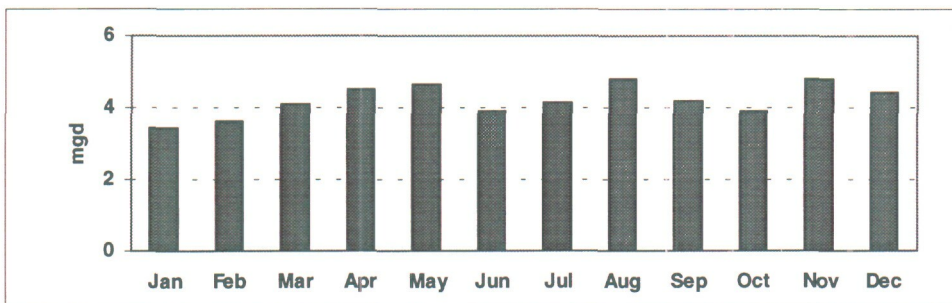


Figure A15. Monthly public supply water use in Flagler County, 1994

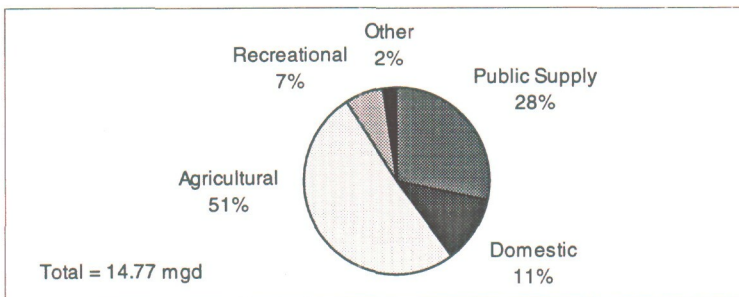


Figure A16. Flagler County—percentages, by category, of freshwater use, 1994. The "other" category includes abandoned artesian wells and commercial/industrial water use.

## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in Flagler County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Bunnell, City of	Public supply	1,998	0.28	Floridan aquifer	0.00	
Flagler Beach, City of	Public supply	4,103	0.49	Floridan aquifer	0.00	
Ocean City Utilities	Public supply	321	0.05	Floridan aquifer	0.00	
Palm Coast Utilities	Public supply	17,989	3.29	Floridan aquifer	0.00	
Plantation Bay	Public supply	741	0.09	Floridan aquifer	0.00	
Total Public Supply		25,152	4.20		0.00	
Rinker Materials	Industrial*		0.03	Surficial aquifer	0.00	
Bulow KOA	Institutional		0.10	Floridan aquifer	0.00	
Holiday Travel Park	Institutional		0.02	Floridan aquifer	0.00	
Marineland	Institutional		0.05	Floridan aquifer	0.00	
Total Commercial/Industrial			0.20		0.00	

\*Mining industry (1993 figure)

1994 Agricultural and Recreational Water Use in Flagler County

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	2,000	2,000	1.59	0.00	1.59
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	3,000	3,000	3.12	0.00	3.12
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	1,000	1,000	1.27	0.00	1.27
Fruit Crops					
Blueberries	20	20	0.02	0.00	0.02
Citrus	50	50	0.12	0.00	0.12
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	100	100	0.06	0.00	0.06
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	0	0	0.00	0.00	0.00
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	1,500	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Foliage	0	0	0.00	0.00	0.00
Woody ornamentals	5	5	0.01	0.00	0.01
Improved pasture	16,580	695	0.95	0.00	0.95
Sod	300	220	0.24	0.00	0.24
Turf grass (other)	150	150	0.01	0.15	0.16
Total Agricultural	24,705	7,240	7.39	0.15	7.54
Recreational					
Turf grass (golf)	362	362	0.13	0.88	1.01
Grand total	25,067	7,602	7.52	1.03	8.55
Sprinkler acreage	1,652				
Flood acreage	5,950				
Low volume acreage	0				
Total irrigated acreage	7,602				

**ANNUAL WATER USE SURVEY: 1994**

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# INDIAN RIVER COUNTY

Total population 97,415  
Total area 503 mi<sup>2</sup>

## St. Johns River Water Management District

Population		Land Area (acres)	
Total	97,415	Total area	321,920 (503 mi <sup>2</sup> )
Public supply	60,681	Farmed	136,180
Self-supplied	36,734	Irrigated	96,308
Per capita (gallons per day)	163		

## 1994 Water Withdrawals (In mgd) by Category

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply*	9.91	0.00	9.91	0.00
Domestic self-supply	5.99	0.00	5.99	0.00
Commercial/industrial use	0.72	0.00	0.72	0.00
Agricultural irrigation	63.20	142.49	205.69	0.00
Recreational irrigation	2.76	1.36	4.12	0.00
Thermoelectric power generation	0.21	0.00	0.21	57.74
Abandoned artesian wells	22.19	0.00	22.19	0.00
Total	104.98	143.85	248.83	57.74
Total ground	104.98			
Total surface		201.59		
County total		306.57		

\*Includes slightly saline water (250 to 1,000 mg/L chlorides) treated through reverse osmosis and diluted with fresh water

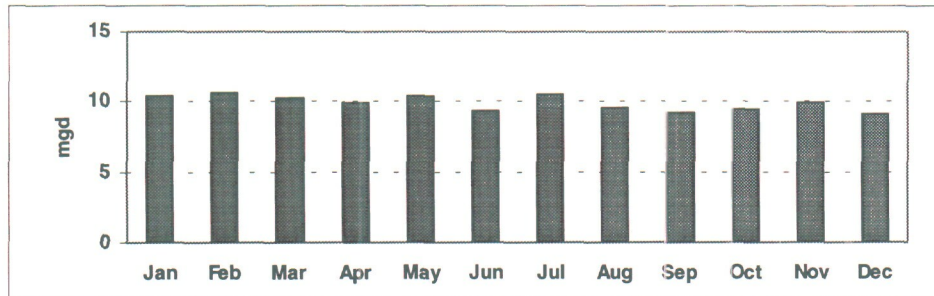


Figure A17. Monthly public supply water use in Indian River County, 1994

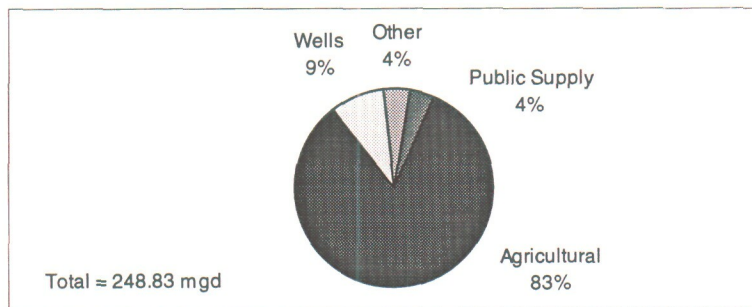


Figure A18. Indian River County—percentages, by category, of freshwater use, 1994. The "other" category includes commercial/industrial, thermoelectric power generation, recreational irrigation, and domestic self-supply water use.



## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in Indian River County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Indian River County Utilities	Public supply	19,898	3.40	Floridan aquifer and R/O	0.00	
Lakewood Village	Public supply	876	0.03	Surficial aquifer	0.00	
Sebastian Highlands	Public supply	2,956	0.35	Floridan aquifer	0.00	
Vero Beach, City of	Public supply	36,681	6.10	Floridan and surficial aquifers	0.00	
Whispering Palms MHP	Public supply	270	0.03	Floridan aquifer and R/O	0.00	
Total Public Supply		60,681	9.91		0.00	
Fellsmere Packing House	Industrial		0.03	Surficial aquifer	0.00	
Ocean Spray processing plant	Industrial		0.17	Floridan and surficial aquifers	0.00	
Indian River Correctional Facility	Institutional		0.04	Surficial aquifer	0.00	
Sebastian Medical Center	Institutional		0.48	Surficial aquifer	0.00	
Total Commercial/Industrial			0.72		0.00	
Vero Beach Municipal Power Plant	Power generation		0.21	Floridan aquifer	57.74	Indian River*
Total Power Generation			0.21		57.74	

Note: R/O = reverse osmosis  
MHP = mobile home park

\*Saline water

1994 Agricultural and Recreational Water Use in Indian River County

	Total Acres		Water Use (mgd)		Total
	Farmed	Irrigated	Ground	Surface	
Vegetable Crops					
Cabbage	150	150	0.14	0.00	0.14
Carrots	50	50	0.08	0.00	0.08
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	100	100	0.10	0.00	0.10
Tomatoes	10	10	0.02	0.00	0.02
Sweet corn	700	700	0.72	0.72	1.44
Watercress	150	150	0.71	0.00	0.71
Miscellaneous vegetables	2,020	2,020	1.73	1.73	3.46
Fruit Crops					
Blueberries	0	0	0.00	0.00	0.00
Citrus	65,446	65,446	38.92	116.75	155.67
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	20	20	0.02	0.00	0.02
Watermelons	100	50	0.05	0.00	0.05
Miscellaneous fruits	100	100	0.48	0.00	0.48
Field Crops					
Field corn	2,000	2,000	0.00	3.12	3.12
Peanuts	0	0	0.00	0.00	0.00
Rice	50	50	0.20	0.00	0.20
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	300	300	0.15	0.15	0.30
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Foliage	25	25	0.08	0.00	0.08
Woody ornamentals	60	60	0.16	0.00	0.16
Improved pasture	62,208	22,747	19.02	19.02	38.04
Sod	1,000	1,000	0.62	0.94	1.56
Turf grass (other)	54	54	0.00	0.06	0.06
Total Agricultural	134,543	95,032	63.20	142.49	205.69
Recreational					
Turf grass (golf)	1,637	1,276	2.76	1.36	4.12
Grand total	136,180	96,308	65.96	143.85	209.81
Sprinkler acreage	2,040				
Flood acreage	67,545				
Low volume acreage	26,723				
Total irrigated acreage	96,308				

**ANNUAL WATER USE SURVEY: 1994**

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**LAKE COUNTY**

Total population 171,168  
Total area 953 mi<sup>2</sup>

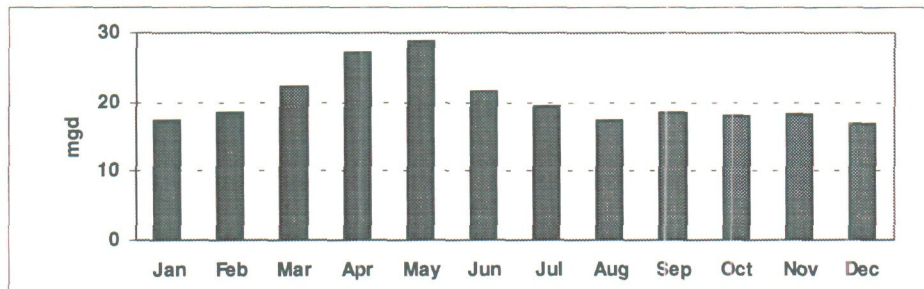
**St. Johns River Water Management District**

Population		Land Area (acres)	
Total	169,456	Total area	555,637 (868 mi <sup>2</sup> )
Public supply	136,037	Farmed	82,722
Self-supplied	33,419	Irrigated	31,186
Per capita (gallons per day)	149		

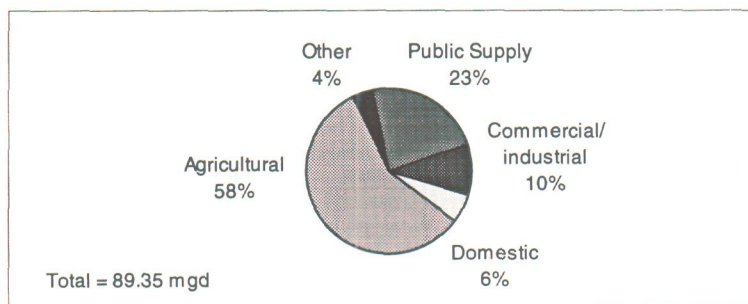
**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	20.23	0.00	20.23	0.00
Domestic self-supply	4.98	0.00	4.98	0.00
Commercial/industrial use	7.89	1.14	9.03	0.00
Agricultural irrigation	41.20	10.25	51.45	0.00
Recreational irrigation	1.35	1.10	2.45	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	1.21	0.00	1.21	0.00
Total	76.86	12.49	89.35	0.00

Total ground 76.86  
Total surface 12.49  
County total 89.35



**Figure A19. Monthly public supply water use in Lake County, 1994**



**Figure A20. Lake County—percentages, by category, of freshwater use, 1994. The “other” category includes abandoned artesian wells and recreational irrigation water use.**

## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in Lake County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Astor Park Water Association	Public supply	2,808	0.25	Floridan aquifer	0.00	
Brittany Estates	Public supply	315	0.06	Floridan aquifer	0.00	
Chateau-Orange Lake MHP	Public supply	700	0.10	Floridan aquifer	0.00	
Clermont, City of	Public supply	7,174	1.52	Floridan aquifer	0.00	
Deanza, Mid Florida Lakes	Public supply	2,739	0.32	Floridan aquifer	0.00	
Eustis, City of	Public supply	22,984	2.49	Floridan aquifer	0.00	
Fruitland Park, City of	Public supply	4,122	0.44	Floridan aquifer	0.00	
Groveland, City of	Public supply	2,405	0.29	Floridan aquifer	0.00	
Hawthorne at Leesburg	Public supply	3,000	0.40	Floridan aquifer	0.00	
Howey-in-the-Hills, Town of	Public supply	1,434	0.17	Floridan aquifer	0.00	
Lady Lake	Public supply	3,405	0.28	Floridan aquifer	0.00	
Lakeview Terrace Center	Public supply	271	0.06	Floridan aquifer	0.00	
Leesburg, City of	Public supply	24,354	3.41	Floridan aquifer	0.00	
Mascotte, Town of	Public supply	1,818	0.22	Floridan aquifer	0.00	
Minneola, City of	Public supply	1,919	0.31	Floridan aquifer	0.00	
Molokai Park Water System	Public supply	675	0.03	Floridan aquifer	0.00	
Monteverde, Town of	Public supply	1,075	0.13	Floridan aquifer	0.00	
Mt. Dora, City of	Public supply	18,830	2.67	Floridan aquifer	0.00	
Silver Lake Estates	Public supply	2,373	0.82	Floridan aquifer		
South Umatilla Water Association	Public supply	323	0.05	Floridan aquifer	0.00	
Southern States Utilities	Public supply	7,896	0.21	Floridan aquifer	0.00	
Sunlake Estates	Public supply	752	0.26	Floridan aquifer	0.00	
Tavares, City of	Public supply	9,689	1.55	Floridan aquifer	0.00	
Umatilla, City of	Public supply	2,416	0.43	Floridan aquifer	0.00	
Utilities Inc. of Florida	Public supply	543	0.22	Floridan aquifer	0.00	
Villages of Lake-Sumter	Public supply	10,727	3.23	Floridan aquifer	0.00	
Water Oak Estates	Public supply	1,290	0.31	Floridan aquifer	0.00	
<b>Total Public Supply</b>		<b>136,037</b>	<b>20.23</b>		<b>0.00</b>	
B&W Canning, Groveland plant	Industrial		0.29	Floridan aquifer	0.00	
Coca Cola, Leesburg plant	Industrial		0.62	Floridan aquifer	0.00	
Eustis Sand Company	Industrial*		0.54	Floridan aquifer	1.14	Mine pit
Goldem Gem, Umatilla plant	Industrial		0.87	Floridan aquifer	0.00	
Silver Sand Company, Clermont mine	Industrial*		5.13	Floridan aquifer	0.00	
Silver Springs Citrus plant	Industrial		0.29	Floridan aquifer	0.00	
Groveland Health Center	Institutional		0.03	Floridan aquifer	0.00	
Lake Correctional Facility	Institutional		0.12	Floridan aquifer	0.00	
<b>Total Commercial/Industrial</b>			<b>7.89</b>		<b>1.14</b>	

Note: MHP = mobile home park

\*Mining industry

1994 Agricultural and Recreational Water Use in Lake County

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	200	200	0.10	0.10	0.20
Carrots	1,700	1,700	1.12	1.12	2.24
Cucumbers	300	300	0.15	0.15	0.30
Peppers	25	25	0.03	0.00	0.03
Potatoes	125	125	0.13	0.00	0.13
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	2,375	2,375	2.89	1.93	4.82
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	2,900	2,900	2.84	1.86	4.70
Fruit Crops					
Blueberries	61	61	0.07	0.00	0.07
Citrus	18,604	17,674	26.87	4.02	30.89
Grapes	54	54	0.10	0.00	0.10
Peaches	7	7	0.02	0.00	0.02
Pecans	80	80	0.20	0.00	0.20
Strawberries	5	5	0.00	0.00	0.00
Watermelons	400	380	0.26	0.00	0.26
Miscellaneous fruits	25	25	0.06	0.02	0.08
Field Crops					
Field corn	2,000	500	0.28	0.28	0.56
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	300	150	0.07	0.06	0.13
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	550	550	1.37	0.15	1.52
Foliage	100	100	0.28	0.00	0.28
Woody ornamentals	950	950	2.26	0.12	2.38
Improved pasture	50,000	1,886	1.92	0.08	2.00
Sod	250	250	0.06	0.34	0.40
Turf grass (other)	120	120	0.12	0.02	0.14
Total Agricultural	81,131	30,417	41.20	10.25	51.45
Recreational					
Turf grass (golf)	1,591	769	1.35	1.10	2.45
Grand total	82,722	31,186	42.55	11.35	53.90
Sprinkler acreage	7,447				
Flood acreage	7,950				
Low volume acreage	15,789				
Total irrigated acreage	31,186				

## ANNUAL WATER USE SURVEY: 1994

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**MARION COUNTY**

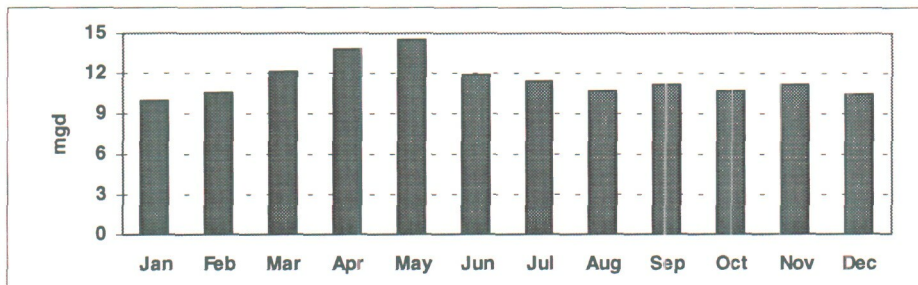
Total population 217,862  
Total area 1,579 mi<sup>2</sup>

**St. Johns River Water Management District**

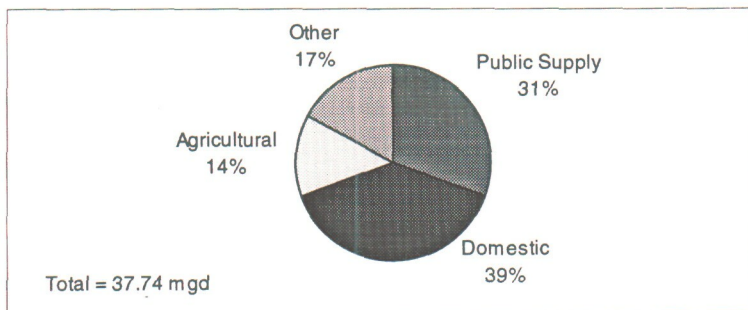
Population		Land Area (acres)	
Total	170,586	Total area	730,635 (1,142 mi <sup>2</sup> )
Public supply	75,309	Farmed	72,849
Self-supplied	95,277	Irrigated	5,673
Per capita (gallons per day)	154		

**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	11.56	0.00	11.56	0.00
Domestic self-supply	14.67	0.00	14.67	0.00
Commercial/industrial use	2.23	0.00	2.23	0.00
Agricultural irrigation	4.58	0.56	5.14	0.00
Recreational irrigation	0.76	0.55	1.31	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	2.83	0.00	2.83	0.00
Total	36.63	1.11	37.74	0.00
Total ground	36.63			
Total surface	1.11			
County total	37.74			



**Figure A21. Monthly public supply water use in Marion County, 1994**



**Figure A22. Marion County—percentages, by category, of freshwater use, 1994.** The "other" category includes abandoned artesian wells, commercial/industrial, and recreational irrigation water use.



## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in Marion County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Bellevue, City of	Public supply	3,217	0.59	Floridan aquifer	0.00	
GDU, Silver Springs Shores	Public supply	13,046	0.95	Floridan aquifer	0.00	
Maco/South Oaks subdivision	Public supply	1,050	0.14	Floridan aquifer	0.00	
Marion Utilities	Public supply	4,679	0.42	Floridan aquifer	0.00	
McIntosh, City of	Public supply	412	0.07	Floridan aquifer	0.00	
Ocala East Villas	Public supply	382	0.10	Floridan aquifer	0.00	
Ocala Oaks Utilities	Public supply	2,966	0.26	Floridan aquifer	0.00	
Ocala, City of	Public supply	42,920	8.26	Floridan aquifer	0.00	
Southern States Utilities	Public supply	1,284	0.18	Floridan aquifer	0.00	
Sunshine Utilities	Public supply	4,046	0.47	Floridan aquifer	0.00	
Tradewinds Utilities	Public supply	1,007	0.09	Floridan aquifer	0.00	
Woods & Lakes subdivision	Public supply	300	0.03	Floridan aquifer	0.00	
<b>Total Public Supply</b>		<b>75,309</b>	<b>11.56</b>		<b>0.00</b>	
Astatula Mine	Industrial*		0.26	Floridan aquifer	0.00	
Certified Grocers	Industrial		0.03	Floridan aquifer	0.00	
FRI, Marion mine	Industrial*		1.33	Floridan aquifer	0.00	
Golden Flake Inc., Ocala plant	Industrial		0.09	Floridan aquifer	0.00	
Daytop Village-Grant	Institutional		0.01	Floridan aquifer	0.00	
Marion Correctional Facility	Institutional		0.23	Floridan aquifer	0.00	
Silver Springs Inc.	Institutional		0.28	Floridan aquifer	0.00	
<b>Total Commercial/Industrial</b>			<b>2.23</b>		<b>0.00</b>	

Note: GDU = General Development Utilities

FRI = Florida Rock Industries

\*Mining industry

**1994 Agricultural and Recreational Water Use in Marion County**

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	10	10	0.01	0.00	0.01
Sweet corn	40	40	0.05	0.00	0.05
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	1,700	940	0.84	0.00	0.84
Fruit Crops					
Blueberries	100	100	0.09	0.00	0.09
Citrus	1,200	700	0.97	0.07	1.04
Grapes	20	20	0.04	0.00	0.04
Peaches	10	10	0.02	0.00	0.02
Pecans	10	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	1,300	1,000	0.52	0.00	0.52
Miscellaneous fruits	200	100	0.28	0.00	0.28
Field Crops					
Field corn	3,000	350	0.17	0.12	0.29
Peanuts	2,000	134	0.13	0.00	0.13
Rice	0	0	0.00	0.00	0.00
Sorghum	200	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	1,500	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	20	20	0.04	0.00	0.04
Foliage	14	14	0.04	0.00	0.04
Woody ornamentals	52	52	0.10	0.03	0.13
Improved pasture	59,230	940	0.51	0.34	0.85
Sod	660	660	0.68	0.00	0.68
Turf grass (other)	83	83	0.09	0.00	0.09
Total Agricultural	71,349	5,173	4.58	0.56	5.14
Recreational					
Turf grass (golf)	1,500	500	0.76	0.55	1.31
Grand total	72,849	5,673	5.34	1.11	6.45
Sprinkler acreage	4,973				
Flood acreage	0				
Low volume acreage	700				
Total irrigated acreage	5,673				

**ANNUAL WATER USE SURVEY: 1994**

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**NASSAU COUNTY**

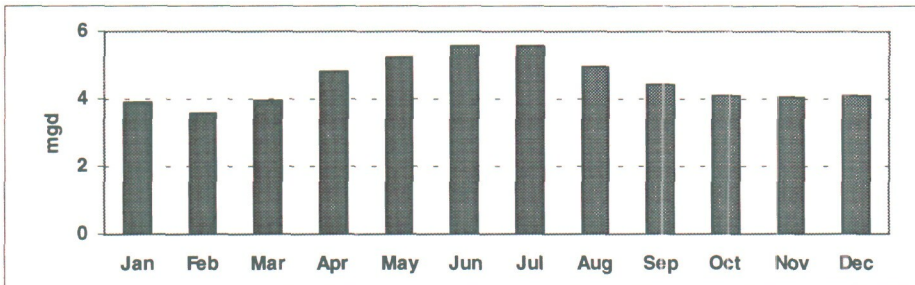
Total population 47,371  
Total area 652 mi<sup>2</sup>

**St. Johns River Water Management District**

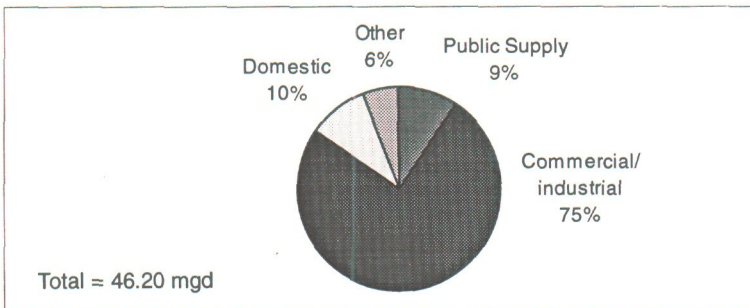
Population		Land Area (acres)	
Total	47,371	Total area	417,280 (652 mi <sup>2</sup> )
Public supply	23,773	Farmed	7,406
Self-supplied	23,598	Irrigated	770
Per capita (gallons per day)	191		

**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	4.53	0.00	4.53	0.00
Domestic self-supply	4.51	0.00	4.51	0.00
Commercial/industrial use	34.55	0.00	34.55	2.25
Agricultural irrigation	0.25	0.00	0.25	0.00
Recreational irrigation	1.36	0.21	1.57	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.79	0.00	0.79	0.00
Total	45.99	0.21	46.20	2.25
Total ground	45.99			
Total surface	2.46			
County total	48.45			



**Figure A23. Monthly public supply water use in Nassau County, 1994**



**Figure A24. Nassau County—percentages, by category, of freshwater use, 1994.** The "other" category includes agricultural irrigation, recreational irrigation, and abandoned artesian well water use.

## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in Nassau County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Callahan, Town of	Public supply	1,298	0.17	Floridan aquifer	0.00	
Eastwood Oaks Apts.	Public supply	277	0.03	Floridan aquifer	0.00	
Fernandina Beach, City of	Public supply	13,509	2.93	Floridan aquifer	0.00	
Hillard, Town of	Public supply	2,244	0.23	Floridan aquifer	0.00	
Marsh Cove Apts.	Public supply	325	0.05	Floridan aquifer	0.00	
SSU, Amelia Island	Public supply	6,120	1.12	Floridan aquifer	0.00	
Total Public Supply		23,773	4.53		0.00	
Container Corp. of America	Industrial*		19.63	Floridan aquifer	0.00	
ITT Rayonier	Industrial*		14.86	Floridan aquifer	2.25	Amelia River <sup>†</sup>
Stone Container	Industrial		0.03	Floridan aquifer	0.00	
FDOT I-95 welcome center	Institutional		0.01	Floridan aquifer	0.00	
Nassau Correctional Facility	Institutional		0.02	Floridan aquifer	0.00	
Total Commercial/Industrial			34.55		2.25	

Note: SSU = Southern States Utilities

FDOT = Florida Department of Transportation

\*Pulp and paper industry

<sup>†</sup>Saline water

## 1994 Agricultural and Recreational Water Use in Nassau County

	Total Acres		Water Use (mgd)		Total
	Farmed	Irrigated	Ground	Surface	
Vegetable Crops					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	100	50	0.05	0.00	0.05
Fruit Crops					
Blueberries	30	15	0.01	0.00	0.01
Citrus	0	0	0.00	0.00	0.00
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	0	0	0.00	0.00	0.00
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	500	50	0.05	0.00	0.05
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	1,000	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	40	40	0.04	0.00	0.04
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Foliage	20	20	0.06	0.00	0.06
Woody ornamentals	3	0	0.00	0.00	0.00
Improved pasture	5,000	0	0.00	0.00	0.00
Sod	0	0	0.00	0.00	0.00
Turf grass (other)	68	30	0.04	0.00	0.04
Total Agricultural	6,761	205	0.25	0.00	0.25
Recreational					
Turf grass (golf)	645	565	1.36	0.21	1.57
Grand total	7,406	770	1.61	0.21	1.82
Sprinkler acreage	770				
Flood acreage	0				
Low volume acreage	0				
Total irrigated acreage	770				

**ANNUAL WATER USE SURVEY: 1994**

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**OKEECHOBEE COUNTY**

Total population 32,325  
Total area 774 mi<sup>2</sup>

**St. Johns River Water Management District**

<u>Population</u>		<u>Land Area (acres)</u>	
Total	485	Total area	65,388 (102 mi <sup>2</sup> )
Public supply	0	Farmed	34,485
Self-supplied	485	Irrigated	7,485
Per capita* (gallons per day)	150		

**1994 Water Withdrawals (in mgd) by Category**

	<u>Fresh Water</u>		<u>Saline Water</u>	
	<u>Ground</u>	<u>Surface</u>	<u>Total Fresh</u>	<u>Surface</u>
Public supply	0.00	0.00	0.00	0.00
Domestic self-supply	0.07	0.00	0.07	0.00
Commercial/industrial use	0.02	0.00	0.02	0.00
Agricultural irrigation	12.87	0.00	12.87	0.00
Recreational irrigation	0.00	0.00	0.00	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Total	12.96	0.00	12.96	0.00
Total ground	12.96			
Total surface	<u>0.00</u>			
County total	12.96			

\*Used St. Johns River Water Management District average per capita



## ANNUAL WATER USE SURVEY: 1994

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### 1994 Water Users in Okeechobee County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
FDOT, Fort Drum Plaza	Institutional		0.02	Floridan aquifer	0.00	
Total Commercial/Industrial			0.02		0.00	

Note: FDOT = Florida Department of Transportation

## 1994 Agricultural and Recreational Water Use in Okeechobee County

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	0	0	0.00	0.00	0.00
Fruit Crops					
Blueberries	17	17	0.03	0.00	0.03
Citrus	4,468	4,468	7.80	0.00	7.80
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	0	0	0.00	0.00	0.00
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	0	0	0.00	0.00	0.00
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Foliage	0	0	0.00	0.00	0.00
Woody ornamentals	0	0	0.00	0.00	0.00
Improved pasture	30,000	3,000	5.04	0.00	5.04
Sod	0	0	0.00	0.00	0.00
Turf grass (other)	0	0	0.00	0.00	0.00
Total Agricultural	34,485	7,485	12.87	0.00	12.87
Recreational					
Turf grass (golf)	0	0	0.00	0.00	0.00
Grand total	34,485	7,485	12.87	0.00	12.87
Sprinkler acreage 0					
Flood acreage	3,017				
Low volume acreage	4,468				
Total irrigated acreage	7,485				

**ANNUAL WATER USE SURVEY: 1994**

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**ORANGE COUNTY**

Total population 740,167  
 Total area 908 mi<sup>2</sup>

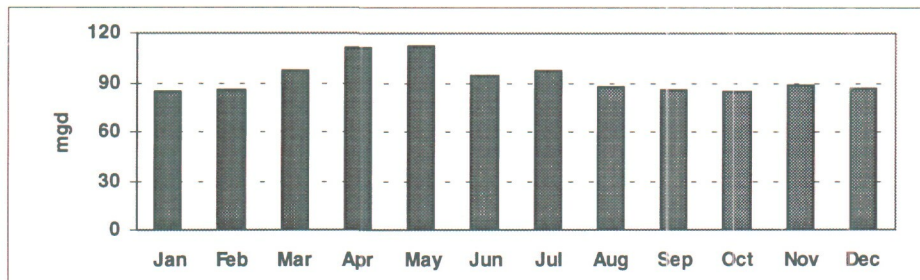
**St. Johns River Water Management District**

Population		Land Area (acres)	
Total	592,134	Total area	431,191 (674 mi <sup>2</sup> )
Public supply	518,354	Farmed	69,714
Self-supplied	73,780	Irrigated	30,874
Per capita (gallons per day)	179		

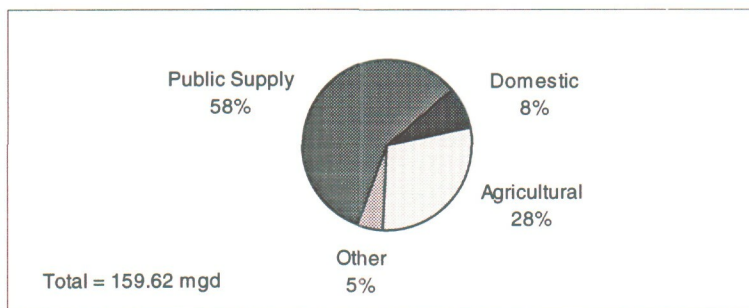
**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply*	92.91	0.00	92.91	0.00
Domestic self-supply	13.21	0.00	13.21	0.00
Commercial/industrial use	3.12	0.00	3.12	0.00
Agricultural irrigation	13.46	31.97	45.43	0.00
Recreational irrigation	2.29	0.44	2.73	0.00
Thermoelectric power generation	0.37	0.00	0.37	0.00
Abandoned artesian wells	1.85	0.00	1.85	0.00
Total	127.21	32.41	159.62	0.00
Total ground	127.21			
Total surface		32.41		
County total		159.62		

\*Does not include 23.54 mgd of water withdrawn in Orange County for use in Brevard County



**Figure A25. Monthly public supply water use in Orange County, 1994**



**Figure A26. Orange County—percentages, by category, of freshwater use, 1994. The "other" category includes abandoned artesian wells, commercial/industrial, thermoelectric power generation, and recreational irrigation water use.**

## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in Orange County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Apopka, City of	Public supply	33,150	5.10	Floridan aquifer	0.00	
Eatonville, Town of	Public supply	2,491	0.42	Floridan aquifer	0.00	
Econ Utilities, Wedgefield	Public supply	1,658	0.18	Floridan aquifer	0.00	
Maitland, City of	Public supply	9,164	2.67	Floridan aquifer	0.00	
Oakland, Town of	Public supply	755	0.10	Floridan aquifer	0.00	
Ocoee, City of	Public supply	17,489	3.01	Floridan aquifer	0.00	
Orange County Utilities*	Public supply	82,897	18.17	Floridan aquifer	0.00	
Orlando Utilities Commission (OUC)*	Public supply	257,573	47.95	Floridan aquifer	0.00	
Park Manor Estates	Public supply	2,158	0.16	Floridan aquifer	0.00	
Rock Springs MHP	Public supply	1,771	0.22	Floridan aquifer	0.00	
Shadow Hills MHP	Public supply	1,700	0.22	Floridan aquifer	0.00	
Southern States Utilities	Public supply	8,731	0.96	Floridan aquifer	0.00	
Starlight Ranch MHP	Public supply	2,583	0.16	Floridan aquifer	0.00	
Tangerine, Town of	Public supply	534	0.12	Floridan aquifer	0.00	
Utilities Inc. of Florida	Public supply	1,294	0.10	Floridan aquifer	0.00	
Winter Garden, City of	Public supply	14,545	1.41	Floridan aquifer	0.00	
Winter Park, City of	Public supply	76,686	11.27	Floridan aquifer	0.00	
Zellwood Station Utilities	Public supply	1,983	0.58	Floridan aquifer	0.00	
Zellwood Water Association	Public supply	1,192	0.11	Floridan aquifer	0.00	
<b>Total Public Supply</b>		<b>518,354</b>	<b>92.91</b>		<b>0.00</b>	
Coca Cola, Plymouth plant	Industrial		0.19	Floridan aquifer	0.00	
Consolidated Minerals, Inc.	Industrial*		0.00	Floridan aquifer	0.00	
Lust & Long Precool Company	Industrial		0.05	Floridan aquifer	0.00	
Ralston Purina-Terry Farms	Industrial		0.11	Floridan aquifer	0.00	
Winter Garden Citrus Plant	Industrial		2.05	Floridan aquifer	0.00	
Sun Resort Inc.	Institutional		0.16	Floridan aquifer	0.00	
University of Central Florida	Institutional		0.37	Floridan aquifer	0.00	
Yogi Bear's Campground	Institutional		0.08	Floridan aquifer	0.00	
Yogi Bear's Jellystone Park	Institutional		0.11	Floridan aquifer	0.00	
<b>Total Commercial/Industrial</b>			<b>3.12</b>		<b>0.00</b>	
OUC, Stanton Power Plant	Power generation		0.37	Floridan aquifer	0.00	
<b>Total Power Generation</b>			<b>0.37</b>		<b>0.00</b>	

Note: MHP = mobile home park

\*Does not include water used in the South Florida Water Management District (SFWMD)

†Does not include water withdrawn (23.54 mgd) for public supply use in Brevard County by the City of Cocoa. Total public supply water use for the county, including that consumed in SFWMD, was 131.34 mgd.

\*Mining industry (used less than 0.01 mgd in 1994)

## 1994 Agricultural and Recreational Water Use in Orange County

	Total Acres		Water Use (mgd)		Total
	Farmed	Irrigated	Ground	Surface	
Vegetable Crops					
Cabbage	1,200	880	0.82	0.00	0.82
Carrots	13,500	6,875	0.90	8.06	8.96
Cucumbers	1,020	745	0.73	0.00	0.73
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	75	75	0.09	0.00	0.09
Sweet corn	13,600	6,960	1.26	11.32	12.58
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	14,100	8,276	1.23	11.07	12.30
Fruit Crops					
Blueberries	0	0	0.00	0.00	0.00
Citrus	3,596	3,596	4.58	0.51	5.09
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	150	150	0.09	0.00	0.09
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	200	200	0.18	0.00	0.18
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	200	200	0.12	0.12	0.24
Soybeans	200	200	0.13	0.13	0.26
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	40	40	0.08	0.00	0.08
Foliage	581	581	1.49	0.37	1.86
Woody ornamentals	576	576	1.23	0.14	1.37
Improved pasture	18,562	0	0.00	0.00	0.00
Sod	200	200	0.16	0.18	0.34
Turf grass (other)	381	381	0.37	0.07	0.44
Total Agricultural	68,181	29,935	13.46	31.97	45.43
Recreational					
Turf grass (golf)	1,533	939	2.29	0.44	2.73
Grand total	69,714	30,874	15.75	32.41	48.16
Sprinkler acreage	4,625				
Flood acreage	24,336				
Low volume acreage	1,913				
Total irrigated acreage	30,874				

**ANNUAL WATER USE SURVEY: 1994**

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**OSCEOLA COUNTY**

Total population 131,111  
Total area 1,322 mi<sup>2</sup>

**St. Johns River Water Management District**

<u>Population</u>		<u>Land Area (acres)</u>	
Total	3,016	Total area	312,204 (488 mi <sup>2</sup> )
Public supply	0	Farmed	126,800
Self-supplied	3,016	Irrigated	12,180
Per capita* (gallons per day)	150		

**1994 Water Withdrawals (in mgd) by Category**

	<u>Fresh Water</u>		<u>Saline Water</u>	
	<u>Ground</u>	<u>Surface</u>	<u>Total Fresh</u>	<u>Surface</u>
Public supply	0.00	0.00	0.00	0.00
Domestic self-supply	0.45	0.00	0.45	0.00
Commercial/industrial use	0.00	0.00	0.00	0.00
Agricultural irrigation	5.17	9.55	14.72	0.00
Recreational irrigation	0.00	0.00	0.00	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Total	5.62	9.55	15.17	0.00
Total ground	5.62			
Total surface	<u>9.55</u>			
County total	15.17			

\*Used St. Johns River Water Management District average per capita



# ANNUAL WATER USE SURVEY: 1994

## 1994 Agricultural and Recreational Water Use in Osceola County

	Total Acres		Water Use (mgd)		Total
	Farmed	Irrigated	Ground	Surface	
<b>Vegetable Crops</b>					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	0	0	0.00	0.00	0.00
<b>Fruit Crops</b>					
Blueberries	0	0	0.00	0.00	0.00
Citrus	1,000	1,000	2.48	0.00	2.48
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	0	0	0.00	0.00	0.00
Miscellaneous fruits	0	0	0.00	0.00	0.00
<b>Field Crops</b>					
Field corn	0	0	0.00	0.00	0.00
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
<b>Ornamentals and Grasses</b>					
Ferns	0	0	0.00	0.00	0.00
Foliage	0	0	0.00	0.00	0.00
Woody ornamentals	0	0	0.00	0.00	0.00
Improved pasture	125,800	11,180	2.69	9.55	12.24
Sod	0	0	0.00	0.00	0.00
Turf grass (other)	0	0	0.00	0.00	0.00
<b>Total Agricultural</b>	<b>126,800</b>	<b>12,180</b>	<b>5.17</b>	<b>9.55</b>	<b>14.72</b>
<b>Recreational</b>					
Turf grass (golf)	0	0	0.00	0.00	0.00
<b>Grand total</b>	<b>126,800</b>	<b>12,180</b>	<b>5.17</b>	<b>9.55</b>	<b>14.72</b>
Sprinkler acreage	11,280				
Flood acreage	720				
Low volume acreage	<u>180</u>				
Total irrigated acreage	12,180				

**POLK COUNTY**

Total population 437,204  
 Total area 1,875 mi<sup>2</sup>

**St. Johns River Water Management District**

Population		Land Area (acres)	
Total	4,372	Total area	37,200 (58 mi <sup>2</sup> )
Public supply	1,568	Farmed	8,312
Self-supplied	2,804	Irrigated	3,136
Per capita (gallons per day)	147		

**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	0.23	0.00	0.23	0.00
Domestic self-supply	0.41	0.00	0.41	0.00
Commercial/industrial use	0.19	0.00	0.19	0.00
Agricultural irrigation	4.42	0.49	4.91	0.00
Recreational irrigation	0.00	0.00	0.00	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.00	0.00	0.00	0.00
Total	5.25	0.49	5.74	0.00
Total ground	5.25			
Total surface	0.49			
County total	5.74			

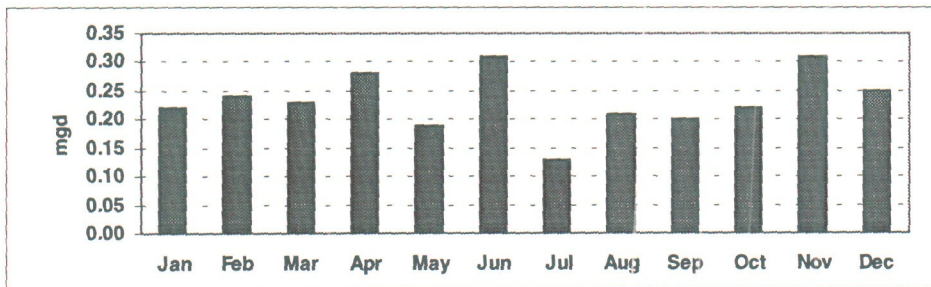


Figure A27. Monthly public supply water use in Polk County, 1994

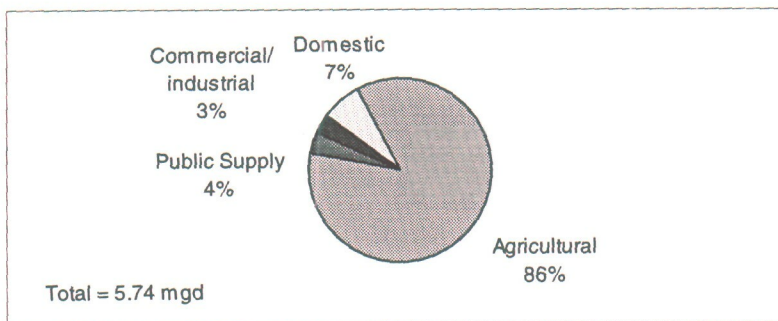


Figure A28. Polk County—percentages, by category, of freshwater use, 1994

## ANNUAL WATER USE SURVEY: 1994

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### 1994 Water Users in Polk County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Emerald Acres	Public supply	80	0.01	Floridan aquifer	0.00	
Polk County Utilities, Davenport	Public supply	1,488	0.22	Floridan aquifer	0.00	
Total Public Supply		1,568	0.23		0.00	
Horizon's End Resort	Institutional		0.04	Floridan aquifer	0.00	
Oak Harbor Campground	Institutional		0.02	Floridan aquifer	0.00	
Outdoor Resorts of Orlando	Institutional		0.13	Floridan aquifer	0.00	
Total Commercial/Industrial			0.19		0.00	

## 1994 Agricultural and Recreational Water Use in Polk County

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	0	0	0.00	0.00	0.00
Fruit Crops					
Blueberries	0	0	0.00	0.00	0.00
Citrus	2,757	2,481	3.74	0.42	4.16
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	0	0	0.00	0.00	0.00
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	1,000	500	0.45	0.00	0.45
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Foliage	5	5	0.02	0.00	0.02
Woody ornamentals	50	50	0.13	0.00	0.13
Improved pasture	4,500	100	0.08	0.07	0.15
Sod	0	0	0.00	0.00	0.00
Turf grass (other)	0	0	0.00	0.00	0.00
Total Agricultural	8,312	3,136	4.42	0.49	4.91
Recreational					
Turf grass (golf)	0	0	0.00	0.00	0.00
Grand total	8,312	3,136	4.42	0.49	4.91
Sprinkler acreage	1,051				
Flood acreage	100				
Low volume acreage	1,985				
Total irrigated acreage	3,136				

## ANNUAL WATER USE SURVEY: 1994

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**PUTNAM COUNTY**

Total population 68,980  
 Total area 722 mi<sup>2</sup>

**St. Johns River Water Management District**

Population		Land Area (acres)	
Total	68,980	Total area	462,080 (722 mi <sup>2</sup> )
Public supply	24,817	Farmed	51,661
Self-supplied	44,163	Irrigated	9,391
Per capita (gallons per day)	137		

**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	3.41	0.00	3.41	0.00
Domestic self-supply	6.05	0.00	6.05	0.00
Commercial/industrial use	8.44	33.94	42.38	0.00
Agricultural irrigation	11.56	0.66	12.22	0.00
Recreational irrigation	0.20	0.00	0.20	0.00
Thermoelectric power generation	0.66	12.56	13.22	0.00
Abandoned artesian wells	0.87	0.00	0.87	0.00
Total	31.19	47.16	78.35	0.00

Total ground 31.19  
 Total surface 47.16  
 County total 78.35

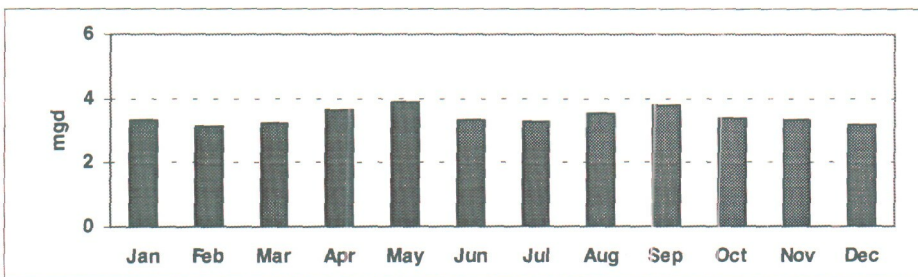


Figure A29. Monthly public supply water use in Putnam County, 1994

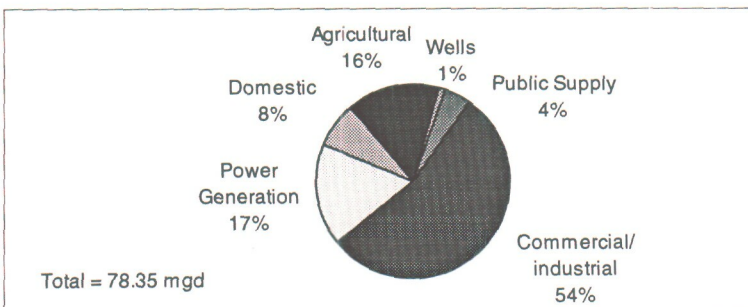


Figure A30. Putnam County—percentages, by category, of freshwater use, 1994. Recreational irrigation water use was less than 1%.

## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in Putnam County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Crescent City, City of	Public supply	2,392	0.33	Floridan aquifer	0.00	
Interlachen, Town of	Public supply	1,310	0.10	Floridan aquifer	0.00	
Lake Como Water Association	Public supply	325	0.02	Floridan aquifer	0.00	
Melrose, Town of	Public supply	1,326	0.09	Floridan aquifer	0.00	
Palatka, City of	Public supply	15,300	2.58	Floridan aquifer	0.00	
Southern States Utilities	Public supply	3,607	0.19	Floridan aquifer	0.00	
Welaka, Town of	Public supply	557	0.10	Floridan aquifer	0.00	
<b>Total Public Supply</b>		<b>24,817</b>	<b>3.41</b>		<b>0.00</b>	
Feldspar Corp., Edgar plant	Industrial*		0.24	Floridan aquifer	2.17	Retention pond
FRI, Grandin Sand	Industrial*		1.82	Floridan aquifer	0.00	
FRI, Keuka Industrial Sand	Industrial*		0.14	Floridan aquifer	0.00	
FRI, Keuka Sand	Industrial*		0.45	Floridan aquifer	0.00	
Georgia-Pacific, Hawthorne plant	Industrial†		0.01	Floridan aquifer	0.00	
Georgia-Pacific, Palatka plant	Industrial†		5.70	Floridan aquifer	31.77	Simms/Etonia
Putnam Correctional Facility	Institutional		0.08	Floridan aquifer	0.00	
<b>Total Commercial/Industrial</b>			<b>8.44</b>		<b>33.94</b>	
Florida Power & Light	Power generation		0.18	Floridan aquifer	1.54	St. Johns River
Seminole Electric	Power generation		0.48	Floridan aquifer	11.02	St. Johns River
<b>Total Power Generation</b>			<b>0.66</b>		<b>12.56</b>	

Note: FRI = Florida Rock Industries

\*Mining industry

†Pulp and paper industry

## 1994 Agricultural and Recreational Water Use in Putnam County

	Total Acres		Water Use (mgd)		Total
	Farmed	Irrigated	Ground	Surface	
Vegetable Crops					
Cabbage	500	500	0.30	0.00	0.30
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	5,500	5,500	5.72	0.00	5.72
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	200	200	0.29	0.00	0.29
Fruit Crops					
Blueberries	80	80	0.06	0.00	0.06
Citrus	200	200	0.28	0.00	0.28
Grapes	10	10	0.02	0.00	0.02
Peaches	30	30	0.07	0.00	0.07
Pecans	150	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	200	200	0.12	0.00	0.12
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	1,500	500	0.66	0.03	0.69
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	4,000	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	1,500	1,500	2.54	0.63	3.17
Foliage	250	250	1.00	0.00	1.00
Woody ornamentals	100	100	0.22	0.00	0.22
Improved pasture	37,000	0	0.00	0.00	0.00
Sod	220	220	0.25	0.00	0.25
Turf grass (other)	25	25	0.03	0.00	0.03
Total Agricultural	51,465	9,315	11.56	0.66	12.22
Recreational					
Turf grass (golf)	196	76	0.20	0.00	0.20
Grand total	51,661	9,391	11.76	0.66	12.42
Sprinkler acreage	2,211				
Flood acreage	6,950				
Low volume acreage	230				
Total irrigated acreage	9,391				



**ANNUAL WATER USE SURVEY: 1994**

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## ST. JOHNS COUNTY

Total population 94,758  
Total area 609 mi<sup>2</sup>

### St. Johns River Water Management District

Population		Land Area (acres)	
Total	94,758	Total area	389,760 (609 mi <sup>2</sup> )
Public supply	90,129	Farmed	31,892
Self-supplied	4,629	Irrigated	27,211
Per capita (gallons per day)	108		

### 1994 Water Withdrawals (in mgd) by Category

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	9.72	0.00	9.72	0.00
Domestic self-supply	0.50	0.00	0.50	0.00
Commercial/industrial use	0.05	0.00	0.05	0.00
Agricultural irrigation	28.20	0.00	28.20	0.00
Recreational irrigation	1.75	1.02	2.77	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	<u>9.58</u>	<u>0.00</u>	<u>9.58</u>	<u>0.00</u>
Total	49.80	1.02	50.82	0.00
Total ground	49.80			
Total surface	<u>1.02</u>			
County total	50.82			

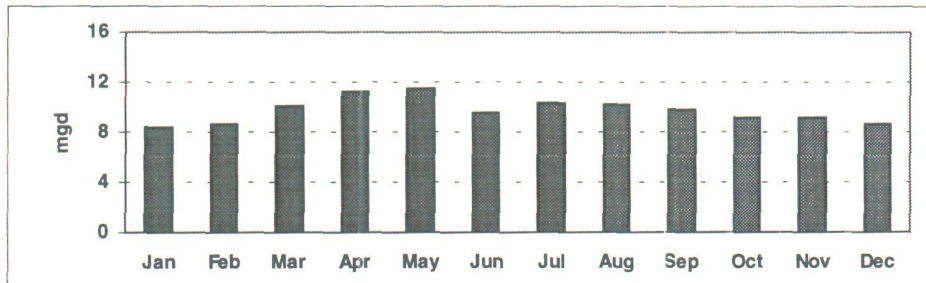


Figure A31. Monthly public supply water use in St. Johns County, 1994

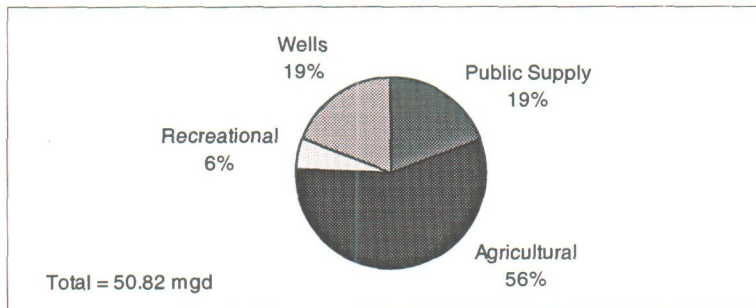


Figure A32. St. Johns County—percentages, by category, of freshwater use, 1994. Commercial/industrial and domestic self-supply water use were each less than 1%.

## ANNUAL WATER USE SURVEY: 1994

### 1994 Water Users in St. Johns County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Fruit Cove Oaks subdivision	Public supply	490	0.05	Floridan aquifer	0.00	
GDU, Julington Creek subdivision	Public supply	505	0.16	Floridan aquifer	0.00	
Hastings, City of	Public supply	816	0.07	Floridan and surficial aquifers	0.00	
Intercoastal Utilities	Public supply	5,356	1.00	Floridan aquifer	0.00	
North Beach Water System	Public supply	1,728	0.22	Floridan aquifer	0.00	
Ponce Deleon Utilities	Public supply	395	0.15	Floridan aquifer	0.00	
Ponte Vedra Utilities	Public supply	4,883	1.06	Floridan aquifer	0.00	
Remington Forest	Public supply	150	0.03	Floridan aquifer	0.00	
St. Augustine, City of	Public supply	20,780	1.67	Floridan and surficial aquifers	0.00	
St. Johns County Utilities	Public supply	25,408	3.08	Floridan and surficial aquifers	0.00	
St. Johns Forest	Public supply	14,033	0.02	Floridan aquifer	0.00	
St. Johns North Utilities	Public supply	1,080	0.28	Floridan aquifer	0.00	
St. Johns Service Company	Public supply	14,045	1.86	Floridan aquifer	0.00	
Wesley Manor Water System	Public supply	460	0.07	Floridan aquifer	0.00	
<b>Total Public Supply</b>		<b>90,129</b>	<b>9.72</b>		<b>0.00</b>	
G&M Truck Stop	Commercial		0.02	Floridan aquifer	0.00	
FDOT I-95 (SR 207) rest facility	Institutional		0.01	Floridan aquifer	0.00	
FDOT I-95 (SR 210) rest facility	Institutional		0.01	Floridan aquifer	0.00	
KOA campground	Institutional		0.01	Floridan aquifer	0.00	
<b>Total Commercial/Industrial</b>			<b>0.05</b>		<b>0.00</b>	

Note: GDU = General Development Utilities  
 FDOT = Florida Department of Transportation  
 SR = State Road

## 1994 Agricultural and Recreational Water Use in St. Johns County

	Total Acres		Water Use (mgd)		Total
	Farmed	Irrigated	Ground	Surface	
Vegetable Crops					
Cabbage	1,500	1,500	0.95	0.00	0.95
Carrots	0	0	0.00	0.00	0.00
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	21,000	21,000	21.82	0.00	21.82
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	500	500	0.74	0.00	0.74
Fruit Crops					
Blueberries	10	10	0.01	0.00	0.01
Citrus	0	0	0.00	0.00	0.00
Grapes	10	10	0.02	0.00	0.02
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	0	0	0.00	0.00	0.00
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	2,000	2,000	2.81	0.00	2.81
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Foliage	25	25	0.07	0.00	0.07
Woody ornamentals	75	75	0.17	0.00	0.17
Improved pasture	5,500	1,000	1.52	0.00	1.52
Sod	60	60	0.07	0.00	0.07
Turf grass (other)	20	20	0.02	0.00	0.02
Total Agricultural	30,700	26,200	28.20	0.00	28.20
Recreational					
Turf grass (golf)	1,192	1,011	1.75	1.02	2.77
Grand total	31,892	27,211	29.95	1.02	30.97
Sprinkler acreage	1,166				
Flood acreage	26,000				
Low volume acreage	45				
Total irrigated acreage	27,211				

**ANNUAL WATER USE SURVEY: 1994**

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**SEMINOLE COUNTY**

Total population 316,555  
Total area 308 mi<sup>2</sup>

**St. Johns River Water Management District**

Population		Land Area (acres)	
Total	316,555	Total area	197,120 (308 mi <sup>2</sup> )
Public supply	291,699	Farmed	14,304
Self-supplied	24,856	Irrigated	6,353
Per capita (gallons per day)	166		

**1994 Water Withdrawals (in mgd) by Category**

	Fresh Water		Saline Water	
	Ground	Surface	Total Fresh	Surface
Public supply	48.49	0.00	48.49	0.00
Domestic self-supply	4.13	0.00	4.13	0.00
Commercial/industrial use	0.17	0.00	0.17	0.00
Agricultural irrigation	6.65	0.19	6.84	0.00
Recreational irrigation	3.98	1.00	4.98	0.00
Thermoelectric power generation	0.00	0.00	0.00	0.00
Abandoned artesian wells	<u>17.95</u>	<u>0.00</u>	<u>17.95</u>	<u>0.00</u>
Total	81.37	1.19	82.56	0.00
Total ground	81.37			
Total surface		<u>1.19</u>		
County total		82.56		

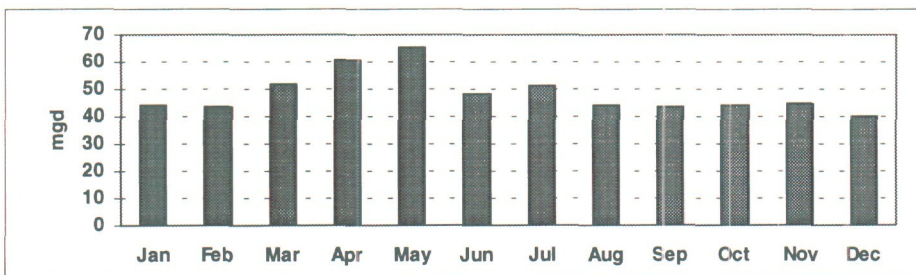


Figure A33. Monthly public supply water use in Seminole County, 1994

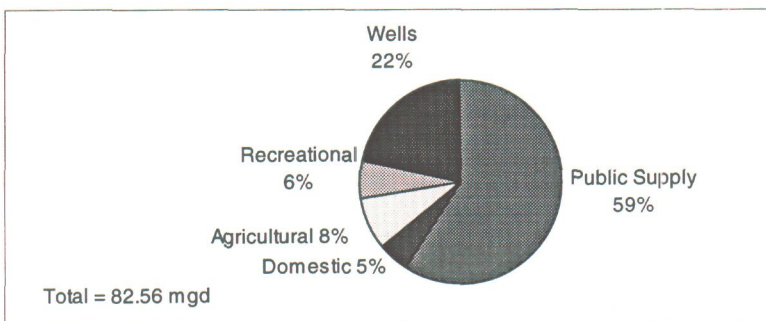


Figure A34. Seminole County—percentages, by category, of freshwater use, 1994. Commercial/industrial water use was less than 1%.

# ANNUAL WATER USE SURVEY: 1994

## 1994 Water Users in Seminole County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Altamonte Springs, City of	Public supply	37,105	6.40	Floridan aquifer	0.00	
Casselberry, City of	Public supply	38,306	5.48	Floridan aquifer	0.00	
Indian Creek, Seminole Pines	Public supply	279	0.04	Floridan aquifer	0.00	
Lake Harney Water Association	Public supply	295	0.04	Floridan aquifer	0.00	
Lake Mary, City of	Public supply	6,976	1.33	Floridan aquifer	0.00	
Longwood, City of	Public supply	13,476	2.03	Floridan aquifer	0.00	
Mullet Lake Water Association	Public supply	671	0.04	Floridan aquifer	0.00	
Oviedo, City of	Public supply	16,788	2.52	Floridan aquifer	0.00	
Palm Valley MHP	Public supply	1,610	0.23	Floridan aquifer	0.00	
Sanford, City of	Public supply	34,542	5.28	Floridan aquifer	0.00	
Sanlando Utilities	Public supply	48,262	10.64	Floridan aquifer	0.00	
Seminole County Utilities	Public supply	48,529	9.43	Floridan aquifer	0.00	
Southern States Utilities	Public supply	10,749	0.74	Floridan aquifer	0.00	
Utilities Inc. of Florida	Public supply	9,339	0.79	Floridan aquifer	0.00	
Winter Springs, City of	Public supply	24,772	3.50	Floridan aquifer	0.00	
<b>Total Public Supply</b>		<b>291,689</b>	<b>48.49</b>		<b>0.00</b>	
I-4 Industrial park	Industrial		0.09	Floridan aquifer	0.00	
Iron Bridge WWTP	Industrial		0.05	Floridan aquifer	0.00	
Siemens Stromberg	Industrial		0.03	Floridan aquifer	0.00	
<b>Total Commercial/Industrial</b>			<b>0.17</b>		<b>0.00</b>	

Note: MHP = mobile home park  
WWTP = wastewater treatment plant

## 1994 Agricultural and Recreational Water Use in Seminole County

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	486	486	0.18	0.00	0.18
Carrots	0	0	0.00	0.00	0.00
Cucumbers	218	151	0.13	0.00	0.13
Peppers	0	0	0.00	0.00	0.00
Potatoes	450	450	0.47	0.00	0.47
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	15	15	0.03	0.00	0.03
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	175	96	0.15	0.00	0.15
Fruit Crops					
Blueberries	5	5	0.01	0.00	0.01
Citrus	1,816	1,816	3.01	0.00	3.01
Grapes	0	0	0.00	0.00	0.00
Peaches	0	0	0.00	0.00	0.00
Pecans	0	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	95	40	0.03	0.00	0.03
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	40	40	0.07	0.00	0.07
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	10	10	0.01	0.00	0.01
Ornamentals and Grasses					
Ferns	20	20	0.04	0.00	0.04
Foliage	200	200	0.58	0.00	0.58
Woody ornamentals	443	400	0.89	0.18	1.07
Improved pasture	7,000	490	0.52	0.00	0.52
Sod	320	320	0.38	0.00	0.38
Turf grass (other)	136	136	0.15	0.01	0.16
Total Agricultural	11,429	4,675	6.65	0.19	6.84
Recreational					
Turf grass (golf)	2,875	1,678	3.98	1.00	4.98
Grand total	14,304	6,353	10.63	1.19	11.82
Sprinkler acreage	4,569				
Flood acreage	1,283				
Low volume acreage	501				
Total irrigated acreage	6,353				



**ANNUAL WATER USE SURVEY: 1994**

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**VOLUSIA COUNTY**

Total population 396,631  
Total area 1,106 mi<sup>2</sup>

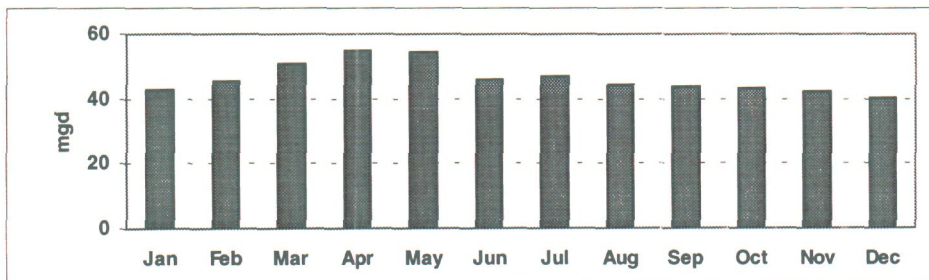
**St. Johns River Water Management District**

<u>Population</u>		<u>Land Area (acres)</u>	
Total	396,631	Total area	707,840 (1,106 mi <sup>2</sup> )
Public supply	334,818	Farmed	15,281
Self-supplied	61,813	Irrigated	12,024
Per capita (gallons per day)	138		

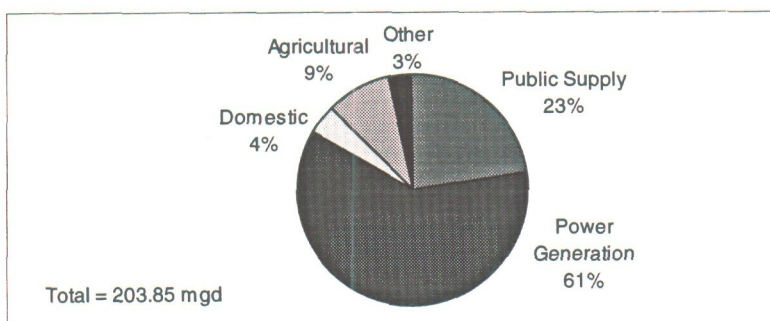
**1994 Water Withdrawals (in mgd) by Category**

	<u>Fresh Water</u>		<u>Saline Water</u>	
	<u>Ground</u>	<u>Surface</u>	<u>Total Fresh</u>	<u>Surface</u>
Public supply*	46.27	0.00	46.27	0.00
Domestic self-supply	8.53	0.00	8.53	0.00
Commercial/industrial use	0.67	0.00	0.67	0.00
Agricultural irrigation	16.32	2.42	18.74	0.00
Recreational irrigation	3.36	1.07	4.43	0.00
Thermoelectric power generation	5.70	117.70	123.40	0.00
Abandoned artesian wells	<u>1.81</u>	<u>0.00</u>	<u>1.81</u>	<u>0.00</u>
Total	82.66	121.19	203.85	0.00
Total ground	82.66			
Total surface		<u>121.19</u>		
County total		203.85		

\*Includes slightly saline water (250 to 1,000 mg/L chlorides) treated through reverse osmosis and diluted with fresh water



**Figure A35. Monthly public supply water use in Volusia County, 1994**



**Figure A36. Volusia County—percentages, by category, of freshwater use, 1994. The "other" category includes abandoned artesian wells, commercial/industrial, and recreational irrigation water use.**

# ANNUAL WATER USE SURVEY: 1994

## 1994 Water Users in Volusia County

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Cassadaga Water Association	Public supply	281	0.03	Floridan aquifer	0.00	
Daytona Beach, City of	Public supply	81,018	12.43	Floridan aquifer	0.00	
De Land, City of	Public supply	32,000	4.88	Floridan aquifer	0.00	
Deltona Utilities	Public supply	58,274	8.27	Floridan aquifer	0.00	
Edgewater, City of	Public supply	17,096	1.46	Floridan aquifer	0.00	
Hacienda Del Rio	Public supply	819	0.09	Floridan aquifer	0.00	
Halifax Plantation	Public supply	232	0.06	Floridan aquifer	0.00	
Holly Hill, City of	Public supply	11,455	1.18	Floridan aquifer	0.00	
John Knox Village	Public supply	895	0.22	Floridan aquifer	0.00	
Kingston Shores Water Association	Public supply	246	0.02	Floridan aquifer and R/O	0.00	
Lake Beresford Water Association	Public supply	1,018	0.16	Floridan aquifer	0.00	
Lake Helen, City of	Public supply	2,398	0.24	Floridan aquifer	0.00	
New Smyrna Beach, City of	Public supply	22,945	3.98	Floridan aquifer	0.00	
Orange City County Village	Public supply	1,392	0.06	Floridan aquifer	0.00	
Orange City, Town of	Public supply	5,992	0.97	Floridan aquifer	0.00	
Ormond Beach, City of	Public supply	39,094	4.77	Floridan aquifer	0.00	
Pierson, Town of	Public supply	1,240	0.12	Floridan aquifer	0.00	
Port Orange, City of	Public supply	46,145	5.01	Floridan aquifer	0.00	
South Water Front Park	Public supply	759	0.03	Floridan aquifer and R/O	0.00	
SSU, Sugar Mill	Public supply	1,460	0.11	Floridan aquifer	0.00	
Terra Mar Village Water & Sewer	Public supply	610	0.02	Floridan aquifer	0.00	
Tomoka View Water Works	Public supply	425	0.04	Floridan aquifer	0.00	
Tymber Creek Utilities	Public supply	1,120	0.10	Floridan aquifer	0.00	
Volusia County Utilities	Public supply	7,904	2.02	Floridan aquifer	0.00	
Total Public Supply		334,818	46.27		0.00	
Ardmore Farms	Industrial		0.16	Floridan aquifer	0.00	
Sherwood Medical Mfg. Company	Industrial		0.17	Floridan aquifer	0.00	
Sparton Electronics*	Industrial		0.00	Floridan aquifer	0.00	
T.G. Lee, Orange City	Industrial		0.09	Floridan aquifer	0.00	
FDNR state park	Institutional		0.01	Floridan aquifer	0.00	
FDOC, Tomoka state park	Institutional		0.04	Floridan aquifer	0.00	
FDOT I-95 rest facility	Institutional		0.01	Floridan aquifer	0.00	
Kampers Kove KOA	Institutional		0.01	Floridan aquifer	0.00	
VC government complex	Institutional		0.18	Floridan aquifer	0.00	
Total Commercial/Industrial			0.67		0.00	

**1994 Water Users in Volusia County—Continued**

User Utility/Facility	Category	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
FPC, Debarry	Power generation		5.13	Floridan aquifer	0.00	
FPC, Lake Monroe <sup>†</sup>	Power generation		0.09	Floridan aquifer	114.00	Lake Monroe
FPL, Sanford	Power generation		0.48	Floridan aquifer	3.70	St. Johns River
Total Power Generation			5.70		117.70	

Note: R/O = reverse osmosis  
 SSU = Southern States Utilities  
 FDNR = Florida Department of Natural Resources  
 FDOC = Florida Department of Corrections  
 FDOT = Florida Department of Transportation  
 VC = Volusia County  
 FPC = Florida Power Corporation  
 FPL = Florida Power & Light

\*Pumpage less than 0.01 mgd

<sup>†</sup>1993 figures

# ANNUAL WATER USE SURVEY: 1994

## 1994 Agricultural and Recreational Water Users in Volusia County

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	295	295	0.21	0.00	0.21
Carrots	0	0	0.00	0.00	0.00
Cucumbers	300	300	0.25	0.00	0.25
Peppers	80	80	0.13	0.00	0.13
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	0	0	0.00	0.00	0.00
Watercress	0	0	0.00	0.00	0.00
Miscellaneous vegetables	660	140	0.23	0.00	0.23
Fruit Crops					
Blueberries	25	25	0.02	0.00	0.02
Citrus	2,121	1,100	1.58	0.12	1.70
Grapes	14	14	0.03	0.00	0.03
Peaches	0	0	0.00	0.00	0.00
Pecans	25	10	0.03	0.00	0.03
Strawberries	0	0	0.00	0.00	0.00
Watermelons	0	0	0.00	0.00	0.00
Miscellaneous fruits	0	0	0.00	0.00	0.00
Field Crops					
Field corn	0	0	0.00	0.00	0.00
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	0	0	0.00	0.00	0.00
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	0	0	0.00	0.00	0.00
Miscellaneous grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	6,304	6,000	10.51	2.15	12.66
Foliage	320	320	0.92	0.00	0.92
Woody ornamentals	95	95	0.20	0.03	0.23
Improved pasture	0	0	0.00	0.00	0.00
Sod	1,837	1,837	2.05	0.00	2.05
Turf grass (other)	245	245	0.16	0.12	0.28
Total Agricultural	12,321	10,461	16.32	2.42	18.74
Recreational					
Turf grass (golf)	2,960	1,563	3.36	1.07	4.43
Grand total	15,281	12,024	19.68	3.49	23.17
Sprinkler acreage 10,084					
Flood acreage 815					
Low volume acreage 1,125					
Total irrigated acreage 12,024					



St. Johns River Water Management District  
P. O. Box 1429  
Palatka, Florida 32178-1429  
(904) 329-4500 Fax: (904) 329-4508