A decorative background featuring a grid of stylized water droplets. The droplets are arranged in a 5x5 grid, with some droplets partially obscured by the text boxes. The droplets are light gray with a white highlight, giving them a three-dimensional appearance.

Annual Water Use Survey

1992

Technical Publication SJ95-2

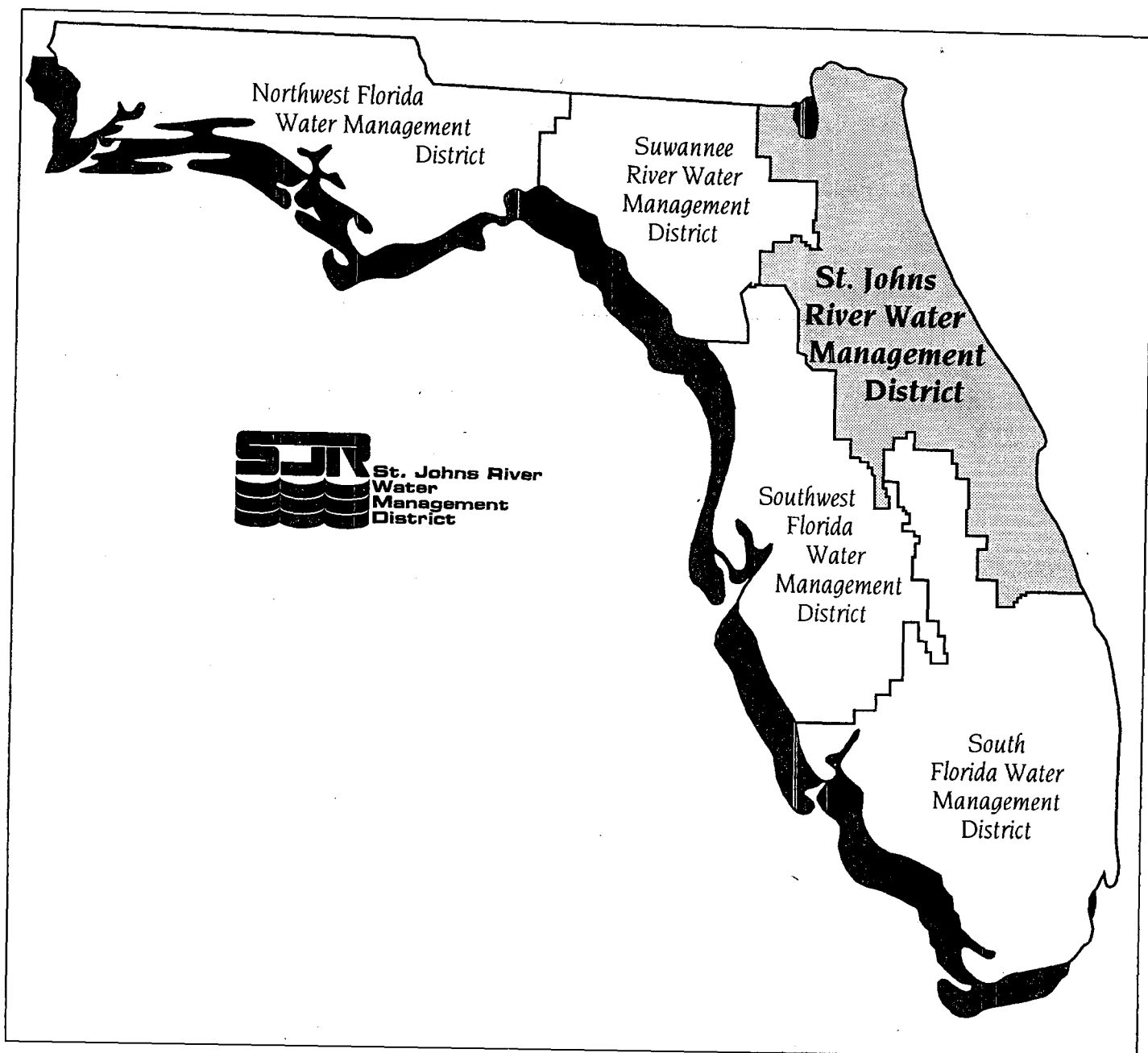
ANNUAL WATER USE SURVEY: 1992

by

Bruce L. Florence

St. Johns River Water Management District
Palatka, Florida

1995



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.

Special 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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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 1992; 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 uses from ground or surface water sources and is expressed in million gallons per day (mgd). Values are the average annual quantities withdrawn and are rounded to the nearest 10,000 gallons (0.01 mgd).

The total amount of water used in SJRWMD in 1992, including fresh and saline water, was 3,351.57 mgd. Of that total, 1,511.89 mgd, or 45 percent, was fresh water. The total surface water use for SJRWMD was 2,308.90 mgd, of which 1,839.68 mgd was saline and 469.22 mgd was fresh. The total amount of ground water withdrawn in SJRWMD was 1,042.67 mgd. All ground water was fresh water.

The largest use of fresh ground water was for public supply—409.80 mgd, or 39 percent of the total fresh ground water use in SJRWMD, followed closely by agricultural irrigation—344.25 mgd, or 33 percent of the total.

The largest use of fresh surface water was for agriculture—280.35 mgd, or 60 percent of the total fresh surface water use in SJRWMD. Most surface water used was saline water, used primarily for thermoelectric power generation (1,811.81 mgd).

Brevard County had the largest total water use, at 1,325.91 mgd, and Indian River County had the highest total freshwater withdrawal, at 285.77 mgd.

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Water use covers all water uses from ground or surface water sources and is expressed in million gallons per day (mgd). Values are the average annual quantities withdrawn and are rounded to the nearest 10,000 gallons (0.01 mgd).

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		

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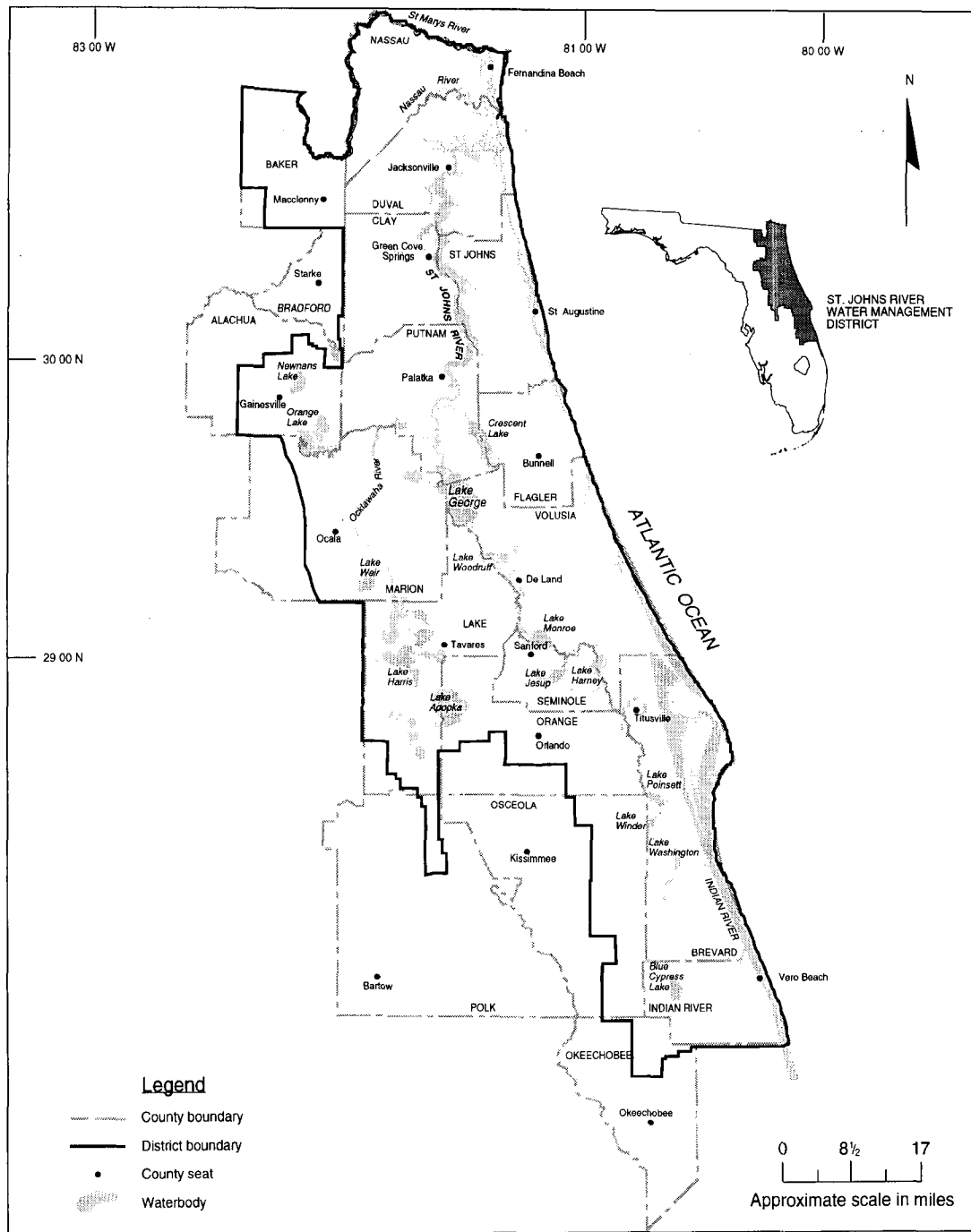


Figure 1. The St. Johns River Water Management District

WATER USE CATEGORIES

Water use information is reported for seven categories of use:

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

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. These data come from utility records and are estimated to the nearest 0.01 mgd.

One hundred ninety public supply utilities served 2,785,107 people in 1992, or 84 percent 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 1993a, 1993b). Public supply data are estimated from the average service connections reported in the utility records multiplied by the average number of people per household (University of Florida 1991).

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Table 1. Population in the St. Johns River Water Management District (SJRWMD) by county, 1992

County	County Population	SJRWMD Population	Percentage of County Population in SJRWMD	Public Supply Population	Domestic Self-Supply Population
Alachua	186,201	151,186	81%	138,437	12,749
Baker	19,159	18,201	95%	4,146	14,055
Bradford	23,056	1,729	7%	379	1,350
Brevard	417,740	417,740	100%	410,762	6,978
Clay	113,382	113,382	100%	76,838	36,544
Duval	693,546	693,546	100%	637,526	56,020
Flagler	31,999	31,999	100%	20,692	11,307
Indian River	94,091	94,091	100%	59,063	35,028
Lake	162,579	160,953	99%	128,481	32,472
Marion	206,642	161,844	78%	68,857	92,987
Nassau	45,546	45,546	100%	23,263	22,283
Okeechobee	31,102	467	2%	0	467
Orange	712,637	570,110	80%	493,239	76,871
Osceola	119,760	2,695	2%	0	2,695
Polk	420,885	4,208	1%	1,580	2,628
Putnam	67,752	67,752	100%	23,567	44,185
St. Johns	88,417	88,417	100%	68,559	19,858
Seminole	305,872	305,872	100%	291,527	14,345
Volusia	383,983	383,983	100%	338,191	45,792
District Total	4,124,349	3,313,721		2,785,107	528,614

Source: University of Florida 1991, 1993a, 1993b

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 individual wells are drilled into the easiest accessible aquifer that could produce the 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 estimated population percentages contained in Florence (1994).

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 SELF-SUPPLY

The commercial/industrial self-supply 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, hospitals, and recreational facilities. 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 self-supplied facilities that used more than 0.01 mgd of ground or surface water were inventoried. In 1992, 58 industrial users and 43 commercial users, including 41 institutions, were included in this report. Water used for

transporting materials from the mine pit to the plant and for dewatering mining pits is considered conveyance and was 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 (CUP) issued by SJRWMD to the facilities and information from monthly operating reports received by SJRWMD, the Florida Department of Environmental Protection (DEP), or the Florida Department of Health and Rehabilitative Services (HRS). Industries not reporting to DEP or SJRWMD were contacted by SJRWMD staff.

AGRICULTURAL IRRIGATION

The agricultural water use category consists of estimated water withdrawals from ground or surface sources for agricultural crop irrigation. Estimates of the acreage 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 different crops require different amounts of irrigation (USDA 1970). There are 31 categories assessed, and these are divided into five groups (Table 2):

- Vegetable crops
- Fruit crops
- Field crops
- Ornamentals and grasses
- Miscellaneous agricultural (includes livestock watering and lake augmentation for fish farming)

The acreage data are supplied primarily by the Cooperative Extension Service of the Institute of Food and Agricultural Sciences at the University of Florida, supplemented by information from SJRWMD CUP files and the Florida Department of Agriculture and Consumer Services (FDACS 1993a, 1993b,

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	Flowers and foliage
Cucumbers	Grapes	Rice	Woody ornamentals
Peppers	Peaches	Sorghum	Improved pasture
Potatoes	Pecans	Soybeans	Sod
Tomatoes	Strawberries	Sugar cane	
Sweet corn	Watermelons	Tobacco	
Watercress	Miscellaneous fruits	Wheat	
Miscellaneous vegetables		Miscellaneous grains	

Note: Miscellaneous agricultural water uses include livestock watering and fish farming.

1993c). The Florida Crop and Livestock Reporting Service provides counts of livestock, which are multiplied by a specified amount of water used per head (FDACS 1993d).

The estimates of irrigation necessary per acre for each crop are calculated using the modified Blaney-Criddle irrigation model (USDA 1970) and data from the SJRWMD Benchmark Farms irrigation monitoring program (Singleton 1993), 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 1992).

RECREATIONAL IRRIGATION

The recreational irrigation category includes water used to irrigate turf grass for golf courses and other types of recreational areas, such as football and soccer fields. In previous *Annual water use survey* reports, turf grass irrigation was included in the agricultural water use category as turf grass (golf) and turf grass (other). All of the recreational water use was assumed to be fresh water.

The acreage data are supplied primarily by the Cooperative Extension Service of the Institute of Food and Agricultural Sciences at the University of Florida, supplemented by information from SJRWMD CUP files and the Florida Department of Agriculture and Consumer Services (FDACS 1993a, 1993b, 1993c). The estimates of irrigation necessary per acre for each crop are 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. These figures are derived from information in the SJRWMD CUP files or from data supplied by the power companies to SJRWMD, DEP, or HRS in monthly operating reports. In 1992, 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 1992, the districtwide average for all wells of known flow was 0.142 mgd per well (Steele 1993).

In previous *Annual water use survey* reports, the estimated amount of water flowing from abandoned artesian wells was included in the miscellaneous category of water use.

Previous abandoned artesian well reports are dated by the year in which the fiscal year ends (e.g., October 1991 through September 1992 is in the 1992 report).

1992 WATER USE BY SOURCE

Water can be withdrawn from surface waterbodies or from the various aquifers within SJRWMD. 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.

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). Fresh water includes both potable and nonpotable, but treatable, water. 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 potable standards to be used for public supply. 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 SJRWMD in 1992 was 3,351.57 mgd, of which 1,839.68 mgd was saline surface water and 1,511.89 mgd was fresh water (Table 3). These figures do not include reused wastewater (see appendix).

Table 3. Total 1992 water use by county (in million gallons per day), St. Johns River Water Management District

County	Fresh Water			Saline Water	Totals
	Ground	Surface	Total	Surface	
Alachua	30.06	0.07	30.13	0.00	30.13
Baker	5.13	0.35	5.48	0.00	5.48
Bradford	0.28	0.00	0.28	0.00	0.28
Brevard	156.97	24.66	181.63	1,144.28	1,325.91
Clay	23.54	0.13	23.67	0.00	23.67
Duval	145.39	0.27	145.66	557.72	703.38
Flagler	14.59	0.63	15.22	0.00	15.22
Indian River	107.01	178.77	285.77	137.59	423.37
Lake	69.98	11.02	81.00	0.00	81.00
Marion	37.51	0.97	38.48	0.00	38.48
Nassau	46.58	0.06	46.64	0.09	46.73
Okeechobee	15.84	0.00	15.84	0.00	15.84
Orange	135.95	67.73	203.68	0.00	203.68
Osceola	8.33	11.37	19.70	0.00	19.70
Polk	4.96	0.44	5.40	0.00	5.40
Putnam	49.73	52.69	102.42	0.00	102.42
St. Johns	53.65	0.35	54.00	0.00	54.00
Seminole	65.91	0.45	66.36	0.00	66.36
Volusia	71.26	119.26	190.52	0.00	190.52
District Total	1,042.67	469.22	1,511.89	1,839.68	3,351.57

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

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The largest use of fresh water was for agricultural irrigation—624.60 mgd (Table 4), or 41 percent of the total fresh water. The

Table 4. Total 1992 water use by category (in million gallons per day), St. Johns River Water Management District

Category	Fresh Water			Saline Water*
	Ground	Surface	Total	Surface
Public supply	409.80	14.83	424.63	0.00
Domestic self-supply	84.92	0.00	84.92	0.00
Commercial/industrial self-supply	109.82	38.38	148.20	27.87
Agricultural irrigation	344.25	280.35	624.60	0.00
Recreational irrigation	12.03	5.41	17.44	0.00
Thermoelectric power generation	6.18	130.25	136.43	1,811.81
Abandoned artesian wells	75.67	0.00	75.67	0.00
Total	1,042.67	469.22	1,511.89	1,839.68

*Saline water is all from surface water sources.

second largest use of fresh water was for public supply—424.63 mgd, or 28 percent of the total freshwater use in SJRWMD. The largest use of saline surface water was for thermoelectric power generation—1,811.81, or 98 percent of the total saline surface water use in SJRWMD.

SURFACE WATER

In 1992, surface water accounted for a total of 2,308.90 mgd of water use (Table 3). This included water from both fresh and saline surface water sources. Twenty percent (469.22 mgd) of the total water used in SJRWMD came from fresh surface water

sources. The remaining 80 percent 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 (178.77 mgd) was Indian River County (Table 3). Virtually all of this water (99 percent) was for agricultural irrigation. Volusia County used 119.26 mgd of fresh surface water, 97 percent of which was for thermoelectric power generation. Water use in these two counties totaled 298.03 mgd, or 64 percent of the total fresh surface water use in SJRWMD in 1992.

The largest category of fresh surface water use was agricultural irrigation, which accounted for 280.35 mgd (Table 4), or 60 percent (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 130.25 mgd, or 28 percent of the total. Commercial/industrial water use accounted for 38.38 mgd, or 8 percent of the total fresh surface water use in SJRWMD. Fresh surface water withdrawn for public supply accounted for 14.83 mgd, or 3 percent of the total fresh surface water used. Fresh surface water withdrawn for recreational irrigation accounted for 5.41 mgd, or 1 percent of the total fresh surface water used.

Saline Water

Total saline water use in SJRWMD in 1992 was 1,839.68 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 is recorded as a water use in this report even though nearly all of the cooling water is returned to its original source.

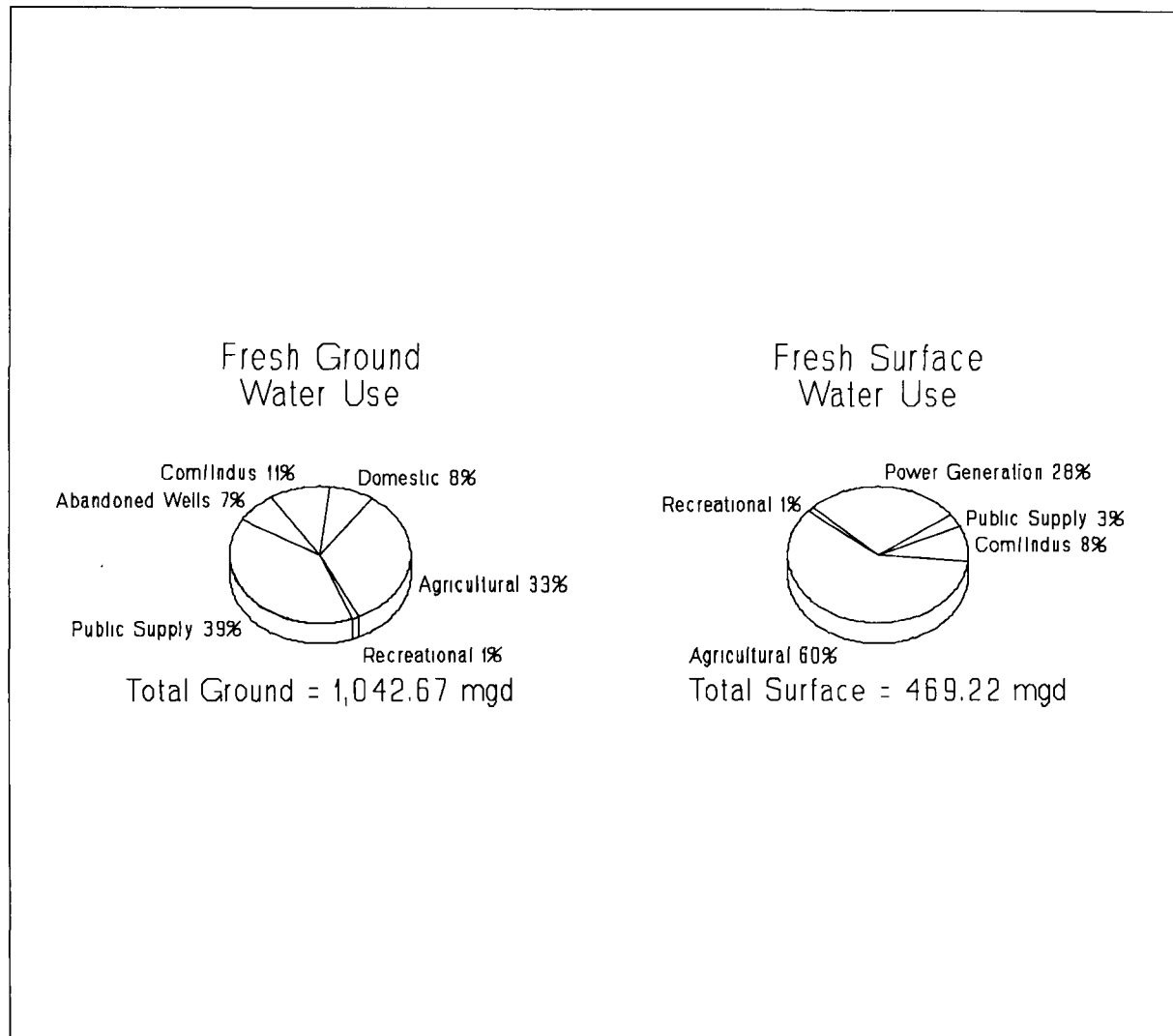


Figure 2. Total freshwater use, 1992. Most of the fresh water used in the St. Johns River Water Management District came from ground water sources. Surface water is used primarily for agricultural irrigation and thermoelectric power generation.

Brevard County had the highest saline surface water use—1,144.28 mgd (Table 3), for thermoelectric power generation at two plants:

- Florida Power and Light (627.76 mgd)
- Orlando Utilities Commission (516.52 mgd)

Duval County had the next highest saline surface water use—557.72 mgd (Table 3), for power generation and commercial purposes at three plants:

- Jacksonville Electric Authority (488.50 mgd)
- Eastport Power Plant (41.44 mgd)
- Seminole Kraft Corporation (27.78 mgd)

Indian River County had a saline surface water use of 137.59 mgd at the Vero Beach Municipal Power Plant, and Nassau County had saline water use of 0.09 mgd at the ITT Rayonier paper mill.

GROUND WATER

In 1992, ground water accounted for a total of 1,042.67 mgd of water use (Table 3), or 69 percent of the total freshwater use in SJRWMD. Generally, 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 counties used more than 100 mgd of ground water, for a total of 545.31 mgd for the four counties, or 52 percent of the total ground water use in SJRWMD in 1992.

The largest category of ground water use in 1992 in SJRWMD was public supply, which accounted for about 409.80 mgd (Table 4), or 39 percent of the total ground water use (Figure 2). The second largest category of ground water use was agricultural irrigation, accounting for 344.25 mgd, or 33 percent of the total ground water use.

ANNUAL WATER USE SURVEY: 1992

Commercial/industrial water use accounted for 109.82 mgd, or 11 percent of the total ground water use in SJRWMD in 1992; domestic self-supply for 84.92 mgd, or 8 percent of the total; abandoned artesian wells for 75.67 mgd, or 7 percent of the total; recreational irrigation for 12.03 mgd, or 1 percent of the total; and thermoelectric power generation for 6.18 mgd, or less than 1 percent of the total ground water use.

1992 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:

- Thermoelectric power generation
- Commercial/industrial self-supply

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 1992 was 424.63 mgd (Tables 4 and 5). All public supply water was fresh water, and most of the water supplied in 1992 (97 percent) was ground water (Table 4). Fresh surface water (14.83 mgd) was used for public supply in Brevard County. Eighty-nine percent of the ground water used in SJRWMD for public supply was withdrawn from the Floridan aquifer system; the remaining 11 percent was withdrawn from the intermediate and surficial aquifer systems (SJRWMD 1992a). The public supply category of ground water use accounted for 39 percent of the total ground water use in SJRWMD in 1992 (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 as potable water. In the *SJRWMD Annual water use survey reports*

ANNUAL WATER USE SURVEY: 1992

Table 5. Public supply and domestic self-supply water use in the St. Johns River Water Management District (SJRWMD), 1992

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	138,437	20.65	149	12,749	1.90
Baker	4,146	0.73	176	14,055	2.47
Bradford	379	0.04	106	1,350	0.14
Brevard	410,762	50.94 ^a	124	6,978	0.87
Clay	76,838	10.42	136	36,544	4.97
Duval	637,526	94.80	149	56,020	8.35
Flagler	20,692	4.09	198	11,307	2.24
Indian River	59,063	11.63	197	35,028	6.90
Lake	128,481	18.95	147	32,472	4.77
Marion	68,857	11.39	165	92,987	15.34
Nassau	23,263	4.02	173	22,283	3.85
Okeechobee	0	0.00	152 ^b	467	0.07
Orange	493,239	93.15 ^c	189	76,871	14.53
Osceola	0	0.00	152 ^b	2,695	0.41
Polk	1,580	0.21	133	2,628	0.35
Putnam	23,567	3.70	157	44,185	6.94
St. Johns	68,559	8.62	126	19,858	2.50
Seminole	291,527	47.15	162	14,345	2.32
Volusia	338,191	44.14	131	45,792	6.00
District Total	2,785,107	424.63	152 ^d	528,614	84.92 ^e

Note: mgd = million gallons per day

^aThis includes 24.85 mgd withdrawn in Orange County.

^bDistrictwide per capita (see footnote^e).

^cThis does not include 24.85 mgd withdrawn in Orange County for use in Brevard County.

^dThis total represents districtwide per capita based on counties for which per capita data were available.

^eThis is a total of the county domestic self-supply figures, not based on SJRWMD per capita.

published before 1987, this slightly saline ground water was reported as saline water.

Per Capita

The average per capita water use in SJRWMD in 1992, based on the population served by public supply, was 152 gallons per day (Table 5). This amount includes water used for residential as well as non-residential purposes.

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 percent of the SJRWMD public supply water use population.

Water use for public supply in Duval (94.80 mgd) and Orange (93.15 mgd) counties was 187.95 mgd, or 44 percent of the public supply water use in SJRWMD in 1992. Orange County is split between two water management districts; 34.80 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 (24.85 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 454,355 customers with 67.71 mgd of fresh ground water in 1992 (see appendix).

DOMESTIC SELF-SUPPLY

In 1992, an estimated 528,614 people used 84.92 mgd of domestic self-supplied water (Table 5), or 8 percent of the total fresh ground water use in SJRWMD (Table 4). All of the domestic self-supplied water was assumed to be ground water.

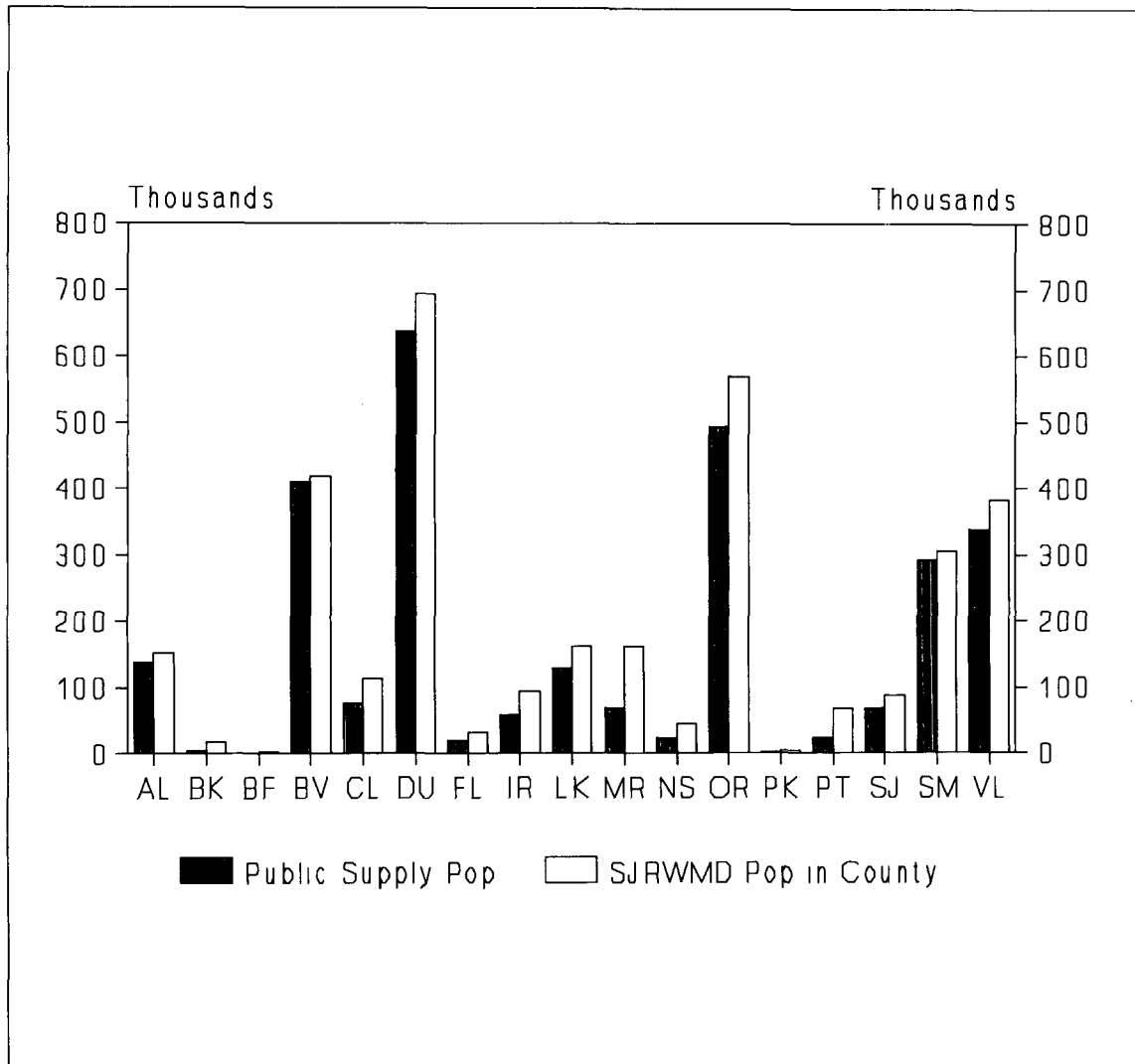


Figure 3. Population served by public supply in the St. Johns River Water Management District (SJRWMD), 1992. *The largest counties in population in SJRWMD are Duval and Orange (county abbreviations are listed on p. 1). Okeechobee and Osceola counties do not have a public supply population in SJRWMD.*

Marion County had the largest self-supplied population—92,987 people (Table 5). Orange County had the second largest, with 76,871 people, followed by Duval County with 56,020 people.

COMMERCIAL/INDUSTRIAL SELF-SUPPLY

The total self-supplied freshwater use in the commercial/industrial category was 148.20 mgd (Tables 4 and 6), or 10 percent of the total freshwater use in SJRWMD. Of this total, 109.82 mgd was ground water and 38.38 mgd was fresh surface water. In addition, 27.87 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 1992, water use for pulp and paper production included 68.68 mgd of fresh ground water, 34.84 mgd of fresh surface water, and 27.78 mgd of saline surface water (see appendix). The second largest water user in this category was the mining industry, which accounted for 16.36 mgd of fresh water. Together, pulp and paper production and mining accounted for 119.88 mgd of fresh water, or 81 percent of the commercial/industrial self-supply freshwater use in SJRWMD.

The largest amount of fresh water used for commercial/industrial self-supply (59.33 mgd) was in Putnam County (Table 6). Nassau (36.65 mgd) and Duval (31.17 mgd) counties also had significant amounts of freshwater use in this category. Of the total fresh water used for commercial/industrial self-supply in SJRWMD, 86 percent (127.15 mgd) was in these three counties.

AGRICULTURAL IRRIGATION

Almost all of the water used for agricultural irrigation in SJRWMD was fresh water. 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

ANNUAL WATER USE SURVEY: 1992

Table 6. Commercial/industrial self-supply water use in the St. Johns River Water Management District, 1992 (in million gallons per day)

County	Fresh Water			Saline Water
	Ground	Surface*	Total	Surface
Alachua	1.93	0.00	1.93	0.00
Baker	0.19	0.00	0.19	0.00
Bradford	0.00	0.00	0.00	0.00
Brevard	0.13	0.00	0.13	0.00
Clay	5.45	0.00	5.45	0.00
Duval	31.17	0.00	31.17	27.78
Flagler	0.15	0.00	0.15	0.00
Indian River	0.22	0.00	0.22	0.00
Lake	5.62	0.72	6.34	0.00
Marion	1.60	0.00	1.60	0.00
Nassau	36.65	0.00	36.65	0.09
Okeechobee	0.09	0.00	0.09	0.00
Orange	3.35	0.00	3.35	0.00
Osceola	0.00	0.00	0.00	0.00
Polk	0.24	0.00	0.24	0.00
Putnam	21.67	37.66	59.33	0.00
St. Johns	0.08	0.00	0.08	0.00
Seminole	0.43	0.00	0.43	0.00
Volusia	0.85	0.00	0.85	0.00
District Total	109.82	38.38	148.20	27.87

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

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

624.60 mgd, or 41 percent of the total freshwater use in SJRWMD in 1992 (Tables 4 and 7). Of this total, 344.25 mgd, or 55 percent 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.

Water Use by Acreage and Crop

An estimated 925,649 acres were farmed in SJRWMD in 1992, of which 375,247 acres were irrigated (see appendix). Of the total acreage irrigated, 263,477 acres were irrigated by flood systems, 58,477 acres by low pressure/low volume systems, and 53,293 acres by sprinkler systems. The total amount of irrigated acres decreased from 376,229 acres in 1991—a net decrease of 982 acres (Florence 1994). The largest water use for a single crop type was for citrus irrigation, which accounted for 272.20 mgd, or 44 percent of the total agricultural water use in SJRWMD (see Figure 4 and appendix). Irrigation of improved pasture land accounted for 128.32 mgd, or 21 percent of agricultural water use.

Water Use by County

The largest water use for agriculture occurred in Indian River County—253.30 mgd of fresh water (Table 7), or 41 percent of the total water use for irrigation in SJRWMD. Most of this amount, 178.00 mgd, was fresh surface water. The second largest water use for agriculture was in Brevard County—92.18 mgd, most of which was ground water. The water use in these two counties was 345.48 mgd, or 55 percent of the total agricultural irrigation water use in SJRWMD in 1992.

RECREATIONAL IRRIGATION

Water used in the recreational irrigation category totaled 17.44 mgd, or about 1 percent of the total fresh water used in SJRWMD (Table 8). Of this amount, 12.03 mgd was ground water. The largest water user for recreational irrigation occurred in Brevard County—2.82 mgd (see appendix). The second largest water user was in Indian River County—2.39 mgd.

ANNUAL WATER USE SURVEY: 1992

Table 7. Agricultural irrigation water use in the St. Johns River Water Management District, 1992 (in million gallons per day)

County	Fresh Water		Total
	Ground	Surface	
Alachua	4.51	0.03	4.54
Baker	1.56	0.35	1.91
Bradford	0.07	0.00	0.07
Brevard	83.69	8.49	92.18
Clay	1.60	0.00	1.60
Duval	2.93	0.05	2.98
Flagler	8.02	0.00	8.02
Indian River	75.30	178.00	253.30
Lake	38.70	9.83	48.53
Marion	5.54	0.66	6.20
Nassau	0.81	0.00	0.81
Okeechobee	15.68	0.00	15.68
Orange	18.48	67.47	85.95
Osceola	7.78	11.37	19.15
Polk	4.16	0.44	4.60
Putnam	16.54	0.84	17.38
St. Johns	35.57	0.00	35.57
Seminole	5.61	0.07	5.68
Volusia	17.70	2.75	20.45
District Total	344.25	280.35	624.60

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

Table 8. Recreational irrigation water use in the St. Johns River Water Management District, 1992 (in million gallons per day)

County	Fresh Water		Total
	Ground	Surface	
Alachua	0.77	0.04	0.81
Baker	0.04	0.00	0.04
Bradford	0.03	0.00	0.03
Brevard	1.48	1.34	2.82
Clay	0.39	0.13	0.52
Duval	1.02	0.22	1.24
Flagler	0.08	0.63	0.71
Indian River	1.62	0.77	2.39
Lake	0.66	0.47	1.13
Marion	0.52	0.31	0.83
Nassau	0.40	0.06	0.46
Okeechobee	0.00	0.00	0.00
Orange	1.42	0.26	1.68
Osceola	0.00	0.00	0.00
Polk	0.00	0.00	0.00
Putnam	0.09	0.00	0.09
St. Johns	0.62	0.35	0.97
Seminole	1.62	0.38	2.00
Volusia	1.27	0.45	1.72
District Total	12.03	5.41	17.44

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

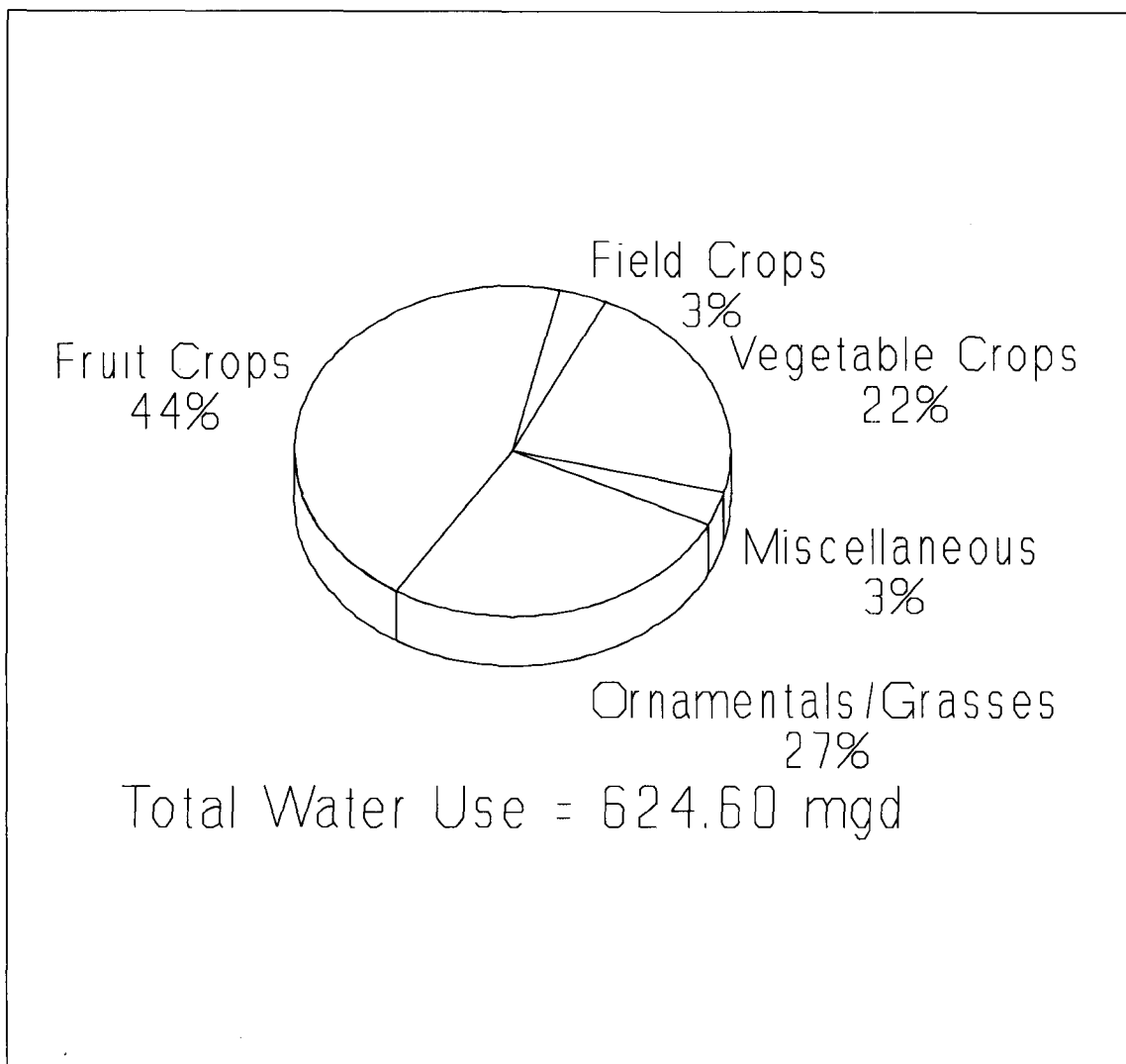


Figure 4. Water use in the St. Johns River Water Management District for five crop types, 1992. *Fruit crops accounted for 44 percent of agricultural irrigation water use in 1992.*

THERMOELECTRIC POWER GENERATION

Total water use for the 12 self-supplied power plants accounted for 1,811.81 mgd of saline surface water, 130.25 mgd of fresh surface water, and 6.18 mgd of fresh ground water (Tables 4 and 9). The largest amount of saline water used for thermoelectric power generation was in Brevard County—1,144.28 mgd. The largest amount of freshwater use was in Volusia County—116.40 mgd.

ABANDONED ARTESIAN WELLS

Water flowing from 585 abandoned artesian wells totaled an estimated 75.67 mgd in SJRWMD (Table 10). The total known flow for 66 wells was 9.38 mgd. The estimated flow from 519 wells was 66.29 mgd. All water was fresh ground water.

The estimated flows were calculated by county, then summed for an SJRWMD total. The calculation is performed as follows:

1. Determine county average of known flow per well.
2. Multiply result (average known flow) by the estimated number of wells of unknown flow.
3. Combine the estimated unknown flow with the known flow for a county total.

For counties with no wells of known flow, the per well average of all known flows in SJRWMD (0.142 mgd) was used.

SJRWMD began its Abandoned Artesian Well Plugging Program in 1976. As of 1992, 1,980 abandoned artesian wells had been identified, of which 777 wells had been plugged or repaired by SJRWMD, 618 had been plugged or repaired by the well owners, and 585 are still flowing (Steele 1993). As of September 1992, an estimated 126.32 mgd of fresh water had been saved.

ANNUAL WATER USE SURVEY: 1992

Table 9. Thermoelectric power generation water use in the St. Johns River Water Management District, 1992 (in million gallons per day)

County	Fresh Water			Saline Water
	Ground	Surface	Totals	Surface
Alachua	0.30	0.00	0.30	0.00
Baker	0.00	0.00	0.00	0.00
Bradford	0.00	0.00	0.00	0.00
Brevard	0.25	0.00	0.25	1,144.28
Clay	0.00	0.00	0.00	0.00
Duval	4.42	0.00	4.42	529.94
Flagler	0.00	0.00	0.00	0.00
Indian River	0.08	0.00	0.08	137.59
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	0.33	0.00	0.33	0.00
Osceola	0.00	0.00	0.00	0.00
Polk	0.00	0.00	0.00	0.00
Putnam	0.46	14.19	14.65	0.00
St. Johns	0.00	0.00	0.00	0.00
Seminole	0.00	0.00	0.00	0.00
Volusia	0.34	116.06	116.40	0.00
District Total	6.18	130.25	136.43	1,811.81

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

Table 10. Estimated flow from abandoned artesian wells in the St. Johns River Water Management District, 1992 (in million gallons per day [mgd])

County	Number of Known Wells	Known Flow (mgd)	Estimated Number of Wells of Unknown Flow	Estimated Flow (mgd)	Total Estimated Flow (mgd)
Alachua	0	0.00	0	0.00	0.00
Baker	0	0.00	1	0.14*	0.14
Bradford	0	0.00	0	0.00	0.00
Brevard	32	5.65	163	28.79	34.44
Clay	0	0.00	5	0.71*	0.71
Duval	0	0.00	19	2.70*	2.70
Flagler	2	0.00	2	0.00	0.00
Indian River	6	2.41	22	8.84	11.26
Lake	0	0.00	9	1.28*	1.28
Marion	0	0.00	22	3.12*	3.12
Nassau	0	0.00	6	0.85*	0.85
Okeechobee	0	0.00	0	0.00	0.00
Orange	0	0.00	33	4.69*	4.69
Osceola	0	0.00	1	0.14*	0.14
Polk	0	0.00	0	0.00	0.00
Putnam	2	0.03	21	0.31	0.33
St. Johns	1	0.22	28	6.05*	6.26
Seminole	20	0.95	165	7.83	8.78
Volusia	3	0.12	22	0.84	0.96
District Total	66	9.38	519	66.29	75.67

*SJRWMD average (0.142 mgd) used for estimated flow.

Note: 0.00 value means pumpage was insignificant (<0.01 mgd) or did not occur.

Source: Steele 1993

TRENDS

1983 TO 1992

Total freshwater use increased by 16 percent over the period 1983 through 1992. 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 and Table 11). The estimated population increased by 34 percent between 1983 and 1992. In general, the increase in total water use has been driven by increases in public supply water use offset by the decrease in agricultural irrigation water use.

While the trend for the 10-year period has been one of gradual increase, annual fluctuations in water use occur in response to climatic conditions such as amount and distribution of rainfall (Figure 6). The arithmetic mean of total freshwater use for this 10-year period is 1,412.91 mgd. The normal yearly rainfall for the period 1961–90 is 49.84 inches (SJRWMD 1994). The highest total water use occurred in 1990, at 1,544.97 mgd, 9 percent above the 10-year mean. This year was the driest year of the period, with an average of 39 inches of rainfall (SJRWMD 1992b), or 22 percent below normal. The second highest amount of water use occurred in 1992, at 1,511.89 mgd, 7 percent above the 10-year mean. The year 1992 was one of the wettest years during the period, with an average rainfall of 56.25 inches (NOAA 1993), or 13 percent above normal; much of the excess rainfall occurred during the first 3 months of the year. Rainfall during months of high water use tended to be below normal. The lowest amount of water use occurred in 1983, at 1,298.80 mgd, or 14 percent below the 1992 water use amount. Because rainfall in 1983 was 20 percent above normal—64 inches (Jenab et al. 1986)—and population was 25 percent below that of 1992, the low water use can be assumed to be a factor of both population and rainfall.

Public supply water use has increased steadily, with some annual fluctuations. Water use for this category was highest in 1990

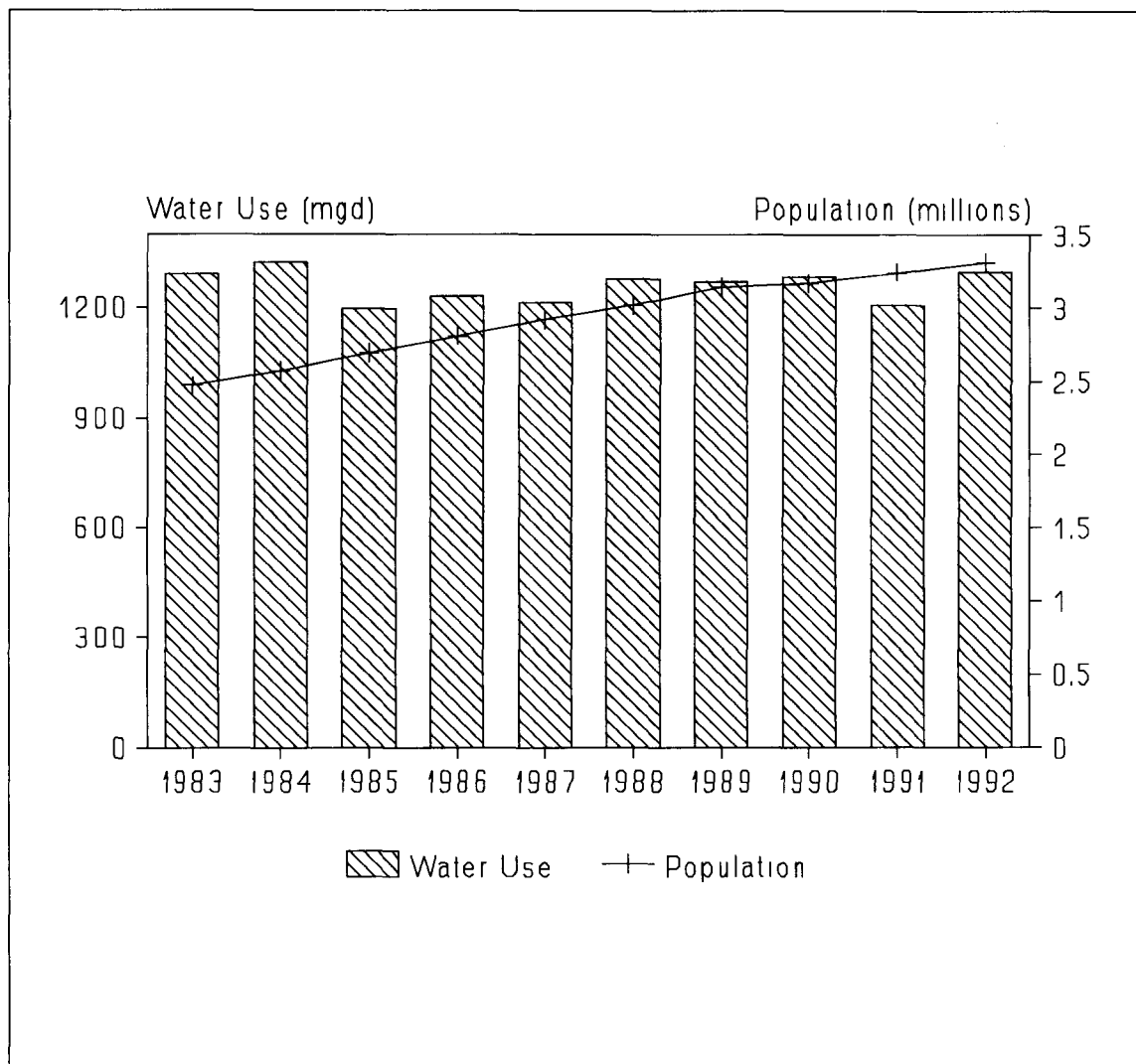


Figure 5. Freshwater use and population in the St. Johns River Water Management District from 1983 to 1992. *Water use has remained constant, changing only slightly from year to year, while the population has increased gradually. Note: power generation and abandoned artesian well water uses are not included.*

Table 11. Comparisons of freshwater use (in million gallons per day) in the St. Johns River Water Management District (SJRWMD)

Category	1983	1984	1985	1986	1987	1988	1989*	1990	1991	1992	10-Year Average
SJRWMD population	2,469,147	2,574,947	2,690,133	2,813,578	2,919,028	3,023,277	3,135,756	3,166,715	3,243,380	3,313,721	Not applicable
Water source											
Fresh ground	986.85	1,066.24	991.04	1,003.12	1,012.03	1,054.55	1,119.32	1,085.97	1,027.22	1,042.67	1,038.90
Fresh surface	311.95	290.01	363.76	379.62	353.47	379.15	360.47	459.00	373.41	469.22	374.00
Total water use†	1,298.80	1,356.25	1,354.80	1,382.74	1,365.50	1,433.70	1,479.79	1,544.97	1,400.63	1,511.89	1,412.91
Public supply	298.85	331.22	358.53	381.99	400.39	409.29	431.12	444.14	414.15	424.63	389.43
Domestic self-supply	80.99	87.72	81.76	82.33	85.71	86.73	90.24	83.86	84.51	84.92	84.88
Commercial/industrial self-supply	163.67	150.24	172.34	148.46	145.67	150.11	148.66	137.65	144.24	148.20	150.92
Agricultural irrigation	748.45	753.90	584.68	617.97	581.24	630.92	600.09	605.31	561.12	**642.04	632.57
Thermoelectric power generation	6.84	7.12	124.41	133.72	134.37	135.78	137.11	213.31	139.99	136.43	116.91
Abandoned artesian wells	0.00	26.05	33.08	18.27	18.12	20.87	56.60	60.70	56.62	75.67	36.60

*Abandoned artesian well data came from Steele (pers. com. 1992); the sum of water use by category will not match the total by water source.

†Excluding heat pump and air-conditioning.

**In 1992, recreational irrigation water use became a separate category; it had previously been included under agricultural irrigation. For this table, the 1992 quantity is a sum of both categories.

Note: Over the years, some of the methods have changed. Check each source before making detailed comparisons.

Source: Marella 1984, 1985, 1986, 1988, 1990; Florence 1990, 1991, 1992, 1994; Steele 1993

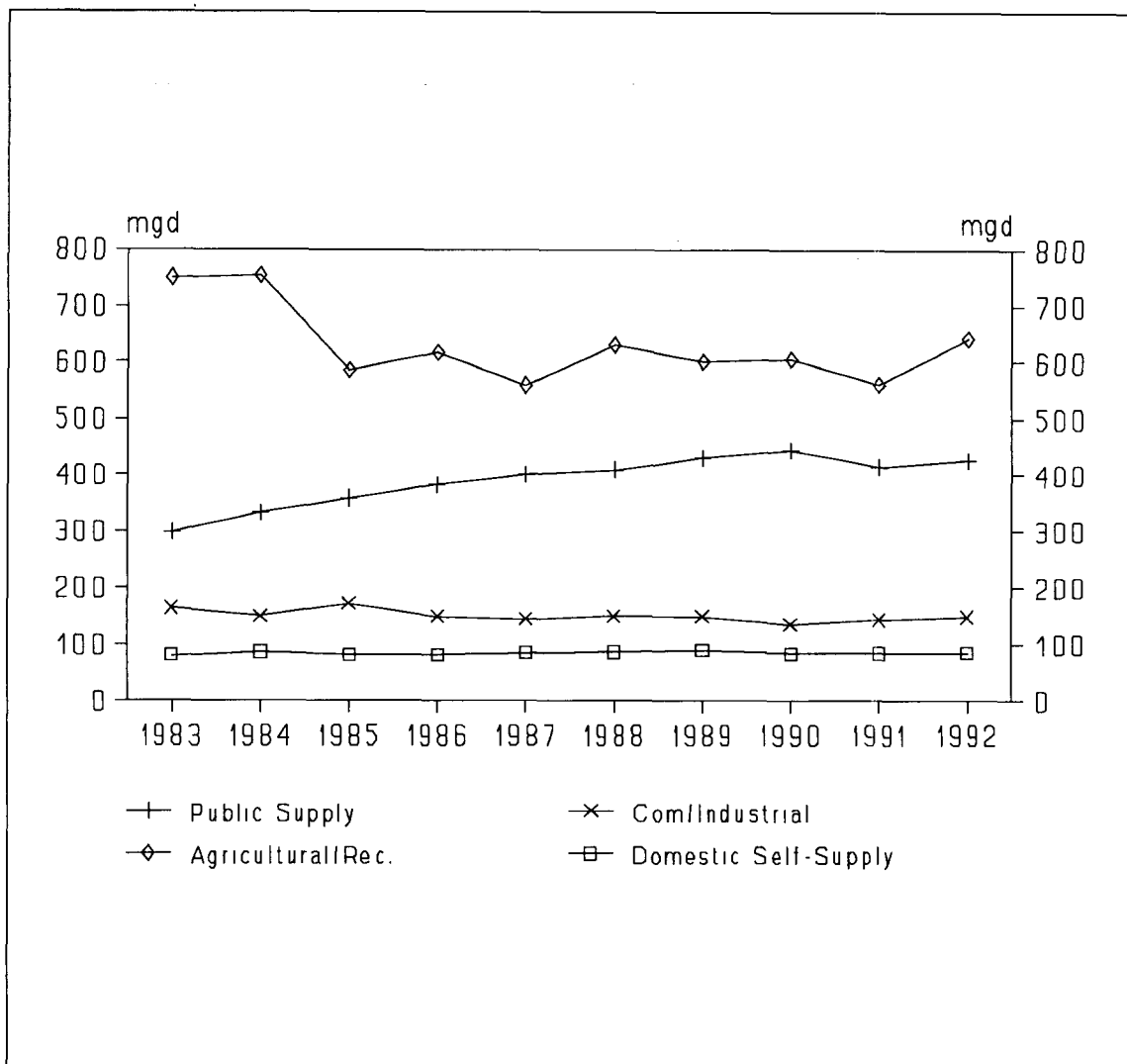


Figure 6. Freshwater use in the St. Johns River Water Management District by category from 1983 to 1992. *Water use for agricultural irrigation has fluctuated from year to year in response to rainfall. Water use for public supply has increased steadily with increasing population and tourism.*

ANNUAL WATER USE SURVEY: 1992

(444.14 mgd) and lowest in 1983 (298.85 mgd). However, per capita use has remained consistently between 152 and 167 gallons per day. The arithmetic mean for this 10-year period is 389.43 mgd; water use in 1992 was 9 percent above the mean.

Domestic self-supply water use has remained relatively constant, with little fluctuation over the 10-year period. Water use for this category was highest in 1989 (90.24 mgd) and lowest in 1983 (80.99 mgd). The arithmetic mean for this 10-year period was 84.88 mgd; in 1992, water use was less than 1 percent above the mean.

Commercial/industrial self-supply water use has remained relatively constant, with little fluctuation over the 10-year period. Water use for this category was highest in 1985 (172.34 mgd) and lowest in 1990 (137.65 mgd). The arithmetic mean for this 10-year period is 150.92 mgd; in 1992, water use was 2 percent below the mean.

Agricultural and recreational (turf grass) irrigation water use has decreased over the 10-year period, with the largest amount of annual fluctuation of all categories. 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-year period is 632.57 mgd; in 1992, water use was 1 percent above the mean.

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

1991 TO 1992

From 1991 to 1992, total freshwater use in SJRWMD increased from 1,400.63 mgd to 1,511.89 mgd, or 8 percent. Fresh ground water use increased from 1,027.22 mgd to 1,042.67 mgd or 2 percent. Fresh surface water use increased from 373.41 mgd to 469.22 mgd, or 26 percent. Saline surface water use increased from 1,756.02 mgd to 1,839.68 mgd, or 5 percent (Florence 1994).

The following five categories of freshwater use increased from 1991 to 1992:

- Public supply freshwater use increased 3 percent, from 414.15 mgd in 1991 to 424.63 mgd in 1992. This increase in water use can be attributed to population growth during the year.
- Domestic self-supplied freshwater use increased less than 1 percent, from 84.51 mgd in 1991 to 84.92 mgd in 1992.
- Commercial/industrial freshwater use increased 3 percent, from 144.24 mgd in 1991 to 148.20 mgd in 1992. However, saline surface water withdrawals decreased 38 percent, from 45.09 mgd in 1991, to 27.87 mgd in 1992.
- Agricultural and recreational irrigation freshwater use increased 14 percent, from 561.12 mgd in 1991 to 642.04 mgd in 1992.
- Abandoned artesian well flows increased 34 percent, from 56.62 mgd in 1991 to 75.67 mgd in 1992.

One category of freshwater use decreased slightly from 1991 to 1992:

- Thermoelectric power generation freshwater use decreased 3 percent, from 139.99 mgd in 1991 to 136.43 mgd in 1992. However, saline surface water withdrawals increased 6 percent, from 1,710.93 mgd to 1,811.81 mgd in 1992.

SEASONAL TRENDS

In 1992, total freshwater use was highest in May (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). Because July 1992 was

ANNUAL WATER USE SURVEY: 1992

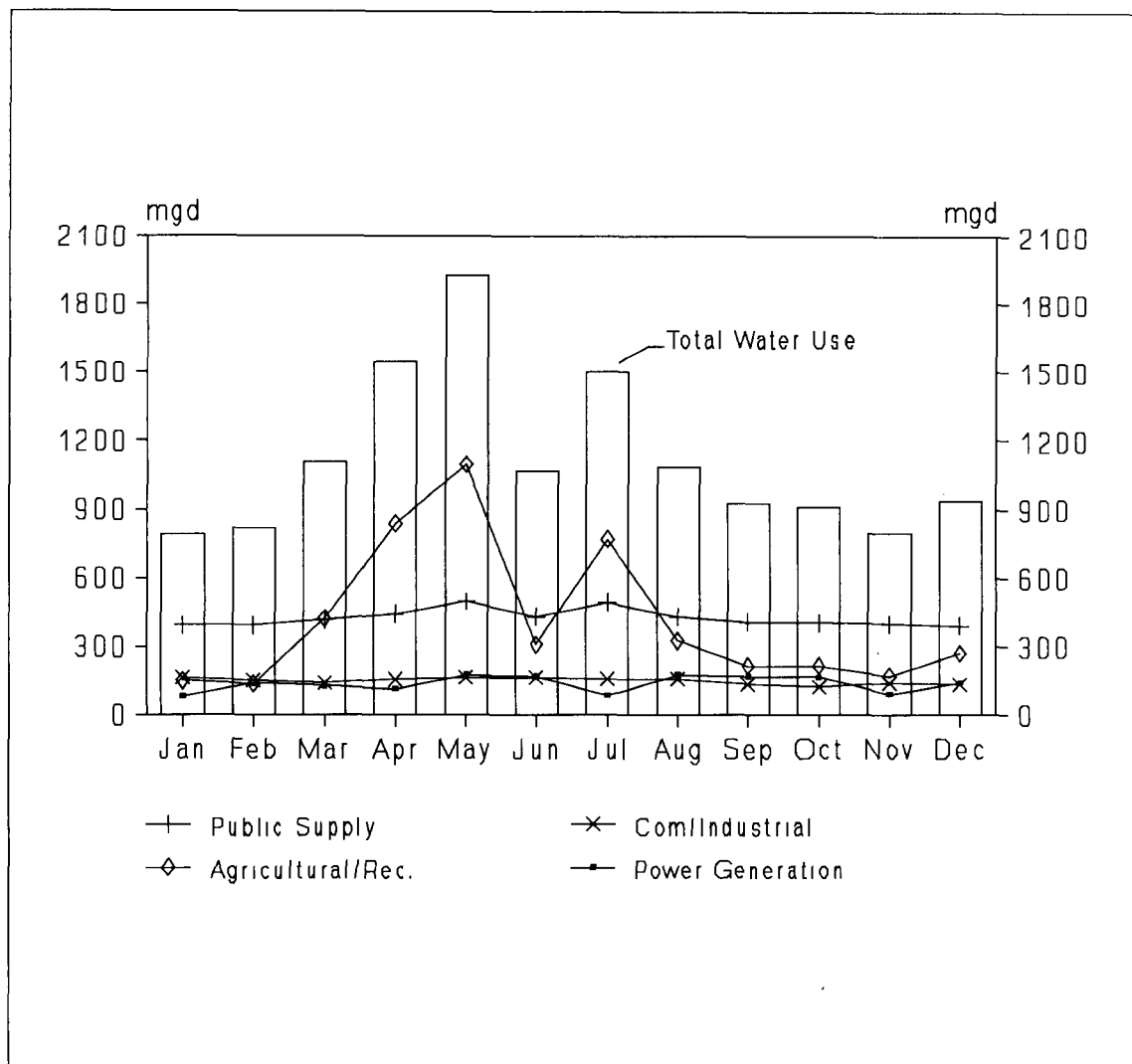


Figure 7. Total monthly freshwater use and freshwater use by category in the St. Johns River Water Management District, 1992. *Total monthly fluctuations in water use follow the fluctuations in agricultural irrigation.*

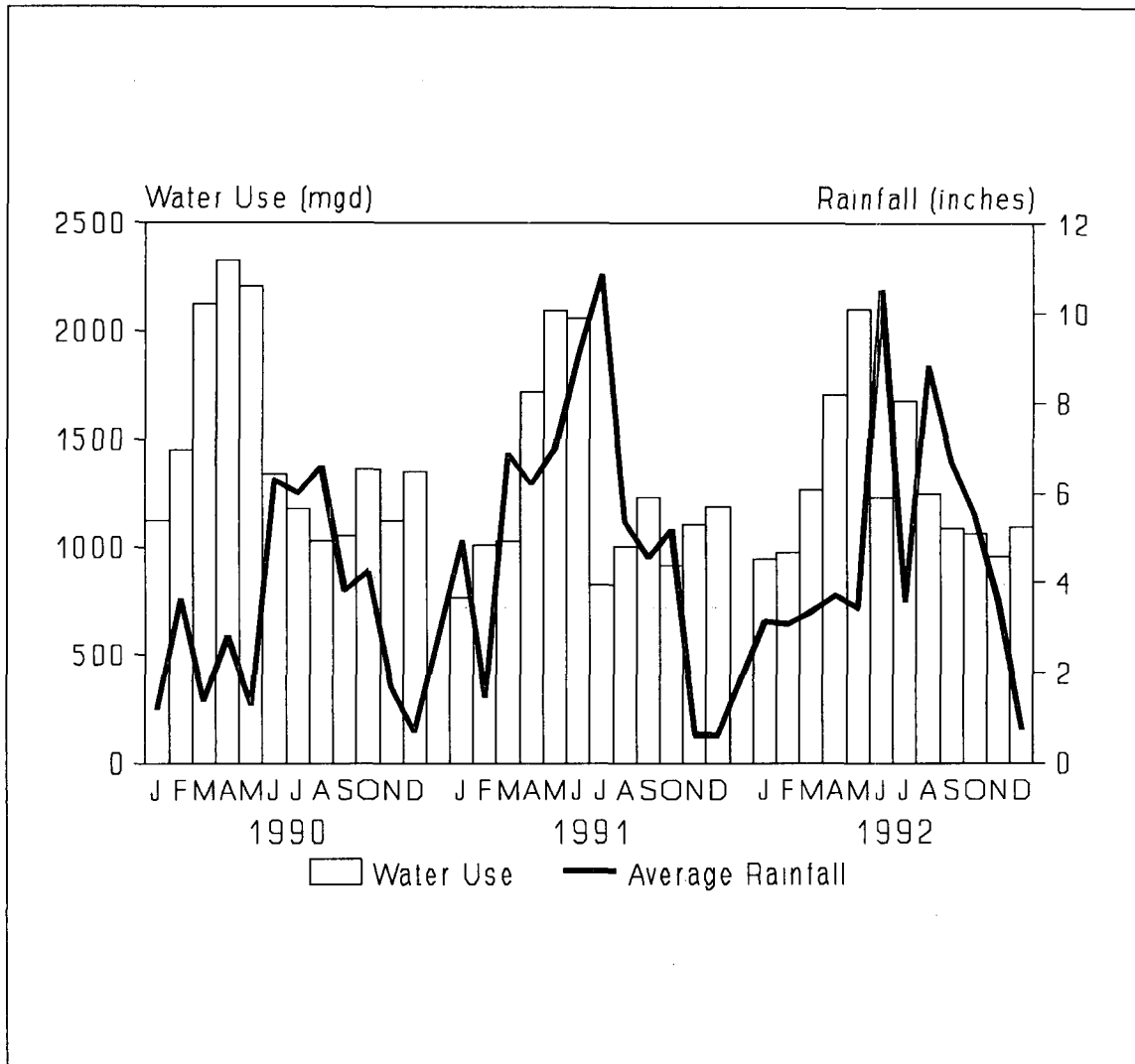


Figure 8. Total monthly freshwater use and average rainfall in the St. Johns River Water Management District, 1990-92

unseasonably dry, water use for the public supply and agricultural sectors increased significantly. Demand for residential lawn irrigation also tends to increase during these months, generating an increase in public supply water use.

Public Supply

Public supply water use in SJRWMD in 1992 fluctuated from a low of 392.88 mgd in January to a high of 495.86 mgd in May (Figures 7 and 9). The seasonal fluctuations were greater than in 1991, despite the higher average annual rainfall. This effect is because much of the rainfall occurred during the cool season, when little outdoor residential use takes place. Typically, water use increases during the warm season (April through October), when outdoor residential use is at a high.

Commercial/Industrial Self-Supply

Commercial/industrial self-supply freshwater use in SJRWMD in 1992 varied 17 percent over the year—from a low of 122.41 mgd in October to a high of 163.61 mgd in May (Figure 10).

Agricultural and Recreational Irrigation

Agricultural and recreational irrigation water use in SJRWMD in 1992 had a greater seasonal fluctuation than any other water use category—from a low of 136.43 mgd in February to a high of 1,094.69 mgd in May (Figure 11). These fluctuations are typical of agricultural water use and are inversely correlated to rainfall.

Thermoelectric Power Generation

Thermoelectric power generation freshwater use in SJRWMD in 1992 fluctuated from a low of 80.57 mgd in January to a high of 174.34 mgd in August (Figure 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.

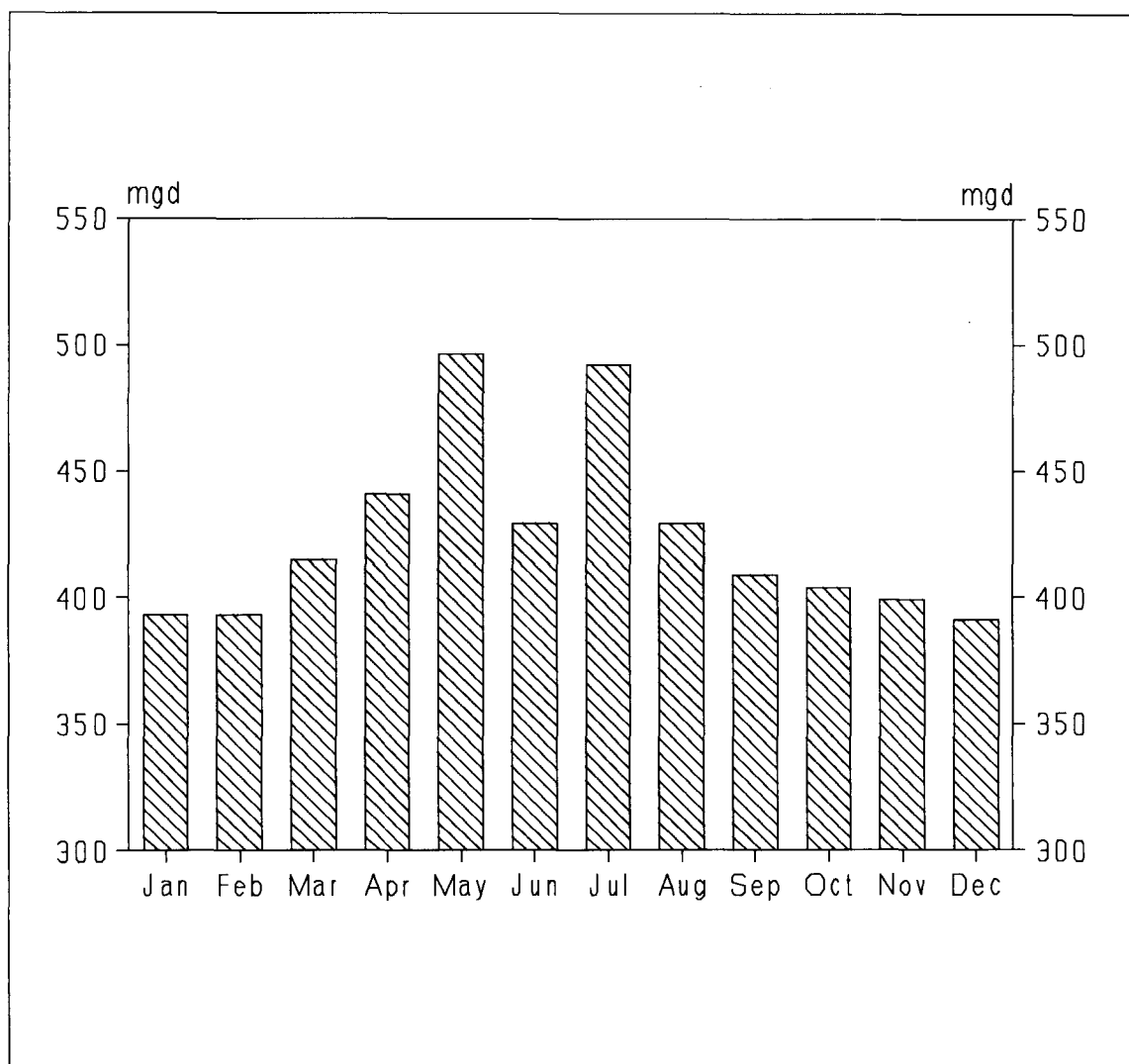


Figure 9. Monthly freshwater use for public supply in the St. Johns River Water Management District, 1992

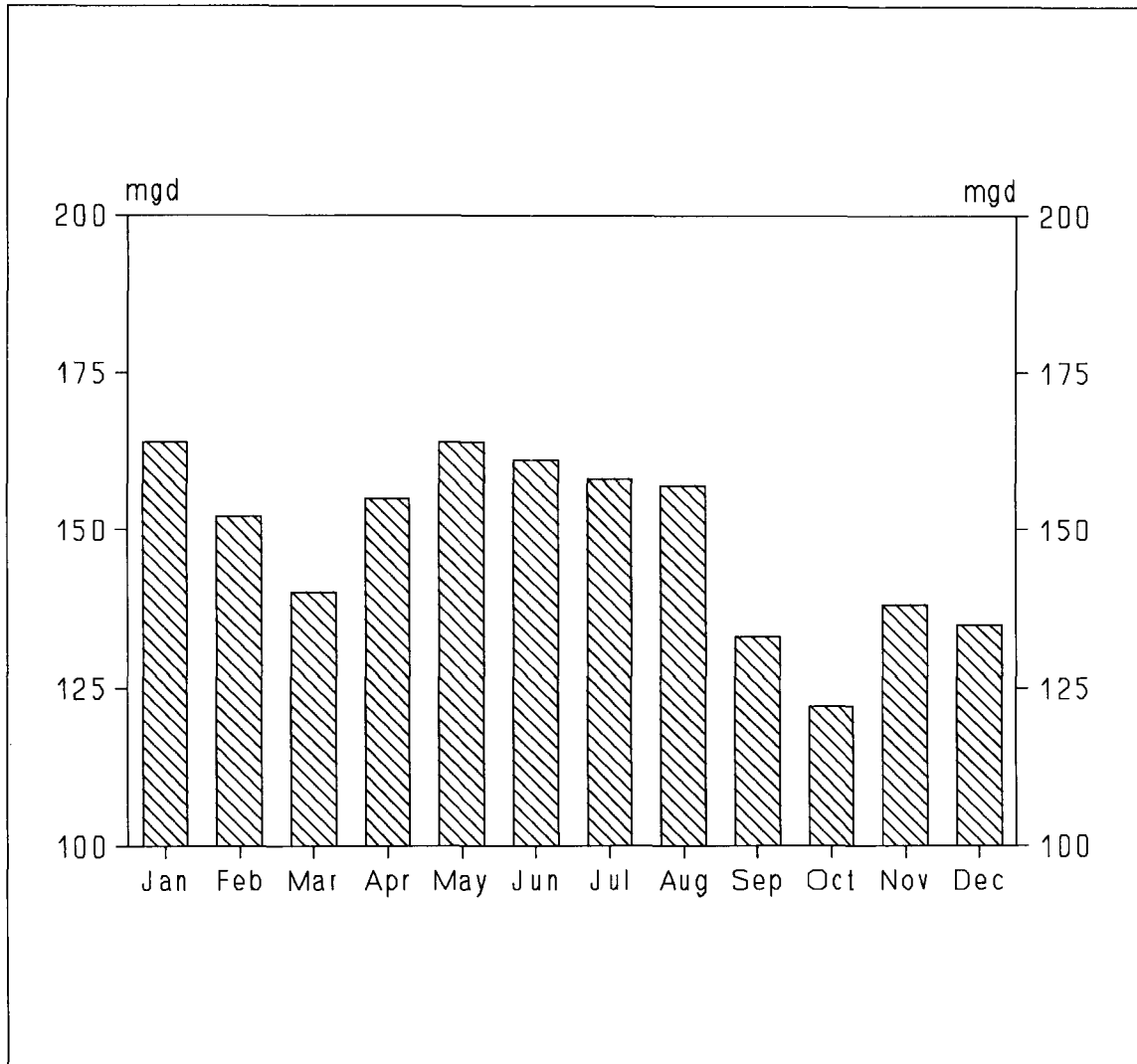


Figure 10. Monthly freshwater use for commercial/industrial self-supply in the St. Johns River Water Management District, 1992. *Commercial/industrial water use fluctuates over the year.*

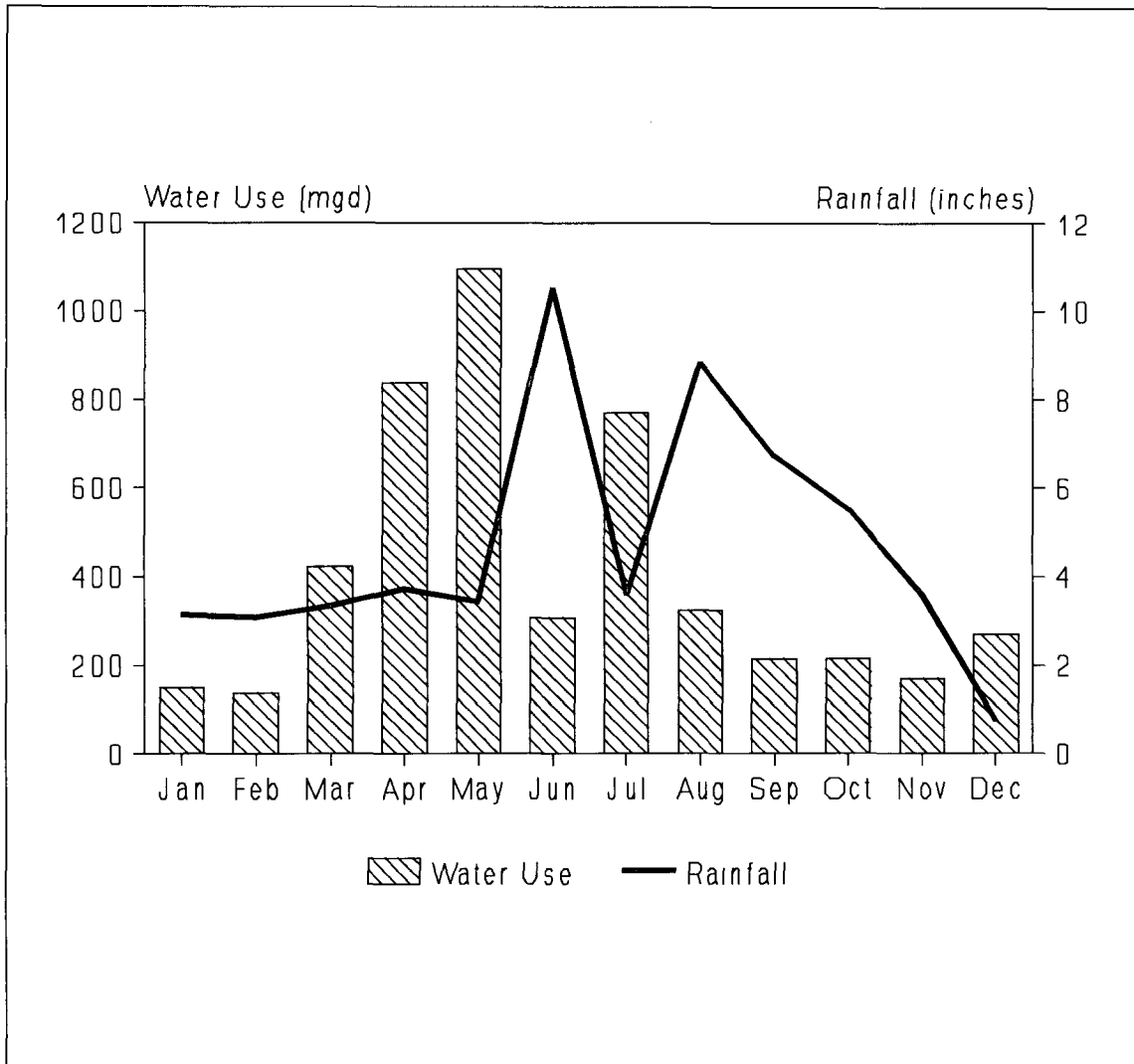


Figure 11. Monthly freshwater use for agricultural irrigation in the St. Johns River Water Management District, 1992. *Agricultural irrigation water use is inversely correlated to rainfall.*

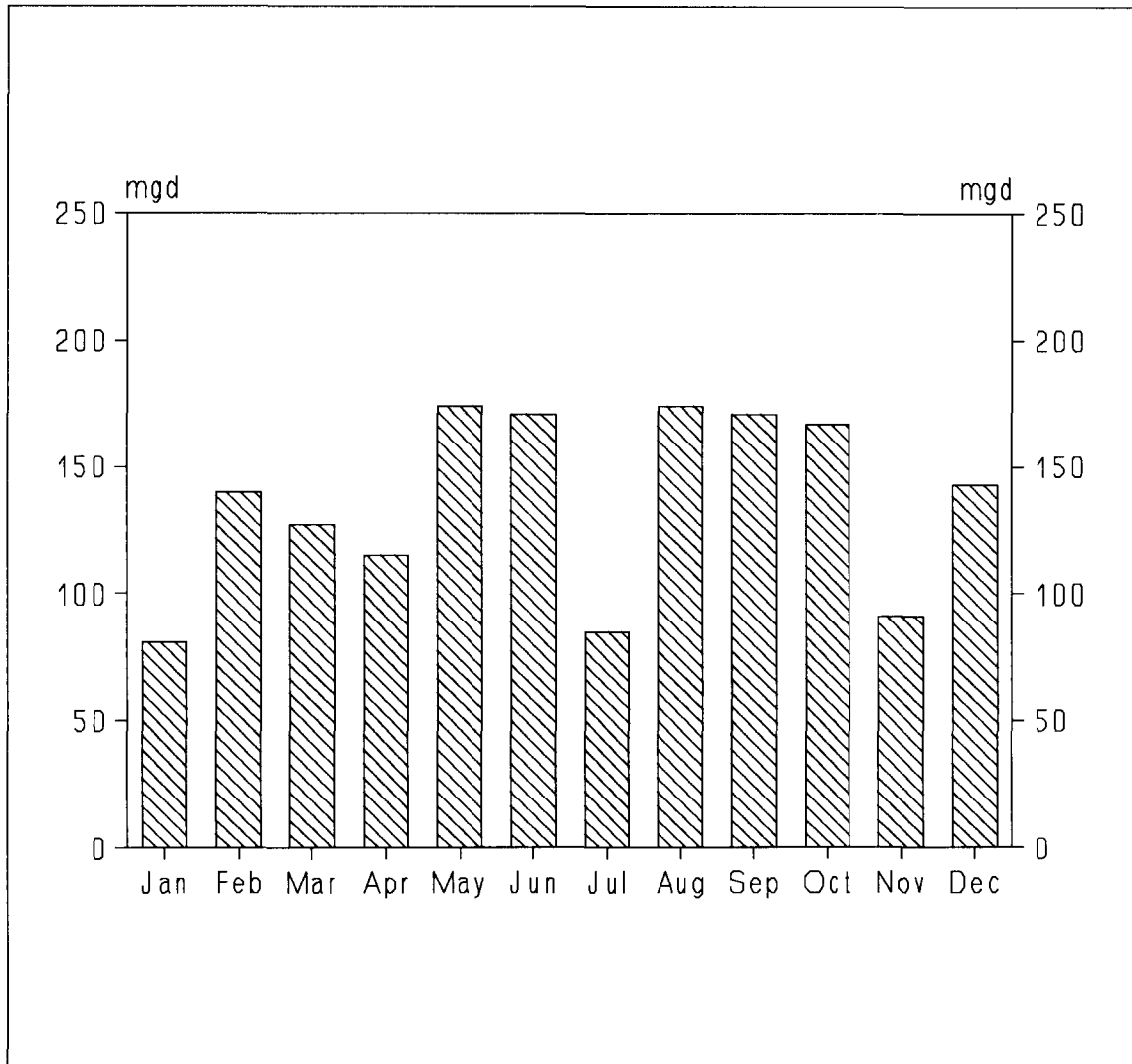


Figure 12. Monthly freshwater use for thermoelectric power generation in the St. Johns River Water Management District, 1992. *Monthly fluctuations in water use for power generation are due to increased seasonal power demands or plant shutdowns for maintenance.*

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*, and *uncontrolled artesian well*.

Aquifer. A reservoir of ground water. In SJRWMD, 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 total quantity of water withdrawn during the year (in gallons) divided by 365 days except in a leap year. Reported in million gallons per day.

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

Per Capita Use (gross). 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 used (withdrawn) for all uses by public supply water, divided by the population served.

Potable Water. Water that meets the public drinking water quality standards for chloride and total dissolved solids set by the Department of Environmental Protection. Potable water is considered safe for human consumption and is often referred to as drinking water. In Florida, chloride and total dissolved solids concentrations in potable water must be less than or equal to 250 mg/L and 500 mg/L, respectively.

Reverse Osmosis. A process of desalination that removes chlorides or other dissolved solids from saline water to make it potable.

Saline Water. Water with a chloride concentration greater than 1,000 mg/L or a total dissolved solids 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 total dissolved solids 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 reverse osmosis 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 SJRWMD. 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 Withdrawals. The amount of water withdrawn from a source (ground or surface, fresh or saline). 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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ANNUAL WATER USE SURVEY: 1992

APPENDIX: 1992 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 1993b), water withdrawals by category, agricultural acreage, and water use by crop.

Then, for each county, tables present population and land area totals, with water withdrawals by category; the reported water use of large, individual 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 counties that have only a small area in SJRWMD (such as Okeechobee and Osceola), where the numbers are very small. Some totals may not equal 100 percent because of rounding.

ANNUAL WATER USE SURVEY: 1992

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ANNUAL WATER USE SURVEY: 1992

Appendix—St. Johns River Water Management District

STATE OF FLORIDA

Total Population 13,424,416
Total Land Area 53,937 mi²

St. Johns River Water Management District

Population

Total 3,313,721
Public supply 2,785,107
Self-supplied 528,614
Per capita 152

Land Area (acres)

Total area 7,096,816 (11,089 mi²)
Farmed 925,649
Irrigated 375,247

1992 Water Withdrawals (mgd) by Category

	Ground	<u>Fresh Water</u> Surface	Total	<u>Saline Water</u> Surface
Public supply (1)	409.80	14.83	424.63	0.00
Domestic self-supply	84.92	0.00	84.92	0.00
Com/ind. self-supply	109.82	38.38	148.20	27.87
Agricultural irrigation	344.25	280.35	624.60	0.00
Recreational irrigation	12.03	5.41	17.44	0.00
Thermoelectric power	6.18	130.25	136.43	1,811.81
Abandoned artesian wells	75.67	0.00	75.67	0.00
Totals	1,042.67	469.22	1,511.89	1,839.68
Total Ground	1,042.67			
Total Surface		<u>2,308.90</u>		
District Total		3,351.57		

(1) Includes slightly saline water withdrawn for public supply (250 to 1,000 mg/L chlorides), treated through reverse osmosis, and dilution with fresh water.

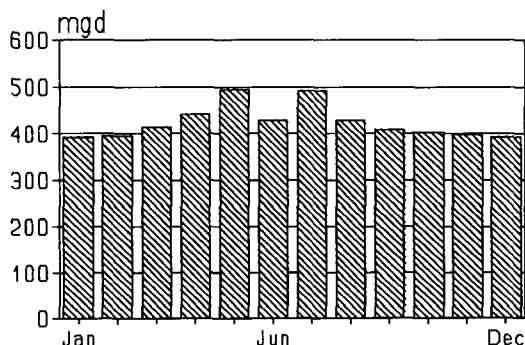


Figure A1. St. Johns River Water Management District total monthly public supply water use, 1992

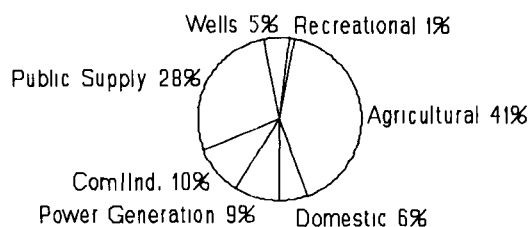


Figure A2. St. Johns River Water Management District—percentages, by category, of freshwater use, 1992

ANNUAL WATER USE SURVEY: 1992

TOTAL ST. JOHNS RIVER WATER MANAGEMENT DISTRICT ACREAGE AND WATER USE BY CROP FOR 1992

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	6,245	5,795	5.08	0.08	5.15
Carrots	15,250	13,350	4.49	24.84	29.33
Cucumbers	2,470	2,310	0.65	0.04	0.69
Peppers	330	330	0.27	0.00	0.27
Potatoes	31,460	31,460	39.09	0.00	39.09
Tomatoes	90	90	0.13	0.00	0.13
Sweet corn	17,010	16,610	8.70	35.95	44.65
Watercress	150	150	0.62	0.00	0.62
Misc. vegetables	26,072	23,960	5.49	12.00	17.49
Fruit Crops					
Blueberries	859	792	1.16	0.00	1.16
Citrus	112,536	104,310	113.19	159.01	272.20
Grapes	148	145	0.12	0.00	0.12
Peaches	102	102	0.13	0.00	0.13
Pecans	2,865	390	0.50	0.00	0.50
Strawberries	180	180	0.26	0.00	0.26
Watermelons	3,890	3,180	2.22	0.02	2.24
Misc. fruit	415	305	0.86	0.01	0.87
Field Crops					
Field corn	18,740	8,740	9.63	4.87	14.50
Peanuts	2,250	209	0.31	0.00	0.31
Rice	50	50	0.08	0.00	0.08
Sorghum	5,400	2,150	2.50	0.18	2.68
Soybeans	800	200	1.69	0.15	1.84
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	168	120	0.03	0.05	0.08
Wheat	1,150	1,000	1.85	0.00	1.85
Misc. grains	10,394	510	0.29	0.18	0.47
Ornamentals and Grasses					
Ferns	7,790	7,190	17.01	3.50	20.51
Flowers and foliage	1,976	1,976	2.95	0.20	3.15
Woody ornamentals	3,239	2,893	6.22	0.91	7.13
Improved pasture	623,580	124,960	92.86	35.46	128.32
Sod	6,986	6,856	5.24	2.91	8.15
Miscellaneous					
Livestock	0	0	11.60	0.00	11.60
Fish farming	0	0	9.03	0.00	9.03
Agricultural Total	902,595	360,313	344.25	280.35	624.60
Turf grass (golf)	20,457	12,375	9.73	5.07	14.80
Turf grass (other)	2,597	2,559	2.31	0.33	2.64
Recreational Total	23,054	14,934	12.03	5.41	17.44
Sprinkler Acreage	53,293				
Low Pressure Acreage	58,477				
Flood Acreage	263,477				
Total Irrigated Acreage	375,247				

ALACHUA COUNTY

Total Population 186,201
Total Land Area 874 mi²

St. Johns River Water Management District

Population

Total 151,186
Public supply 138,437
Self-supplied 12,749
Per capita 149

Land Area (acres)

Total area 280,799 (439 mi²)
Farmed 39,180
Irrigated 5,623

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	20.65	0.00	20.65	0.00
Domestic self-supply	1.90	0.00	1.90	0.00
Com/ind. self-supply	1.93	0.00	1.93	0.00
Agricultural irrigation	4.51	0.03	4.54	0.00
Recreational irrigation	0.77	0.04	0.81	0.00
Thermoelectric power	0.30	0.00	0.30	0.00
Abandoned artesian wells	0.00	0.00	0.00	0.00
Totals	30.06	0.07	30.13	0.00
Total Ground	30.06			
Total Surface		0.07		
County Total	30.13			

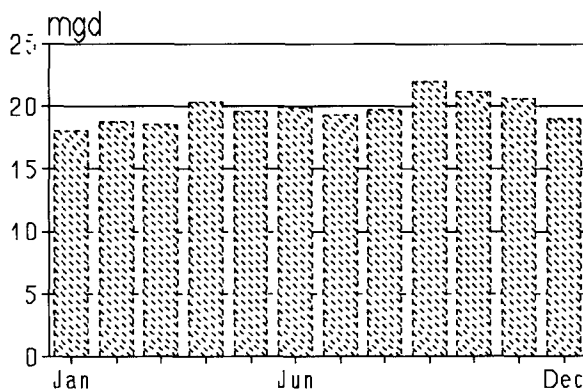


Figure A3. Alachua County monthly public supply water use, 1992

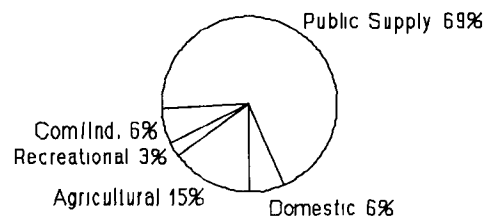


Figure A4. Alachua County—percentages, by category, of freshwater use, 1992. Power generation was less than 1%.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN ALACHUA COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Arredondo Village/Estates	Public supply	740	0.04	Floridan aquifer	0.00	
Gainesville Regional Utilities	Public supply	133,554	20.15	Floridan aquifer	0.00	
Hawthorne, City of	Public supply	1,500	0.19	Floridan aquifer	0.00	
Kincaid Hills Subdivision	Public supply	788	0.09	Floridan aquifer	0.00	
Micanopy, Town of	Public supply	700	0.10	Floridan aquifer	0.00	
Oak Park MHP	Public supply	850	0.05	Floridan aquifer	0.00	
West Gate MHP	Public supply	305	0.03	Floridan aquifer	0.00	
Total Public Supply		138,437	20.65		0.00	
Sunland Center	Institutional		0.23	Floridan aquifer	0.00	
University of Florida	Institutional		1.70	Floridan aquifer	0.00	
Total Commercial/Industrial			1.93		0.00	
Gainesville Regional Utilities	Power generation		0.30	Floridan aquifer	0.00	

Note: mgd = million gallons per day
MHP = mobile home park

ALACHUA COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	Total Acres		Ground	Water Use (mgd)	
	Farmed	Irrigated		Surface	Total
Vegetable Crops					
Cabbage	0	0	0.00	0.00	0.00
Carrots	0	0	0.00	0.00	0.00
Cucumbers	300	300	0.05	0.00	0.05
Peppers	200	200	0.15	0.00	0.15
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	200	200	0.34	0.00	0.34
Watercress	0	0	0.00	0.00	0.00
Misc. vegetables	1,300	1,300	0.71	0.00	0.71
Fruit Crops					
Blueberries	450	450	0.68	0.00	0.68
Citrus	0	0	0.00	0.00	0.00
Grapes	30	30	0.03	0.00	0.03
Peaches	15	15	0.02	0.00	0.02
Pecans	2,600	300	0.39	0.00	0.39
Strawberries	5	5	0.01	0.00	0.01
Watermelons	1,000	1,000	0.74	0.00	0.74
Misc. fruit	90	80	0.23	0.00	0.23
Field Crops					
Field corn	1,200	100	0.12	0.00	0.12
Peanuts	200	75	0.10	0.00	0.10
Rice	0	0	0.00	0.00	0.00
Sorghum	0	0	0.00	0.00	0.00
Soybeans	500	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
Misc. grains	1,500	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	4	4	0.01	0.00	0.01
Woody ornamentals	100	100	0.19	0.03	0.22
Improved pasture	28,500	680	0.51	0.00	0.51
Sod	100	50	0.05	0.00	0.05
Miscellaneous					
Livestock	0	0	0.16	0.00	0.16
Fish farming	0	0	0.02	0.00	0.02
Agricultural Total	38,294	4,889	4.51	0.03	4.54
Turf grass (golf)	480	328	0.33	0.04	0.37
Turf grass (other)	406	406	0.44	0.00	0.44
Recreational Total	886	734	0.77	0.04	0.81
Sprinkler Acreage	5,218				
Low Pressure Acreage	405				
Flood Acreage	0				
Total Irrigated Acreage	5,623				

ANNUAL WATER USE SURVEY: 1992

BAKER COUNTY

Total Population 19,159
 Total Land Area 585 mi²

St. Johns River Water Management DistrictPopulation

Total 18,201
 Public supply 4,146
 Self-supplied 14,055
 Per capita 176

Land Area (acres)

Total area 341,453 (534 mi²)
 Farmed 14,921
 Irrigated 765

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	0.73	0.00	0.73	0.00
Domestic self-supply	2.47	0.00	2.47	0.00
Com/ind. self-supply	0.19	0.00	0.19	0.00
Agricultural irrigation	1.56	0.35	1.91	0.00
Recreational irrigation	0.04	0.00	0.04	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.14	0.00	0.14	0.00
Totals	5.13	0.35	5.48	0.00
Total Ground	5.13			
Total Surface		0.35		
County Total		5.48		

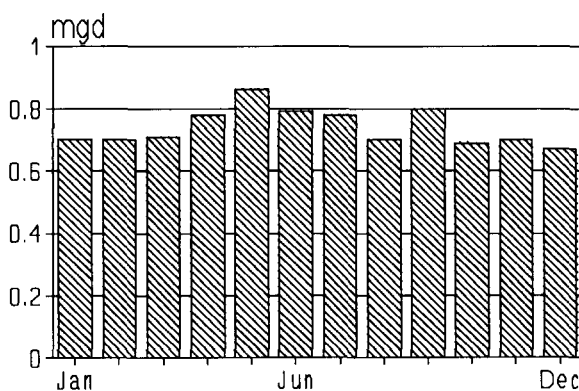


Figure A5. Baker County monthly public supply water use, 1992

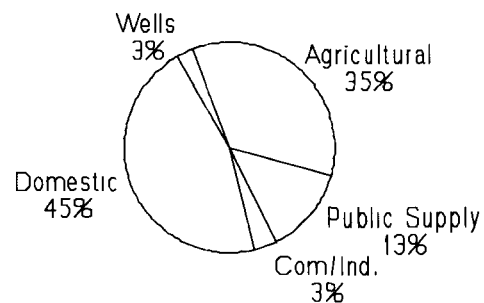


Figure A6. Baker County—percentages, by category, of freshwater use, 1992. Recreational water use was less than 1%.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN BAKER COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
MacClenny, City of	Public supply	4,026	0.71	Floridan aquifer	0.00	
MacClenny Subdivision	Public supply	120	0.02	Floridan aquifer	0.00	
Total Public Supply		4,146	0.73		0.00	
Wiremill Inc.	Industrial		0.03	Floridan aquifer	0.00	
Northeast Fla. State Hospital	Institutional		0.16	Floridan aquifer	0.00	
Total Commercial/Industrial			0.19		0.00	

Note: mgd = million gallons per day

BAKER COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	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	100	20	0.01	0.00	0.01
Peppers	25	25	0.02	0.00	0.02
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	0	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
Misc. vegetables	522	100	0.04	0.00	0.04
Fruit Crops					
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	0	0	0.00	0.00	0.00
Pecans	50	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	400	60	0.03	0.00	0.03
Misc. fruit	0	0	0.00	0.00	0.00
Field Crops					
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	0.05	0.05
Wheat	150	0	0.00	0.00	0.00
Misc. grains	1,584	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	0	0	0.00	0.00	0.00
Woody ornamentals	763	420	0.46	0.30	0.76
Improved pasture	10,000	0	0.00	0.00	0.00
Sod	0	0	0.00	0.00	0.00
Miscellaneous					
Livestock	0	0	1.00	0.00	1.00
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	14,797	705	1.56	0.35	1.91
Turf grass (golf)	124	60	0.04	0.00	0.04
Turf grass (other)	0	0	0.00	0.00	0.00
Recreational Total	124	60	0.04	0.00	0.04
Sprinkler Acreage	660				
Low Pressure Acreage	105				
Flood Acreage	0				
Total Irrigated Acreage	765				

ANNUAL WATER USE SURVEY: 1992

BRADFORD COUNTY

Total Population 23,056
Total Land Area 293 mi²

St. Johns River Water Management District

Population

Total 1,729
Public supply 379
Self-supplied 1,350
Per capita 106

Land Area (acres)

Total area 3,750 (6 mi²)
Farmed 200
Irrigated 190

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	0.04	0.00	0.04	0.00
Domestic self-supply	0.14	0.00	0.14	0.00
Com/ind. self-supply	0.00	0.00	0.00	0.00
Agricultural irrigation	0.07	0.00	0.07	0.00
Recreational irrigation	0.03	0.00	0.03	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.00	0.00	0.00	0.00
Totals	0.28	0.00	0.28	0.00
Total Ground	0.28			
Total Surface	0.00			
County Total	0.28			

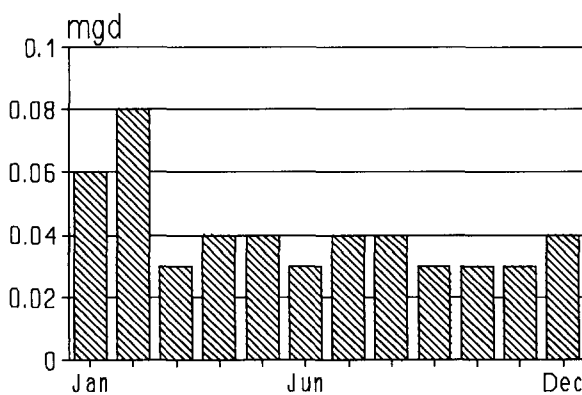


Figure A7. Bradford County monthly public supply water use, 1992

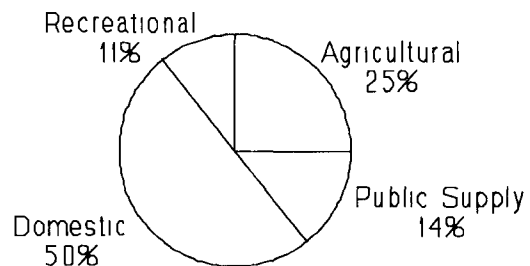


Figure A8. Bradford County—percentages, by category, of freshwater use, 1992

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN BRADFORD COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Southern States Utilities	Public supply	379	0.04	Floridan aquifer	0.00	

Note: mgd = million gallons per day

BRADFORD COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	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	0.01	0.00	0.01
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
Misc. vegetables	50	50	0.02	0.00	0.02
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	0.04	0.00	0.04
Watermelons	0	0	0.00	0.00	0.00
Misc. fruit	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
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and 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
Miscellaneous					
Livestock	0	0	0.00	0.00	0.00
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	150	150	0.07	0.00	0.07
Turf grass (golf)	40	30	0.02	0.00	0.02
Turf grass (other)	10	10	0.01	0.00	0.01
Recreational Total	50	40	0.03	0.00	0.03
Sprinkler Acreage	190				
Low Pressure Acreage	0				
Flood Acreage	0				
Total Irrigated Acreage	190				

ANNUAL WATER USE SURVEY: 1992

BREVARD COUNTY

Total Population 417,740
 Total Land Area 1,019 mi²

St. Johns River Water Management DistrictPopulation

Total 417,740
 Public supply 410,762
 Self-supplied 6,978
 Per capita 124

Land Area (acres)

Total area 652,160 (1,019 mi²)
 Farmed 144,063
 Irrigated 98,798

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply (1) (2)	36.11	14.83	50.94	0.00
Domestic self-supply	0.87	0.00	0.87	0.00
Com/ind. self-supply	0.13	0.00	0.13	0.00
Agricultural irrigation	83.69	8.49	92.18	0.00
Recreational irrigation	1.48	1.34	2.82	0.00
Thermoelectric power	0.25	0.00	0.25	1,144.28
Abandoned artesian wells	34.44	0.00	34.44	0.00
Totals	156.97	24.66	181.63	1,144.28
Total Ground	156.97			
Total Surface		1,168.94		
County Total		1,325.91		

(1) Includes slightly saline water withdrawn for public supply (250 to 1,000 mg/L chlorides), treated through reverse osmosis, and diluted with fresh water.

(2) Includes 24.85 mgd of water withdrawn in Orange County for public supply use in Brevard County.

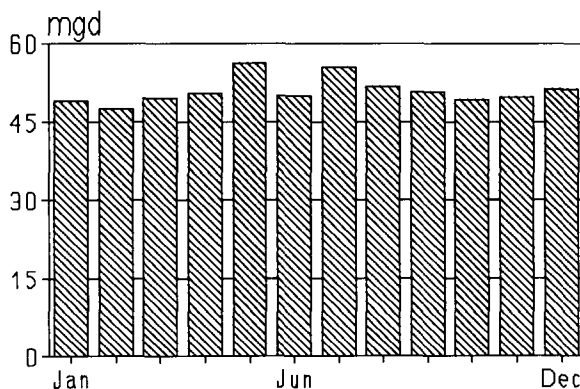


Figure A9. Brevard County monthly public supply water use, 1992

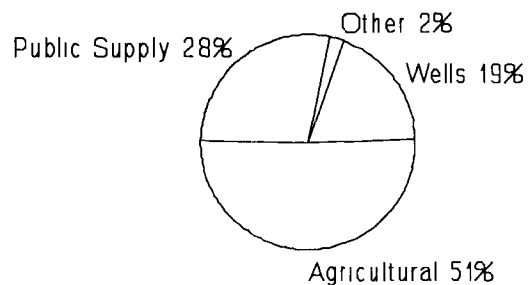


Figure A10. Brevard County—percentages, by category, of freshwater use, 1992. *Other* includes power generation, commercial/industrial, domestic, and recreational water use.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN BREVARD COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Aquarina Utilities	Public supply	182	0.02	Floridan aquifer and reverse osmosis (R/O)	0.00	
Avatar (Barefoot Bay) Utility	Public supply	6,200	0.60	Surficial aquifer	0.00	
Cocoa Water Utility (a)	Public supply	146,700	24.85	Floridan aquifer	0.00	
GDU, Palm Bay	Public supply	68,078	4.63	Surficial and Floridan aquifers	0.00	
Melbourne, City of	Public supply	143,360	0.00		14.83	Lake Washington
N. Brevard Utilities (Mims)	Public supply	5,093	0.69	Surficial aquifer	0.00	
S. Brevard Utilities (Sunnyland)	Public supply	744	0.09	Floridan aquifer and R/O	0.00	
Titusville, City of	Public supply	40,405	5.23	Floridan aquifer	0.00	
Total Public Supply		410,762	36.11		14.83	
Harris Corp.	Industrial		0.03	Surficial aquifer	0.00	
Praxair, Inc.	Industrial		0.08	Surficial aquifer	0.00	
Florida DOT, I-95 rest fac.	Institutional		0.02	Surficial aquifer	0.00	
Total Commercial/Industrial			0.13		0.00	
Florida Power & Light	Power generation		0.15	Surficial aquifer	627.76	Indian River*
Orlando Utilities Commission	Power generation		0.10	Surficial aquifer	516.52	Indian River*
Total Power Generation			0.25		1,144.28	

Note: mgd = million gallons per day

(a) Water withdrawn from Orange County

*Saline water

BREVARD COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	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	1,300	1,300	1.25	0.00	1.25
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
Misc. vegetables	60	60	0.00	0.00	0.05
Fruit Crops					
Blueberries	0	0	0.00	0.00	0.00
Citrus	11,500	6,450	10.69	4.16	14.85
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	100	100	0.16	0.00	0.16
Watermelons	200	200	0.14	0.02	0.16
Misc. fruit	0	0	0.00	0.00	0.00
Field Crops					
Field corn	2,500	2,500	4.43	0.00	4.43
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	1,800	1,800	2.31	0.00	2.31
Soybeans	0	0	1.54	0.00	1.54
Sugar cane	0	0	0.00	0.00	0.00
Tobacco	0	0	0.00	0.00	0.00
Wheat	1,000	1,000	1.85	0.00	1.85
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	10	10	0.02	0.00	0.02
Woody ornamentals	190	190	0.57	0.00	0.57
Improved pasture	121,700	81,860	58.77	3.09	61.86
Sod	1,300	1,300	0.81	1.21	2.02
Miscellaneous					
Livestock	0	0	1.09	0.00	1.09
Fish farming	0	0	0.02	0.00	0.02
Agricultural Total	141,660	96,770	83.69	8.49	92.18
Turf grass (golf)	1,800	1,425	0.80	1.33	2.13
Turf grass (other)	603	603	0.68	0.01	0.69
Recreational Total	2,403	2,028	1.48	1.34	2.82
Sprinkler Acreage	4,278				
Low Pressure Acreage	4,340				
Flood Acreage	90,180				
Total Irrigated Acreage	98,798				

ANNUAL WATER USE SURVEY: 1992

CLAY COUNTY

Total Population 113,382
 Total Land Area 601 mi²

St. Johns River Water Management DistrictPopulation

Total 113,382
 Public supply 76,838
 Self-supplied 36,544
 Per capita 136

Land Area (acres)

Total area 384,640 (601 mi²)
 Farmed 44,541
 Irrigated 749

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	10.42	0.00	10.42	0.00
Domestic self-supply	4.97	0.00	4.97	0.00
Com/ind. self-supply	5.45	0.00	5.45	0.00
Agricultural irrigation	1.60	0.00	1.60	0.00
Recreational irrigation	0.39	0.13	0.52	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.71	0.00	0.71	0.00
Totals	23.54	0.13	23.67	0.00
Total Ground	23.54			
Total Surface		0.13		
County Total	23.67			

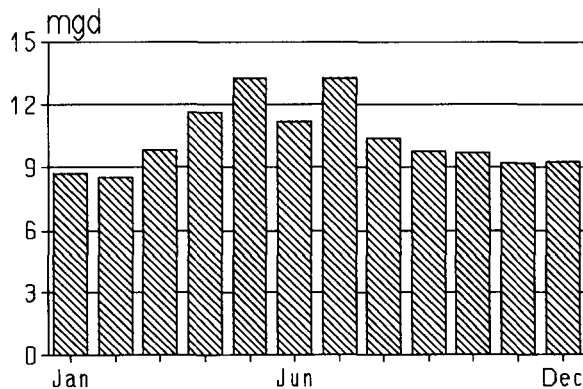


Figure A11. Clay County monthly public supply water use, 1992

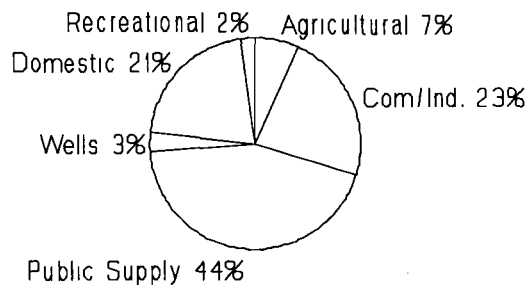


Figure A12. Clay County—percentages, by category, of freshwater use, 1992

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN CLAY COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Clay Utility Co.	Public supply	9,247	0.87	Floridan aquifer	0.00	
Green Cove Springs, City of	Public supply	4,671	0.81	Floridan aquifer	0.00	
Keystone Heights, City of	Public supply	2,850	0.33	Floridan aquifer	0.00	
Kingsley Service Co.	Public supply	45,900	6.47	Floridan aquifer	0.00	
Lake Asbury Utilities	Public supply	1,667	0.22	Floridan aquifer	0.00	
Magnolia Springs Apts.	Public supply	1,000	0.09	Floridan aquifer	0.00	
McRae Landing Utility	Public supply	315	0.03	Floridan aquifer	0.00	
Orange Park, Town of	Public supply	9,650	1.45	Floridan aquifer	0.00	
Penney Retirement Community	Public supply	400	0.06	Floridan aquifer	0.00	
Penney Farms, Town of	Public supply	638	0.04	Floridan aquifer	0.00	
The Ravines Village & Resort	Public supply	500	0.05	Floridan aquifer	0.00	
Total Public Supply		76,838	10.42		0.00	
El DuPont De Nemours Minerals	Industrial*		1.68	Floridan aquifer	0.00	
Florida Rock, Keystone mine	Industrial*		2.06	Floridan aquifer	0.00	
J-M Manufacturing Co.	Industrial		0.12	Floridan aquifer	0.00	
Reynolds Industrial Park	Industrial		0.30	Floridan aquifer	0.00	
Paramount Poultry	Industrial		0.02	Floridan aquifer	0.00	
RGC (USA) Mineral Sands	Industrial*		0.93	Floridan aquifer	0.00	
Camp Blanding Military Base	Institutional		0.34	Floridan aquifer	0.00	
Total Commercial/Industrial			5.45		0.00	

Note: mgd = million gallons per day

*Mining industry

CLAY COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	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
Misc. vegetables	200	60	0.02	0.00	0.02
Fruit Crops					
Blueberries	15	13	0.02	0.00	0.02
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
Misc. fruit	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
Misc. grains	2,800	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	50	50	0.07	0.00	0.07
Woody ornamentals	0	0	0.00	0.00	0.00
Improved pasture	40,000	100	0.11	0.00	0.11
Sod	0	0	0.00	0.00	0.00
Miscellaneous					
Livestock	0	0	1.38	0.00	1.38
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	43,865	223	1.60	0.00	1.60
Turf grass (golf)	530	380	0.25	0.13	0.38
Turf grass (other)	146	146	0.14	0.00	0.14
Recreational Total	676	526	0.39	0.13	0.52
Sprinkler Acreage	636				
Low Pressure Acreage	3				
Flood Acreage	110				
Total Irrigated Acreage	749				

ANNUAL WATER USE SURVEY: 1992

DUVAL COUNTY

Total Population 693,546
Total Land Area 774 mi²

St. Johns River Water Management District

Population

Total 693,546
Public supply 637,526
Self-supplied 56,020
Per capita 149

Land Area (acres)

Total area 495,360 (774 mi²)
Farmed 16,442
Irrigated 2,965

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	94.80	0.00	94.80	0.00
Domestic self-supply	8.35	0.00	8.35	0.00
Com/ind. self-supply	31.17	0.00	31.17	27.78
Agricultural irrigation	2.93	0.05	2.98	0.00
Recreational irrigation	1.02	0.22	1.24	0.00
Thermoelectric power	4.42	0.00	4.42	529.94
Abandoned artesian wells	2.70	0.00	2.70	0.00
Totals	145.39	0.27	145.66	557.72
Total Ground	145.39			
Total Surface		557.99		
County Total		703.38		

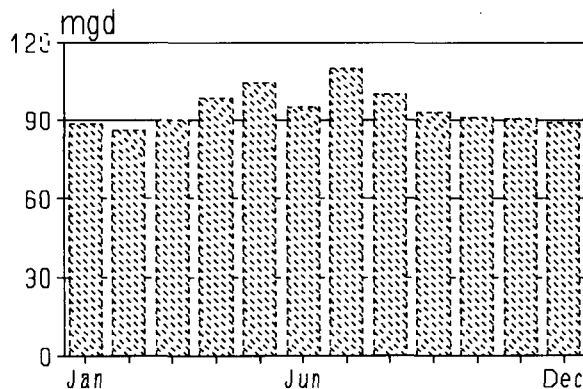


Figure A13. Duval County monthly public supply water use, 1992

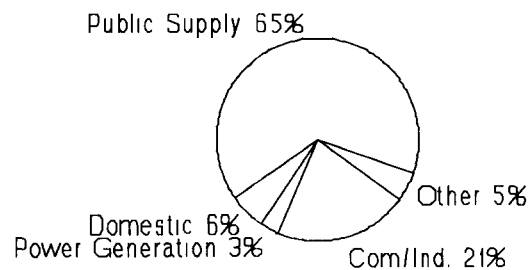


Figure A14. Duval County—percentages, by category, of freshwater use, 1992. Other includes agricultural, recreational, and abandoned artesian well water use.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN DUVAL COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Atlantic Beach, City of	Public supply	14,413	2.55	Floridan aquifer	0.00	
Baldwin, City of	Public supply	2,115	0.19	Floridan aquifer	0.00	
Beauclerc Utilities	Public supply	7,210	0.66	Floridan aquifer	0.00	
Canal Utilities	Public supply	8,500	1.64	Floridan aquifer	0.00	
Duval Utility Co.	Public supply	250	0.05	Floridan aquifer	0.00	
Harbor View Subdivision	Public supply	1,442	0.15	Floridan aquifer	0.00	
Jacksonville Beach, City of	Public supply	19,199	2.58	Floridan aquifer	0.00	
Jacksonville, City of	Public supply	454,355	67.71	Floridan aquifer	0.00	
Jacksonville Suburban Utilities	Public supply	75,357	11.50	Floridan aquifer	0.00	
Lamplighter MHP	Public supply	1,126	0.14	Floridan aquifer	0.00	
Londontowne Apartments	Public supply	1,771	0.15	Floridan aquifer	0.00	
Neighborhood Utilities	Public supply	543	0.04	Floridan aquifer	0.00	
Neptune Beach, City of	Public supply	7,135	1.12	Floridan aquifer	0.00	
Normandy Village Utilities	Public supply	4,855	0.49	Floridan aquifer	0.00	
Oaks of Atlantic Beach	Public supply	878	0.09	Floridan aquifer	0.00	
Ortega Utilities	Public supply	4,490	0.92	Floridan aquifer	0.00	
Regency Utilities	Public supply	4,900	0.81	Floridan aquifer	0.00	
Springtree (Shadowrock Util.)	Public supply	2,530	0.21	Floridan aquifer	0.00	
Southern Gulf Utilities	Public supply	1,837	0.21	Floridan aquifer	0.00	
Southern States Utilities	Public supply	15,900	2.26	Floridan aquifer	0.00	
Southside Utilities	Public supply	8,720	1.33	Floridan aquifer	0.00	
Total Public Supply		637,526	94.80		0.00	
Castleton Beverage Co.	Industrial		0.10	Floridan aquifer	0.00	
Celotex Gypsum Co.	Industrial		0.12	Floridan aquifer	0.00	
Florida Wire & Cable Co.	Industrial		0.02	Floridan aquifer	0.00	
Gate Maritime	Industrial		0.08	Floridan aquifer	0.00	
Seminole Kraft Paper Co.	Industrial*		14.69	Floridan aquifer	27.78	St. Johns River**
Jacksonville Port Authority	Industrial		0.08	Floridan aquifer	0.00	
Jefferson-Smurfitt Inc. (Alton)	Industrial*		5.47	Floridan aquifer	0.00	
Reichold Chemical Co.	Industrial		0.17	Floridan aquifer	0.00	
SCM Organic Chemical Co.	Industrial		1.94	Floridan aquifer	0.00	

1992 WATER USERS IN DUVAL COUNTY—*Continued*

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Simplex Man. Co.	Industrial		0.06	Floridan aquifer	0.00	
Swisher & Son Man. Co.	Industrial		0.08	Floridan aquifer	0.00	
Union Camp, Inc.	Industrial		2.79	Floridan aquifer	0.00	
U.S. Gypsum	Industrial		0.61	Floridan aquifer	0.00	
Cecil Field NAS	Institutional		0.58	Floridan aquifer	0.00	
Dinsmore Correctional Fac.	Institutional		0.01	Floridan aquifer	0.00	
Florida DOT, I-10 rest fac.	Institutional		0.01	Floridan aquifer	0.00	
Jacksonville Int. Airport	Institutional		0.20	Floridan aquifer	0.00	
Jacksonville NAS	Institutional		1.21	Floridan aquifer	0.00	
Jacksonville University	Institutional		0.44	Floridan aquifer	0.00	
Jacksonville Zoo	Institutional		0.63	Floridan aquifer	0.00	
Mayport NAS	Institutional		1.88	Floridan aquifer	0.00	
Total Commercial/Industrial			31.17		27.78	
Jacksonville Electric Authority	Power generation		1.31	Floridan aquifer	488.50	St. Johns River**
SJR Power Park (Eastport)	Power generation		3.11	Floridan aquifer	41.44	St. Johns River**
Total Power Generation			4.42		529.94	

Note: mgd = million gallons per day
MHP = mobile home park

*Pulp and paper industry

**Saline water

ANNUAL WATER USE SURVEY: 1992

DUVAL COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	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
Misc. vegetables	200	10	0.00	0.00	0.00
Fruit Crops					
Blueberries	18	13	0.01	0.00	0.01
Citrus	0	0	0.00	0.00	0.00
Grapes	10	7	0.01	0.00	0.01
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
Misc. fruit	0	0	0.00	0.00	0.00
Field Crops					
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
Misc. grains	200	200	0.10	0.00	0.10
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	12	12	0.01	0.00	0.01
Woody ornamentals	60	60	0.13	0.00	0.13
Improved pasture	12,000	500	0.23	0.00	0.23
Sod	600	600	0.30	0.05	0.35
Miscellaneous					
Livestock	0	0	0.64	0.00	0.64
Fish farming	0	0	1.50	0.00	1.50
Agricultural Total	13,300	1,402	2.93	0.05	2.98
Turf grass (golf)	2,992	1,413	0.91	0.22	1.13
Turf grass (other)	150	150	0.11	0.00	0.11
Recreational Total	3,142	1,563	1.02	0.22	1.24
Sprinkler Acreage	2,891				
Low Pressure Acreage	34				
Flood Acreage	40				
Total Irrigated Acreage	2,965				

FLAGLER COUNTY

Total Population 31,999
 Total Land Area 485 mi²

St. Johns River Water Management DistrictPopulation

Total 31,999
 Public supply 20,692
 Self-supplied 11,307
 Per capita 198

Land Area (acres)

Total area 310,400 (485 mi²)
 Farmed 25,067
 Irrigated 7,602

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	4.09	0.00	4.09	0.00
Domestic self-supply	2.24	0.00	2.24	0.00
Com/ind. self-supply	0.15	0.00	0.15	0.00
Agricultural irrigation	8.02	0.00	8.02	0.00
Recreational irrigation	0.08	0.63	0.71	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.01	0.00	0.01	0.00
Totals	14.59	0.63	15.22	0.00
Total Ground	14.59			
Total Surface		0.63		
County Total	15.22			

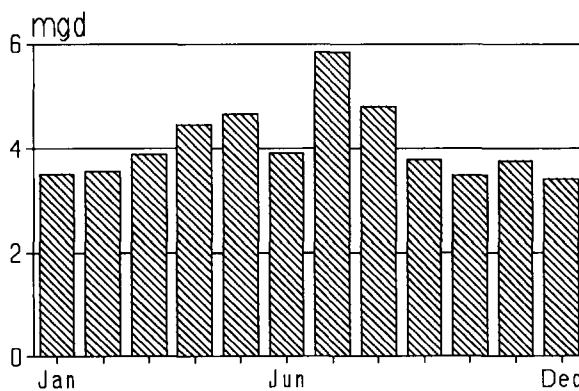


Figure A15. Flagler County monthly public supply water use, 1992

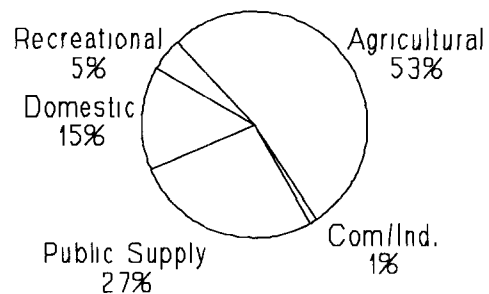


Figure A16. Flagler County—percentages, by category, of freshwater use, 1992. Abandoned artesian wells were less than 1%.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN FLAGLER COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Beverly Beach Utility	Public supply	315	0.03	Floridan aquifer	0.00	
Bunnell, City of	Public supply	2,266	0.33	Floridan aquifer	0.00	
Flagler Beach, City of	Public supply	3,986	0.48	Floridan aquifer	0.00	
Palm Coast Utilities	Public supply	13,780	3.17	Floridan aquifer	0.00	
Plantation Bay	Public supply	345	0.08	Floridan aquifer	0.00	
Total Public Supply		20,692	4.09		0.00	
Rinker Cement	Industrial		0.03	Floridan aquifer	0.00	
Bulow KOA	Institutional		0.06	Floridan aquifer	0.00	
Holiday Travel Park	Institutional		0.01	Floridan aquifer	0.00	
Marineland	Institutional		0.05	Floridan aquifer	0.00	
Total Commercial/Industrial			0.15		0.00	

Note: mgd = million gallons per day

FLAGLER COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	2,000	2,000	1.80	0.00	1.80
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	4.39	0.00	4.39
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
Misc. vegetables	1,000	1,000	0.50	0.00	0.50
Fruit Crops					
Blueberries	20	20	0.03	0.00	0.03
Citrus	50	50	0.11	0.00	0.11
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	0.05	0.00	0.05
Misc. fruit	0	0	0.00	0.00	0.00
Field Crops					
Field corn	0	0	0.40	0.00	0.40
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
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	0	0	0.00	0.00	0.00
Woody ornamentals	5	5	0.02	0.00	0.02
Improved pasture	16,580	695	0.86	0.00	0.86
Sod	300	220	0.25	0.00	0.25
Miscellaneous					
Livestock	0	0	0.01	0.00	0.01
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	24,555	7,090	8.02	0.00	8.02
Turf grass (golf)	362	362	0.07	0.48	0.55
Turf grass (other)	150	150	0.01	0.15	0.16
Recreational Total	512	512	0.08	0.63	0.71
Sprinkler Acreage	1,652				
Low Pressure Acreage	0				
Flood Acreage	5,950				
Total Irrigated Acreage	7,602				

ANNUAL WATER USE SURVEY: 1992

INDIAN RIVER COUNTY

Total Population 94,091
Total Land Area 503 mi²

St. Johns River Water Management District

Population

Total 94,091
Public supply 59,063
Self-supplied 35,028
Per capita 197

Land Area (acres)

Total area 321,920 (503 mi²)
Farmed 136,680
Irrigated 96,308

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply (1)	11.63	0.00	11.63	0.00
Domestic self-supply	6.90	0.00	6.90	0.00
Com/ind. self-supply	0.22	0.00	0.22	0.00
Agricultural irrigation	75.30	178.00	253.30	0.00
Recreational irrigation	1.62	0.77	2.39	0.00
Thermoelectric power	0.08	0.00	0.08	137.59
Abandoned artesian wells	11.26	0.00	11.26	0.00
Totals	107.01	178.77	285.78	137.59
Total Ground	107.01			
Total Surface		316.36		
County Total		423.37		

(1) Includes slightly saline water withdrawn for public supply (250 to 1,000 mg/L chlorides), treated through reverse osmosis, and diluted with fresh water.

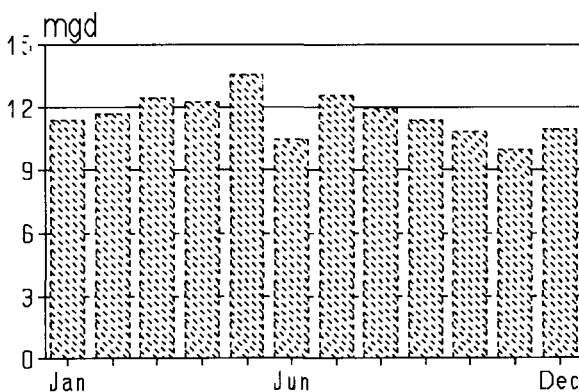


Figure A17. Indian River County monthly public supply water use, 1992

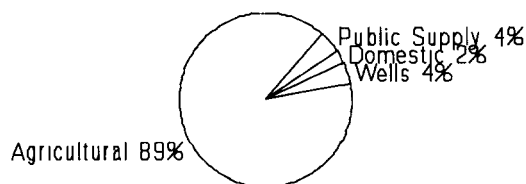


Figure A18. Indian River County—percentages, by category, of freshwater use, 1992. Power generation, commercial/industrial, and recreational water use combined used 1 percent.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN INDIAN RIVER COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Aspen/Whispering Palms MHP	Public supply	600	0.04	Floridan aquifer and reverse osmosis (R/O)	0.00	
GDU, Sebastian Highlands	Public supply	2,763	0.34	Floridan aquifer	0.00	
Heritage Village	Public supply	654	0.05	Floridan aquifer and R/O	0.00	
Indian River County Utilities	Public supply	18,893	2.84	Floridan aquifer and R/O	0.00	
Lakewood Village	Public supply	872	0.04	Surficial aquifer	0.00	
Vero Beach, City of	Public supply	33,849	8.24	Surficial and Floridan aquifers	0.00	
Village Green	Public supply	1,432	0.08	Floridan aquifer and R/O	0.00	
Total Public Supply		59,063	11.63		0.00	
Fellsmere Packing House	Industrial		0.02	Surficial aquifer	0.00	
Hercules, Inc.	Industrial		0.04	Surficial aquifer	0.00	
Ocean Spray processing plant	Industrial		0.10	Surficial and Floridan aquifers	0.00	
Indian River Correctional Fac.	Institutional		0.03	Surficial aquifer	0.00	
Sebastian Medical Center	Institutional		0.03	Surficial aquifer	0.00	
Total Commercial/Industrial			0.22		0.00	
Vero Beach Municipal Power Plant	Power generation		0.08	Floridan aquifer	137.59	Indian River*

Note: mgd = million gallons per day
MHP = mobile home park

*Saline water

INDIAN RIVER COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	150	150	0.16	0.00	0.16
Carrots	50	50	0.13	0.00	0.13
Cucumbers	0	0	0.00	0.00	0.00
Peppers	0	0	0.00	0.00	0.00
Potatoes	100	100	0.17	0.00	0.17
Tomatoes	10	10	0.02	0.00	0.02
Sweet corn	700	700	1.03	1.03	2.06
Watercress	150	150	0.62	0.00	0.62
Misc. vegetables	2,020	2,020	0.92	0.92	1.83
Fruit Crops					
Blueberries	0	0	0.00	0.00	0.00
Citrus	65,446	65,446	49.92	149.72	199.64
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	0.04	0.00	0.04
Watermelons	100	50	0.06	0.00	0.06
Misc. fruit	100	100	0.38	0.00	0.38
Field Crops					
Field corn	2,500	2,000	0.00	4.26	4.26
Peanuts	0	0	0.00	0.00	0.00
Rice	50	50	0.08	0.00	0.08
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
Misc. grains	300	300	0.18	0.18	0.36
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	25	25	0.05	0.00	0.05
Woody ornamentals	60	60	0.00	0.17	0.17
Improved pasture	62,208	22,747	20.54	20.54	41.07
Sod	1,000	1,000	0.79	1.19	1.98
Miscellaneous					
Livestock	0	0	0.22	0.00	0.22
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	134,989	94,978	75.30	178.00	253.30
Turf grass (golf)	1,637	1,276	1.55	0.76	2.31
Turf grass (other)	54	54	0.07	0.01	0.08
Recreational Total	1,691	1,330	1.62	0.77	2.39
Sprinkler Acreage	2,040				
Low Pressure Acreage	26,723				
Flood Acreage	67,545				
Total Irrigated Acreage	96,308				

ANNUAL WATER USE SURVEY: 1992

LAKE COUNTY

Total Population 162,579
Total Land Area 953 mi²

St. Johns River Water Management District

Population

Total 160,953
Public supply 128,481
Self-supplied 32,472
Per capita 147

Land Area (acres)

Total area 555,637 (868 mi²)
Farmed 82,707
Irrigated 31,171

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	18.95	0.00	18.95	0.00
Domestic self-supply	4.77	0.00	4.77	0.00
Com/ind. self-supply	5.62	0.72	6.34	0.00
Agricultural irrigation	38.70	9.83	48.53	0.00
Recreational irrigation	0.66	0.47	1.13	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	1.28	0.00	1.28	0.00
Totals	69.98	11.02	81.00	0.00
Total Ground	69.98			
Total Surface		11.02		
County Total		81.00		

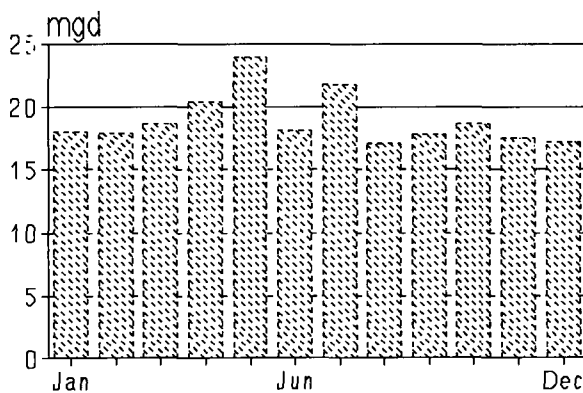


Figure A19. Lake County monthly public supply water use, 1992

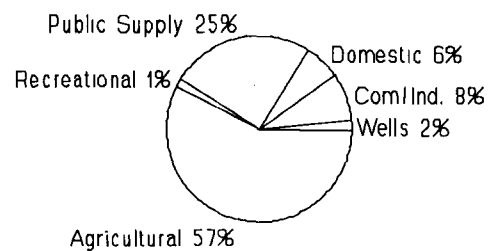


Figure A20. Lake County—percentages, by category, of freshwater use, 1992

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN LAKE COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Astor/Astor Park Water Assoc.	Public supply	3,476	0.25	Floridan aquifer	0.00	
Brittany Estates	Public supply	375	0.06	Floridan aquifer	0.00	
Clermont, City of	Public supply	7,496	1.52	Floridan aquifer	0.00	
Deanza, Mid Florida Lakes	Public supply	2,675	0.35	Floridan aquifer	0.00	
Eustis, City of	Public supply	16,680	2.47	Floridan aquifer	0.00	
Fruitland Park, City of	Public supply	3,245	0.41	Floridan aquifer	0.00	
Groveland, City of	Public supply	2,420	0.28	Floridan aquifer	0.00	
Hawthorne Subdivision	Public supply	2,738	0.49	Floridan aquifer	0.00	
Howey-in-the-Hills, Town of	Public supply	737	0.20	Floridan aquifer	0.00	
Lady Lake	Public supply	2,594	0.27	Floridan aquifer	0.00	
Lakeview Terrace Center	Public supply	261	0.05	Floridan aquifer	0.00	
Leesburg, City of	Public supply	20,100	2.92	Floridan aquifer	0.00	
Mascotte, Town of	Public supply	1,870	0.20	Floridan aquifer	0.00	
Minneola, City of	Public supply	1,710	0.22	Floridan aquifer	0.00	
Molakai Park Water System	Public supply	629	0.03	Floridan aquifer	0.00	
Montverde, Town of	Public supply	933	0.14	Floridan aquifer	0.00	
Mount Dora, City of	Public supply	17,997	2.72	Floridan aquifer	0.00	
Orange Blossom Gardens MHP	Public supply	13,063	2.70	Floridan aquifer	0.00	
Silver Lake Estates (a)	Public supply	7,992	0.92	Floridan aquifer	0.00	
South Umatilla Water Association	Public supply	300	0.06	Floridan aquifer	0.00	
Southern States Utilities	Public supply	7,108	0.22	Floridan aquifer	0.00	
Sunlake Estates	Public supply	1,212	0.30	Floridan aquifer	0.00	
Tavares, City of	Public supply	8,645	1.33	Floridan aquifer	0.00	
Umatilla, City of	Public supply	2,589	0.45	Floridan aquifer	0.00	
Utilities Inc. of Florida	Public supply	471	0.11	Floridan aquifer	0.00	
Water Oak Estates	Public supply	1,165	0.28	Floridan aquifer	0.00	
Total Public Supply		128,481	18.95		0.00	
B & W Canning, Groveland Plant	Industrial		0.05	Floridan aquifer	0.00	
Coca Cola, Leesburg Plant	Industrial		1.59	Floridan aquifer	0.00	
Eustis Sand Co.	Industrial*		0.27	Floridan aquifer	0.72	Unknown
Golden Gem, Umatilla plant	Industrial*		2.09	Floridan aquifer	0.00	

1992 WATER USERS IN LAKE COUNTY—Continued

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Silver Sand Co., Clermont mine	Industrial*		0.94	Floridan aquifer	0.00	
Silver Springs citrus plant	Industrial		0.52	Floridan aquifer	0.00	
Sundor Brands Proc. Co.	Industrial		0.01	Floridan aquifer	0.00	
Lake County Utilities (Sunshine Park)	Commercial		0.05	Floridan aquifer	0.00	
Groveland Health Center	Institutional		0.01	Floridan aquifer	0.00	
Lake Correctional Fac.	Institutional		0.09	Floridan aquifer	0.00	
Total Commercial/Industrial			5.62		0.72	

Note: mgd = million gallons per day
MHP = mobile home park

(a) Silver Lake Estates operated by Southern States Utilities

*Mining industry

ANNUAL WATER USE SURVEY: 1992

LAKE COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	200	200	0.08	0.08	0.15
Carrots	1,700	1,700	1.80	1.80	3.60
Cucumbers	300	300	0.04	0.04	0.08
Peppers	25	25	0.02	0.00	0.02
Potatoes	110	110	0.16	0.00	0.16
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	2,375	2,375	3.64	2.43	6.07
Watercress	0	0	0.00	0.00	0.00
Misc. vegetables	2,900	2,900	0.96	0.63	1.59
Fruit Crops					
Blueberries	61	61	0.09	0.00	0.09
Citrus	18,604	17,674	25.60	3.83	29.43
Grapes	54	54	0.02	0.00	0.02
Peaches	7	7	0.01	0.00	0.01
Pecans	80	80	0.10	0.00	0.10
Strawberries	5	5	0.01	0.00	0.01
Watermelons	400	380	0.22	0.00	0.22
Misc. fruit	25	25	0.03	0.01	0.04
Field Crops					
Field corn	2,000	500	0.37	0.37	0.73
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	300	150	0.05	0.04	0.09
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
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	550	550	0.99	0.11	1.10
Flowers and foliage	100	100	0.15	0.00	0.15
Woody ornamentals	950	950	2.23	0.12	2.35
Improved pasture	50,000	1,886	1.65	0.07	1.72
Sod	250	250	0.05	0.30	0.35
Miscellaneous					
Livestock	0	0	0.45	0.00	0.45
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	80,996	30,282	38.70	9.83	48.53
Turf grass (golf)	1,591	769	0.55	0.45	1.00
Turf grass (other)	120	120	0.11	0.02	0.13
Recreational Total	1,711	889	0.66	0.47	1.13
Sprinkler Acreage	7,447				
Low Pressure Acreage	15,789				
Flood Acreage	7,935				
Total Irrigated Acreage	31,171				

MARION COUNTY

Total Population 206,642
 Total Land Area 1,579 mi²

St. Johns River Water Management DistrictPopulation

Total 161,844
 Public supply 68,857
 Self-supplied 92,987
 Per capita 165

Land Area (acres)

Total area 730,635 (1,142 mi²)
 Farmed 72,824
 Irrigated 5,648

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	11.39	0.00	11.39	0.00
Domestic self-supply	15.34	0.00	15.34	0.00
Com/ind. self-supply	1.60	0.00	1.60	0.00
Agricultural irrigation	5.54	0.66	6.20	0.00
Recreational irrigation	0.52	0.31	0.83	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	3.12	0.00	3.12	0.00
Totals	37.51	0.97	38.48	0.00
Total Ground	37.51			
Total Surface		0.97		
County Total	38.48			

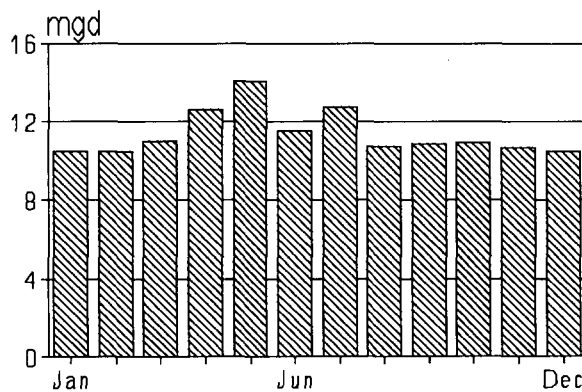


Figure A21. Marion County monthly public supply water use, 1992

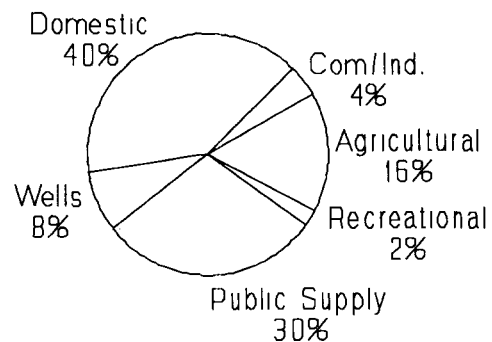


Figure A22. Marion County—percentages, by category, of freshwater use, 1992

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN MARION COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Bellevue, City of	Public supply	3,051	0.58	Floridan aquifer	0.00	
GDU, Silver Springs Shores	Public supply	11,600	0.96	Floridan aquifer	0.00	
Marion Utilities	Public supply	3,373	0.41	Floridan aquifer	0.00	
McIntosh, City of	Public supply	408	0.08	Floridan aquifer	0.00	
Ocala, City of	Public supply	41,863	8.32	Floridan aquifer	0.00	
Ocala East Villas	Public supply	556	0.11	Floridan aquifer	0.00	
Ocala Oaks Utilities	Public supply	2,180	0.25	Floridan aquifer	0.00	
Southern States Utilities	Public supply	1,092	0.17	Floridan aquifer	0.00	
Sunshine Utilities	Public supply	3,291	0.40	Floridan aquifer	0.00	
Tradewinds Utilities	Public supply	1,200	0.08	Floridan aquifer	0.00	
Woods & Lakes	Public supply	243	0.03	Floridan aquifer	0.00	
Total Public Supply		68,857	11.39		0.00	
Certified Grocers, Inc.	Industrial		0.03	Floridan aquifer	0.00	
Florida Rock, Marion mine	Industrial*		0.94	Floridan aquifer	0.00	
Golden Flake, Inc., Ocala plant	Industrial		0.08	Floridan aquifer	0.00	
Marion Correctional Fac.	Institutional		0.25	Floridan aquifer	0.00	
Sierra Beach Motel	Institutional		0.01	Floridan aquifer	0.00	
Silver Springs, Inc.	Institutional		0.29	Floridan aquifer	0.00	
Total Commercial/Industrial			1.60		0.00	

Note: mgd = million gallons per day

*Mining industry

MARION COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	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	0.04	0.00	0.04
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	5	5	0.01	0.00	0.01
Sweet corn	20	20	0.04	0.00	0.04
Watercress	0	0	0.00	0.00	0.00
Misc. vegetables	1,700	940	0.43	0.00	0.43
Fruit Crops					
Blueberries	100	100	0.18	0.00	0.18
Citrus	1,200	700	1.33	0.09	1.42
Grapes	20	20	0.03	0.00	0.03
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	0.75	0.00	0.75
Misc. fruit	200	100	0.22	0.00	0.22
Field Crops					
Field corn	3,000	350	0.29	0.21	0.50
Peanuts	2,000	134	0.21	0.00	0.21
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
Misc. grains	1,500	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	20	20	0.04	0.00	0.04
Flowers and foliage	14	14	0.03	0.00	0.03
Woody ornamentals	52	52	0.12	0.03	0.15
Improved pasture	59,230	940	0.50	0.33	0.83
Sod	660	660	0.79	0.00	0.79
Miscellaneous					
Livestock	0	0	0.51	0.00	0.51
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	71,241	5,065	5.54	0.66	6.20
Turf grass (golf)	1,500	500	0.43	0.31	0.74
Turf grass (other)	83	83	0.09	0.00	0.09
Recreational Total	1,583	583	0.52	0.31	0.83
Sprinkler Acreage	4,948				
Low Pressure Acreage	700				
Flood Acreage	0				
Total Irrigated Acreage	5,648				

ANNUAL WATER USE SURVEY: 1992

NASSAU COUNTY

Total Population 45,546
Total Land Area 652 mi²

St. Johns River Water Management District

Population

Total 45,546
Public supply 23,263
Self-supplied 22,283
Per capita 173

Land Area (acres)

Total area 417,280 (652 mi²)
Farmed 7,406
Irrigated 770

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	4.02	0.00	4.02	0.00
Domestic self-supply	3.85	0.00	3.85	0.00
Com/ind. self-supply	36.65	0.00	36.65	0.09
Agricultural irrigation	0.81	0.00	0.81	0.00
Recreational irrigation	0.40	0.06	0.46	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.85	0.00	0.85	0.00
Totals	46.58	0.06	46.64	0.09
Total Ground	46.58			
Total Surface		0.15		
County Total	46.73			

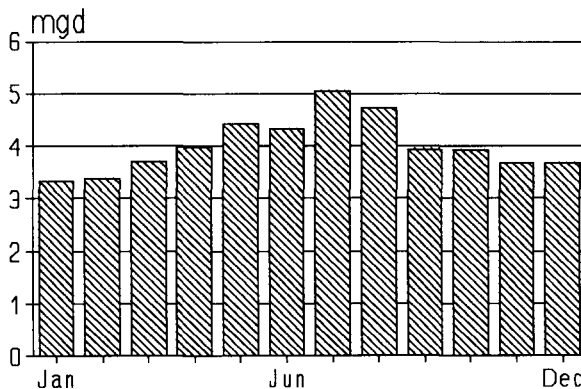


Figure A23. Nassau County monthly public supply water use, 1992

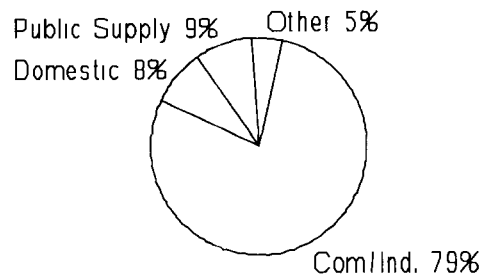


Figure A24. Nassau County—percentages, by category, of freshwater use, 1992. Other includes agricultural, recreational, and abandoned artesian well water use.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN NASSAU COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Callahan, Town of	Public supply	1,293	0.17	Floridan aquifer	0.00	
Eastwood Oaks	Public supply	277	0.03	Floridan aquifer	0.00	
Fernandina Beach, City of	Public supply	13,593	2.65	Floridan aquifer	0.00	
Hilliard, Town of	Public supply	2,075	0.21	Floridan aquifer	0.00	
Marsh Cove Apt.	Public supply	300	0.04	Floridan aquifer	0.00	
Southern States Utilities (Amelia Island)	Public supply	5,725	0.92	Floridan aquifer	0.00	
Total Public Supply		23,263	4.02		0.00	
Container Corp. of America	Industrial*		20.55	Floridan aquifer	0.00	
ITT Rayonier, Inc.	Industrial*		16.03	Floridan aquifer	0.09	Amelia River
Terminal Paper Co. (Stone)	Industrial*		0.02	Floridan aquifer	0.00	
Florida DOT, I-95 Welcome Center	Institutional		0.03	Floridan aquifer	0.00	
Nassau Correctional Facility	Institutional		0.02	Floridan aquifer	0.00	
Total Commercial/Industrial			36.65		0.09	

Note: mgd = million gallons per day

*Pulp and paper industry

NASSAU COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	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
Misc. vegetables	100	50	0.01	0.00	0.01
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
Misc. fruit	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	0.03	0.00	0.03
Wheat	0	0	0.00	0.00	0.00
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	20	20	0.02	0.00	0.02
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
Miscellaneous					
Livestock	0	0	0.67	0.00	0.67
Fish farming	0	0	0.02	0.00	0.02
Agricultural Total	6,693	175	0.81	0.00	0.81
Turf grass (golf)	645	565	0.38	0.06	0.44
Turf grass (other)	68	30	0.02	0.00	0.02
Recreational Total	713	595	0.40	0.06	0.46
Sprinkler Acreage	770				
Low Pressure Acreage	0				
Flood Acreage	0				
Total Irrigated Acreage	770				

ANNUAL WATER USE SURVEY: 1992

OKEECHOBEE COUNTY

Total Population 31,102
Total Land Area 774 mi²

St. Johns River Water Management District

<u>Population</u>		<u>Land Area (acres)</u>	
Total	467	Total area	65,388 (102 mi ²)
Public supply	0	Farmed	24,468
Self-supplied	467	Irrigated	7,250
Per capita (1)	152		

1992 Water Withdrawals (mgd) by Category

	Ground	<u>Fresh Water</u> Surface	Total	<u>Saline Water</u> Surface
Public supply	0.00	0.00	0.00	0.00
Domestic self-supply	0.07	0.00	0.07	0.00
Com/ind. self-supply	0.09	0.00	0.09	0.00
Agricultural irrigation	15.68	0.00	15.68	0.00
Recreational irrigation	0.00	0.00	0.00	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.00	0.00	0.00	0.00
Totals	15.84	0.00	15.84	0.00
Total Ground	15.84			
Total Surface		0.00		
County Total	15.84			

(1) Used St. Johns River Water Management District average per capita.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN OKEECHOBEE COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Florida DOT, Ft. Drum Plaza	Institutional		0.09	Floridan aquifer	0.00	

Note: mgd = million gallons per day

OKEECHOBEE COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	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
Misc. vegetables	0	0	0.00	0.00	0.00
Fruit Crops					
Blueberries	0	0	0.00	0.00	0.00
Citrus	4,468	4,468	9.81	0.00	9.81
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
Misc. fruit	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
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	0	0	0.00	0.00	0.00
Woody ornamentals	0	0	0.00	0.00	0.00
Improved pasture	20,000	2,782	4.94	0.00	4.94
Sod	0	0	0.00	0.00	0.00
Miscellaneous					
Livestock	0	0	0.75	0.00	0.75
Fish farming	0	0	0.18	0.00	0.18
Agricultural Total	24,468	7,250	15.68	0.00	15.68
Turf grass (golf)	0	0	0.00	0.00	0.00
Turf grass (other)	0	0	0.00	0.00	0.00
Recreational Total	0	0	0.00	0.00	0.00
Sprinkler Acreage	0				
Low Pressure Acreage	4,468				
Flood Acreage	2,782				
Total Irrigated Acreage	7,250				

ANNUAL WATER USE SURVEY: 1992

ORANGE COUNTY

Total Population 712,637
Total Land Area 908 mi²

St. Johns River Water Management District

Population

Total 570,110
Public supply 493,239
Self-supplied 76,871
Per capita 189

Land Area (acres)

Total area 431,191 (674 mi²)
Farmed 69,714
Irrigated 47,958

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply (1)	93.15	0.00	93.15	0.00
Domestic self-supply	14.53	0.00	14.53	0.00
Com/ind. self-supply	3.35	0.00	3.35	0.00
Agricultural irrigation	18.48	67.47	85.95	0.00
Recreational irrigation	1.42	0.26	1.68	0.00
Thermoelectric power	0.33	0.00	0.33	0.00
Abandoned artesian wells	4.69	0.00	4.69	0.00
Totals	135.95	67.73	203.68	0.00
Total Ground	135.95			
Total Surface		67.73		
County Total	203.68			

(1) Does not include 24.85 mgd of water withdrawn in Orange County for public supply use in Brevard County.

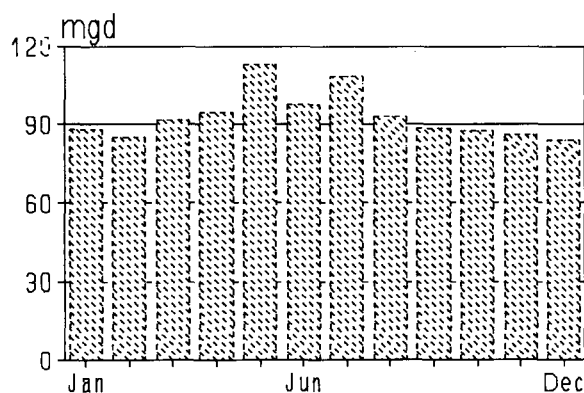


Figure A25. Orange County monthly public supply water use, 1992

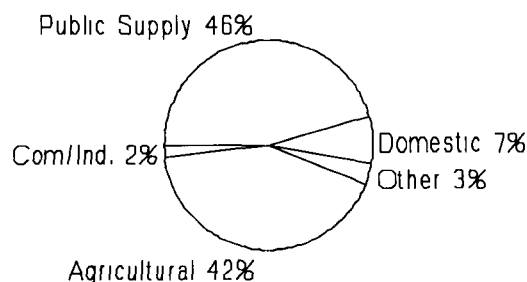


Figure A26. Orange County—percentages, by category, of fresh water use, 1992. Other includes power generation, recreational, and abandoned artesian well water use.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN ORANGE COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Apopka, City of	Public supply	30,853	4.90	Floridan aquifer	0.00	
Eatonville, Town of	Public supply	2,513	0.38	Floridan aquifer	0.00	
Econ Utilities, Wedgefield	Public supply	1,505	0.15	Floridan aquifer	0.00	
Maitland, City of	Public supply	8,981	2.87	Floridan aquifer	0.00	
Oakland, Town of	Public supply	730	0.12	Floridan aquifer	0.00	
Ocoee, City of	Public supply	15,107	2.79	Floridan aquifer	0.00	
SJRWMD portion of Orange County Public Utilities (a)	Public supply	80,588	17.72	Floridan aquifer	0.00	
SJRWMD portion of Orlando Utilities Commission (a)	Public supply	249,085	47.80	Floridan aquifer	0.00	
Rock Springs MHP	Public supply	1,275	0.24	Floridan aquifer	0.00	
Shadowhills MHP	Public supply	1,709	0.21			
Southern States Utilities	Public supply	6,985	0.94	Floridan aquifer	0.00	
Starlight Ranch MHP	Public supply	1,600	0.15	Floridan aquifer	0.00	
Tangerine, Town of	Public supply	539	0.12	Floridan aquifer	0.00	
Utilities, Inc. of Florida	Public supply	963	0.10	Floridan aquifer	0.00	
Winter Garden, City of	Public supply	12,963	1.69	Floridan aquifer	0.00	
Winter Park, City of	Public supply	74,500	12.08	Floridan aquifer	0.00	
Zellwood Station Utilities	Public supply	2,463	0.75	Floridan aquifer	0.00	
Zellwood Water Assoc.	Public supply	880	0.14	Floridan aquifer	0.00	
Total Public Supply		493,239	93.15(c)		0.00	
Coca Cola, Plymouth plant	Industrial		0.16	Floridan aquifer	0.00	
Lust & Long Precooler Co.	Industrial		0.08	Floridan aquifer	0.00	
Ralston Purina, Zellwood Farms	Industrial		0.12	Floridan aquifer	0.00	
Winter Garden Citrus Plant	Industrial		2.26	Floridan aquifer	0.00	
Sun Resort, Inc.	Institutional		0.05	Floridan aquifer	0.00	
University of Central Florida	Institutional		0.68	Floridan aquifer	0.00	
Total Commercial/Industrial			3.35		0.00	

1992 WATER USERS IN ORANGE COUNTY—*Continued*

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
OUC, Stanton plant	Power generation		0.33	Floridan aquifer	3.39	Retention pond (b)

Note: mgd = million gallons per day
MHP = mobile home park

(a) Water also used in South Florida Water Management District.

(b) Wastewater treatment plant discharge supplies retention pond with water. This surface water is considered reuse and is not included in overall totals.

(c) Does not include the water withdrawn (24.85 mgd) for public supply use in Brevard County by the City of Cocoa. Total water use for the county, including that consumed in the South Florida Water Management District, is 127.95 mgd.

ANNUAL WATER USE SURVEY: 1992

ORANGE COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	1,200	800	0.87	0.00	0.87
Carrots	13,500	11,600	2.56	23.04	25.60
Cucumbers	1,020	1,020	0.32	0.00	0.32
Peppers	0	0	0.00	0.00	0.00
Potatoes	0	0	0.00	0.00	0.00
Tomatoes	75	75	0.10	0.00	0.10
Sweet corn	13,600	13,300	3.61	32.49	36.10
Watercress	0	0	0.00	0.00	0.00
Misc. vegetables	14,100	14,100	1.16	10.45	11.61
Fruit Crops					
Blueberries	0	0	0.00	0.00	0.00
Citrus	3,596	3,596	6.23	0.69	6.92
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	0.10	0.00	0.10
Misc. fruit	0	0	0.00	0.00	0.00
Field Crops					
Field corn	200	200	0.26	0.00	0.26
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	200	200	0.14	0.14	0.28
Soybeans	200	200	0.15	0.15	0.30
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
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	40	40	0.08	0.00	0.08
Flowers and foliage	581	581	0.81	0.20	1.01
Woody ornamentals	576	576	1.45	0.16	1.61
Improved pasture	18,562	0	0.00	0.00	0.00
Sod	200	200	0.14	0.16	0.30
Miscellaneous					
Livestock	0	0	0.37	0.00	0.37
Fish farming	0	0	0.12	0.00	0.12
Agricultural Total	67,800	46,638	18.48	67.47	85.95
Turf grass (golf)	1,533	939	1.09	0.21	1.30
Turf grass (other)	381	381	0.32	0.06	0.38
Recreational Total	1,914	1,320	1.42	0.26	1.68
Sprinkler Acreage	4,625				
Low Pressure Acreage	1,913				
Flood Acreage	41,420				
Total Irrigated Acreage	47,958				

OSCEOLA COUNTY

Total Population 119,760
Total Land Area 1,322 mi²

St. Johns River Water Management District

<u>Population</u>		<u>Land Area (acres)</u>	
Total	2,695	Total area	312,204 (488 mi ²)
Public supply	0	Farmed	126,800
Self-supplied	2,695	Irrigated	12,180
Per capita (1)	152		

1992 Water Withdrawals (mgd) by Category

	Ground	<u>Fresh Water</u> Surface	Total	<u>Saline Water</u> Surface
Public supply	0.00	0.00	0.00	0.00
Domestic self-supply	0.41	0.00	0.41	0.00
Com/ind. self-supply	0.00	0.00	0.00	0.00
Agricultural irrigation	7.78	11.37	19.15	0.00
Recreational irrigation	0.00	0.00	0.00	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.14	0.00	0.14	0.00
Totals	8.33	11.37	19.70	0.00
Total Ground	8.33			
Total Surface		11.37		
County Total		19.70		

(1) Used St. Johns River Water Management District average per capita.

ANNUAL WATER USE SURVEY: 1992

OSCEOLA COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	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
Misc. vegetables	0	0	0.00	0.00	0.00
Fruit Crops					
Blueberries	0	0	0.00	0.00	0.00
Citrus	1,000	1,000	2.73	0.00	2.73
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
Misc. fruit	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
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and 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	3.20	11.37	14.57
Sod	0	0	0.00	0.00	0.00
Miscellaneous					
Livestock	0	0	1.85	0.00	1.85
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	126,800	12,180	7.78	11.37	19.15
Turf grass (golf)	0	0	0.00	0.00	0.00
Turf grass (other)	0	0	0.00	0.00	0.00
Recreational Total	0	0	0.00	0.00	0.00
Sprinkler Acreage	100				
Low Pressure Acreage	180				
Flood Acreage	11,900				
Total Irrigated Acreage	12,180				

POLK COUNTY

Total Population 420,885
 Total Land Area 1,875 mi²

St. Johns River Water Management DistrictPopulation

Total 4,208
 Public supply 1,580
 Self-supplied 2,628
 Per capita 133

Land Area (acres)

Total area 37,200 (58 mi²)
 Farmed 8,312
 Irrigated 3,136

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	0.21	0.00	0.21	0.00
Domestic self-supply	0.35	0.00	0.35	0.00
Com/ind. self-supply	0.24	0.00	0.24	0.00
Agricultural irrigation	4.16	0.44	4.60	0.00
Recreational irrigation	0.00	0.00	0.00	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	0.00	0.00	0.00	0.00
Totals	4.96	0.44	5.40	0.00
Total Ground	4.96			
Total Surface		0.44		
County Total	5.40			

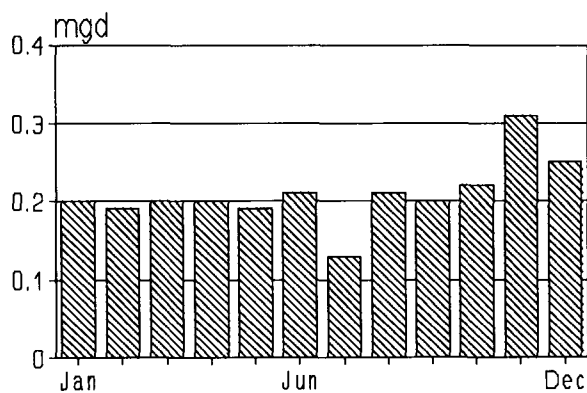


Figure A27. Polk County monthly public supply water use, 1992

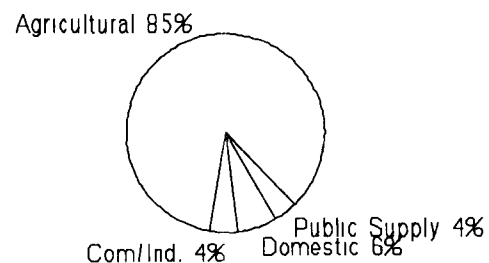


Figure A28. Polk County—percentages, by category, of freshwater use, 1992

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN POLK COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Emerald Acres	Public supply	80	0.01	Floridan aquifer	0.00	
PCU, Polo Davenport	Public supply	1,500	0.20	Floridan aquifer	0.00	
Total Public Supply		1,580	0.21		0.00	
B.C. Cook & Sons citrus plant	Industrial		0.04	Floridan aquifer	0.00	
Horizon's End Resort	Institutional		0.04	Floridan aquifer	0.00	
Oak Harbour Campground	Institutional		0.02	Floridan aquifer	0.00	
Outdoor Resorts of Orlando	Institutional		0.14	Floridan aquifer	0.00	
Total Commercial/Industrial			0.24		0.00	

Note: mgd = million gallons per day

POLK COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	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
Misc. 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	3.41	0.38	3.79
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	0	0	0.00	0.00	0.00
Watermelons	0	0	0.00	0.00	0.00
Misc. fruit	0	0	0.00	0.00	0.00
Field Crops					
Field corn	1,000	500	0.55	0.00	0.55
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
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	5	5	0.01	0.00	0.01
Woody ornamentals	50	50	0.12	0.00	0.12
Improved pasture	4,500	100	0.07	0.06	0.13
Sod	0	0	0.00	0.00	0.00
Miscellaneous					
Livestock	0	0	0.00	0.00	0.00
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	8,312	3,136	4.16	0.44	4.60
Turf grass (golf)	0	0	0.00	0.00	0.00
Turf grass (other)	0	0	0.00	0.00	0.00
Recreational Total	0	0	0.00	0.00	0.00
Sprinkler Acreage	1,051				
Low Pressure Acreage	1,985				
Flood Acreage	100				
Total Irrigated Acreage	3,136				

ANNUAL WATER USE SURVEY: 1992

PUTNAM COUNTY

Total Population 67,752
 Total Land Area 722 mi²

St. Johns River Water Management DistrictPopulation

Total 67,752
 Public supply 23,567
 Self-supplied 44,185
 Per capita 157

Land Area (acres)

Total area 462,080 (722 mi²)
 Farmed 50,666
 Irrigated 9,026

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	3.70	0.00	3.70	0.00
Domestic self-supply	6.94	0.00	6.94	0.00
Com/ind. self-supply	21.67	37.66	59.33	0.00
Agricultural irrigation	16.54	0.84	17.38	0.00
Recreational irrigation	0.09	0.00	0.09	0.00
Thermoelectric power	0.46	14.19	14.65	0.00
Abandoned artesian wells	0.33	0.00	0.33	0.00
Totals	49.73	52.69	102.42	0.00
Total Ground	49.73			
Total Surface		52.69		
County Total		102.42		

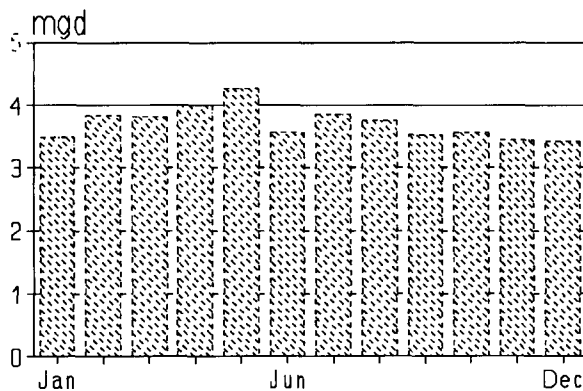


Figure A29. Putnam County monthly public supply water use, 1992

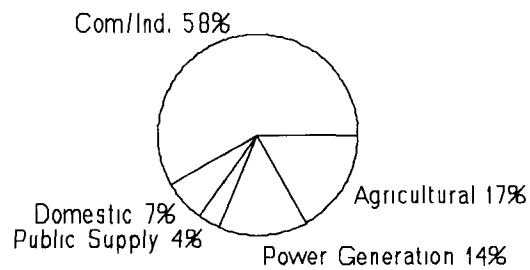


Figure A30. Putnam County—percentages, by category, of freshwater uses, 1992. Recreational and abandoned artesian wells each were less than 1%.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN PUTNAM COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Crescent, City of	Public supply	2,143	0.35	Floridan aquifer	0.00	
Interlachen, Town of	Public supply	1,221	0.09	Floridan aquifer	0.00	
Lake Como Water Association	Public supply	329	0.02	Floridan aquifer	0.00	
Melrose, Town of	Public supply	1,128	0.08	Floridan aquifer	0.00	
Palatka, City of	Public supply	14,783	2.93	Floridan aquifer	0.00	
Southern States Utilities	Public supply	3,416	0.22	Floridan aquifer	0.00	
Welaka, Town of	Public supply	547	0.01		0.00	
Total Public Supply		23,567	3.70		0.00	
Feldspar Corp., Edgar mine	Industrial*		1.28	Floridan aquifer	2.90	
Florida Rock, Grandin mine	Industrial*		2.16	Floridan aquifer	0.00	
Florida Rock, Keuka sand plant	Industrial*		0.08	Floridan aquifer	0.00	
Florida Rock, Keuka industrial sand plant	Industrial*		0.29	Floridan aquifer	0.00	
Georgia Pacific, Palatka plant	Industrial**		17.79		34.76	Simms/Etonia
Georgia Pacific, Hawthorne plant	Industrial**		0.01	Floridan aquifer	0.00	
Putnam Correctional Fac.	Institutional		0.06	Floridan aquifer	0.00	
Total Commercial/Industrial			21.67		37.66	
Florida Power & Light, Putnam	Power generation		0.08		1.27	St. Johns River
Seminole Electric Corp.	Power generation		0.38		12.92	St. Johns River
Total Power Generation			0.46		14.19	

Note: mgd = million gallons per day

*Mining industry

**Pulp and paper industry

PUTNAM COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	600	600	0.51	0.00	0.51
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	7.24	0.00	7.24
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
Misc. vegetables	200	200	0.11	0.00	0.11
Fruit Crops					
Blueberries	100	80	0.09	0.00	0.09
Citrus	95	95	0.14	0.00	0.14
Grapes	10	10	0.01	0.00	0.01
Peaches	70	70	0.08	0.00	0.08
Pecans	100	0	0.00	0.00	0.00
Strawberries	0	0	0.00	0.00	0.00
Watermelons	200	200	0.10	0.00	0.10
Misc. fruit	0	0	0.00	0.00	0.00
Field Crops					
Field corn	2,000	500	0.78	0.03	0.81
Peanuts	0	0	0.00	0.00	0.00
Rice	0	0	0.00	0.00	0.00
Sorghum	400	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
Misc. grains	2,500	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	1,100	1,100	3.28	0.81	4.09
Flowers and foliage	250	250	0.52	0.00	0.52
Woody ornamentals	100	100	0.24	0.00	0.24
Improved pasture	37,000	0	0.00	0.00	0.00
Sod	220	220	0.17	0.00	0.17
Miscellaneous					
Livestock	0	0	0.41	0.00	0.41
Fish farming	0	0	2.86	0.00	2.86
Agricultural Total	50,445	8,925	16.54	0.84	17.38
Turf grass (golf)	196	76	0.07	0.00	0.07
Turf grass (other)	25	25	0.02	0.00	0.02
Recreational Total	221	101	0.09	0.00	0.09
Sprinkler Acreage	1,896				
Low Pressure Acreage	80				
Flood Acreage	7,050				
Total Irrigated Acreage	9,026				

ANNUAL WATER USE SURVEY: 1992

ST. JOHNS COUNTY

Total Population 88,417
 Total Land Area 609 mi²

St. Johns River Water Management DistrictPopulation

Total 88,417
 Public supply 68,559
 Self-supplied 19,858
 Per capita 126

Land Area (acres)

Total area 389,760 (609 mi²)
 Farmed 31,892
 Irrigated 27,211

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	8.62	0.00	8.62	0.00
Domestic self-supply	2.50	0.00	2.50	0.00
Com/ind. self-supply	0.08	0.00	0.08	0.00
Agricultural irrigation	35.57	0.00	35.57	0.00
Recreational irrigation	0.62	0.35	0.97	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	6.26	0.00	6.26	0.00
Totals	53.65	0.35	54.00	0.000
Total Ground	53.65			
Total Surface	0.35			
County Total	54.00			

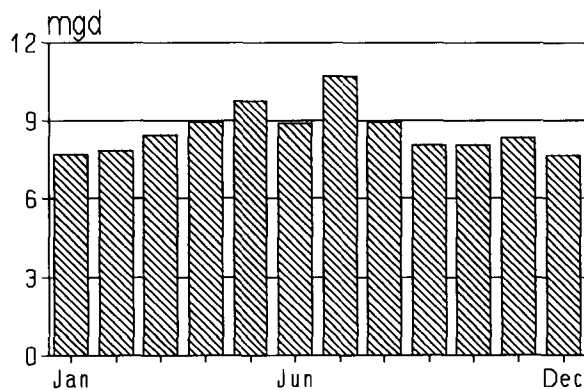


Figure A31. St. Johns County monthly public supply water use, 1992

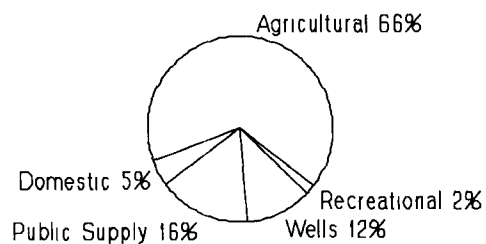


Figure A32. St. Johns County—percentages, by category, of freshwater use, 1992. Commercial/industrial water use was less than 1%.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN ST. JOHNS COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
St. Johns County Utilities (a)	Public supply	23,219	2.52	Surficial and Floridan aquifers	0.00	
Fountain Condominiums	Public supply	369	0.05	Floridan aquifer	0.00	
Fruit Cove Oaks Subdivision	Public supply	483	0.06	Floridan aquifer	0.00	
GDU, Julington Creek Subdivision	Public supply	504	0.04	Floridan aquifer	0.00	
Hastings, City of	Public supply	639	0.11	Surficial and Floridan aquifers	0.00	
Intracoastal Utilities	Public supply	4,200	0.82	Floridan aquifer	0.00	
North Beach Water System	Public supply	1,456	0.21	Floridan aquifer	0.00	
Palm Valley Water System	Public supply	525	0.09	Floridan aquifer	0.00	
Ponce DeLeon Util., Goodwin Beach	Public supply	370	0.05	Floridan aquifer	0.00	
Ponte Vedra Utilities	Public supply	3,263	0.91	Floridan aquifer	0.00	
St. Augustine, City of	Public supply	18,465	1.82	Surficial and Floridan aquifers	0.00	
St. Johns Forest (CR 210)	Public supply	(b)	0.01	Floridan aquifer	0.00	
St. Johns North Utility	Public supply	722	0.18	Floridan aquifer	0.00	
St. Johns Service Co.	Public supply	13,337	1.59	Floridan aquifer	0.00	
S. Ponte Vedra Beach Utilities	Public supply	522	0.07	Floridan aquifer	0.00	
SSU, Remington Forest	Public supply	85	0.02	Floridan aquifer	0.00	
Wesley Manor Water System	Public supply	400	0.07	Floridan aquifer	0.00	
Total Public Supply		68,559	8.62		0.00	
Bordon/Wise Potato Chip plant	Industrial		0.01	Floridan aquifer	0.00	
G & M Union 76 Truck Stop	Commercial		0.02	Floridan aquifer	0.00	
Florida DOT, I-95 rest fac. (SR 210)	Institutional		0.02	Floridan aquifer	0.00	
Florida DOT, I-95 rest fac. (SR 206)	Institutional		0.02			
KOA Campground	Institutional		0.01	Floridan aquifer	0.00	
Total Commercial/Industrial			0.08		0.00	

Note: mgd = million gallons per day

(a) St. Johns Utilities supplies water to St. Augustine Shores.

(b) New housing development, 1992 population unknown.

ST. JOHNS COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	1,500	1,500	1.24	0.00	1.24
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	25.38	0.00	25.38
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
Misc. vegetables	500	500	0.24	0.00	0.24
Fruit Crops					
Blueberries	10	10	0.01	0.00	0.01
Citrus	0	0	0.00	0.00	0.00
Grapes	10	10	0.01	0.00	0.01
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
Misc. fruit	0	0	0.00	0.00	0.00
Field Crops					
Field corn	2,000	2,000	2.72	0.00	2.72
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
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	0	0	0.00	0.00	0.00
Flowers and foliage	25	25	0.03	0.00	0.03
Woody ornamentals	75	75	0.15	0.00	0.15
Improved pasture	5,500	1,000	1.08	0.00	1.08
Sod	60	60	0.05	0.00	0.05
Miscellaneous					
Livestock	0	0	0.35	0.00	0.35
Fish farming	0	0	4.31	0.00	4.31
Agricultural Total	30,680	26,180	35.57	0.00	35.57
Turf grass (golf)	1,192	1,011	0.60	0.35	0.95
Turf grass (other)	20	20	0.02	0.00	0.02
Recreational Total	1,212	1,031	0.62	0.35	0.97
Sprinkler Acreage	1,166				
Low Pressure Acreage	45				
Flood Acreage	26,000				
Total Irrigated Acreage	27,211				

ANNUAL WATER USE SURVEY: 1992

SEMINOLE COUNTY

Total Population 305,872
 Total Land Area 308 mi²

St. Johns River Water Management DistrictPopulation

Total 305,872
 Public supply 291,527
 Self-supplied 14,345
 Per capita 162

Land Area (acres)

Total area 197,120 (308 mi²)
 Farmed 13,915
 Irrigated 6,048

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply	47.15	0.00	47.15	0.00
Domestic self-supply	2.32	0.00	2.32	0.00
Com/ind. self-supply	0.43	0.00	0.43	0.00
Agricultural irrigation	5.61	0.07	5.68	0.00
Recreational irrigation	1.62	0.38	2.00	0.00
Thermoelectric power	0.00	0.00	0.00	0.00
Abandoned artesian wells	8.78	0.00	8.78	0.00
Totals	65.91	0.45	66.36	0.00
Total Ground	65.91			
Total Surface		0.45		
County Total	66.36			

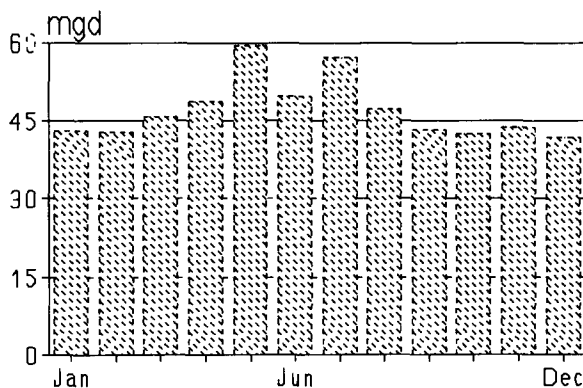


Figure A33. Seminole County monthly public supply water use, 1992

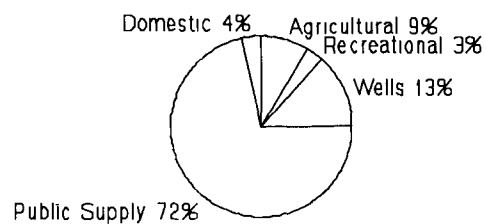


Figure A34. Seminole County—percentages, by category, of freshwater use, 1992. Commercial/industrial water use was less than 1%.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN SEMINOLE COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Altamonte Springs, City of	Public supply	36,380	6.65	Floridan aquifer	0.00	
Casselberry, City of	Public supply	42,626	5.97	Floridan aquifer	0.00	
Indian Creek, Seminole Pines	Public supply	300	0.04	Floridan aquifer	0.00	
Lake Harney Water Assoc.	Public supply	460	0.03	Floridan aquifer	0.00	
Lake Mary, City of	Public supply	6,426	1.35	Floridan aquifer	0.00	
Longwood, City of	Public supply	13,312	1.97	Floridan aquifer	0.00	
Luthern Haven Water System	Public supply	360	0.04	Floridan aquifer	0.00	
Mullet Lake Water Assoc.	Public supply	684	0.04	Floridan aquifer	0.00	
Oviedo, City of	Public supply	15,267	2.02	Floridan aquifer	0.00	
Palm Ventures MHP	Public supply	1,423	0.23	Floridan aquifer	0.00	
Sanford, City of	Public supply	39,835	5.31	Floridan aquifer	0.00	
Sanlando Utilities	Public supply	46,632	9.11	Floridan aquifer	0.00	
Seminole County Water & Sewer	Public supply	46,920	8.95	Floridan aquifer	0.00	
Southern States Utilities	Public supply	8,450	1.25	Floridan aquifer	0.00	
Utilities Inc. of Florida	Public supply	9,100	0.85	Floridan aquifer	0.00	
Winter Springs, City of	Public supply	23,352	3.34	Floridan aquifer	0.00	
Total Public Supply		291,527	47.15		0.00	
Deep South processing plant	Industrial		0.27	Floridan aquifer	0.00	
I-4 Industrial Park	Industrial		0.10	Floridan aquifer	0.00	
United Technology (Stromberg)	Industrial		0.03	Floridan aquifer	0.00	
Iron Bridge Fac.	Institutional		0.03	Floridan aquifer	0.00	
Total Commercial/Industrial			0.43		0.00	

Note: mgd = million gallons per day
MHP = mobile home park

SEMINOLE COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	300	250	0.17	0.00	0.17
Carrots	0	0	0.00	0.00	0.00
Cucumbers	400	320	0.09	0.00	0.09
Peppers	0	0	0.00	0.00	0.00
Potatoes	450	450	0.50	0.00	0.50
Tomatoes	0	0	0.00	0.00	0.00
Sweet corn	15	15	0.04	0.00	0.04
Watercress	0	0	0.00	0.00	0.00
Misc. vegetables	560	530	0.27	0.00	0.27
Fruit Crops					
Blueberries	5	5	0.01	0.00	0.01
Citrus	1,024	1,024	1.55	0.00	1.55
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	40	40	0.03	0.00	0.03
Misc. fruit	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
Misc. grains	10	10	0.01	0.00	0.01
Ornamentals and Grasses					
Ferns	20	20	0.04	0.00	0.04
Flowers and foliage	560	560	0.79	0.00	0.79
Woody ornamentals	160	160	0.34	0.07	0.41
Improved pasture	7,000	490	0.41	0.00	0.41
Sod	320	320	0.30	0.00	0.30
Miscellaneous					
Livestock	0	0	0.99	0.00	0.99
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	10,904	4,234	5.61	0.07	5.68
Turf grass (golf)	2,875	1,678	1.47	0.37	1.84
Turf grass (other)	136	136	0.15	0.01	0.16
Recreational Total	3,011	1,814	1.62	0.38	2.00
Sprinkler Acreage	4,042				
Low Pressure Acreage	356				
Flood Acreage	1,650				
Total Irrigated Acreage	6,048				

ANNUAL WATER USE SURVEY: 1992

VOLUSIA COUNTY

Total Population 383,983
 Total Land Area 1,106 mi²

St. Johns River Water Management DistrictPopulation

Total 383,983
 Public supply 338,191
 Self-supplied 45,792
 Per capita 131

Land Area (acres)

Total area 707,840 (1,106 mi²)
 Farmed 15,851
 Irrigated 11,849

1992 Water Withdrawals (mgd) by Category

	Ground	Fresh Water Surface	Total	Saline Water Surface
Public supply (1)	44.14	0.00	44.14	0.00
Domestic self-supply	6.00	0.00	6.00	0.00
Com/ind. self-supply	0.85	0.00	0.85	0.00
Agricultural irrigation	17.70	2.75	20.45	0.00
Recreational irrigation	1.27	0.45	1.72	0.00
Thermoelectric power	0.34	116.06	116.40	0.00
Abandoned artesian wells	0.96	0.00	0.96	0.00
Totals	71.26	119.26	190.52	0.00
Total Ground	71.26			
Total Surface		119.26		
County Total		190.52		

(1) Includes slightly saline water withdrawn (250 to 1,000 mg/L chlorides) and treated through reverse osmosis for public supply use.

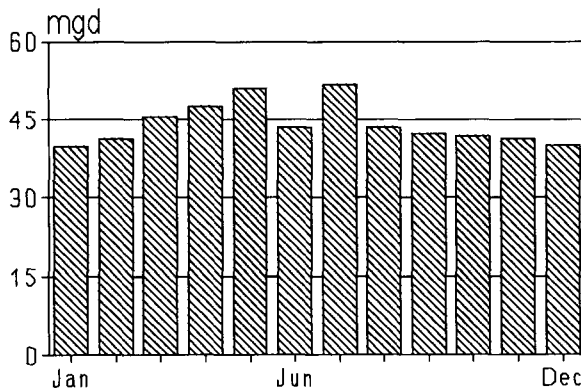


Figure A35. Volusia County monthly public supply water use, 1992

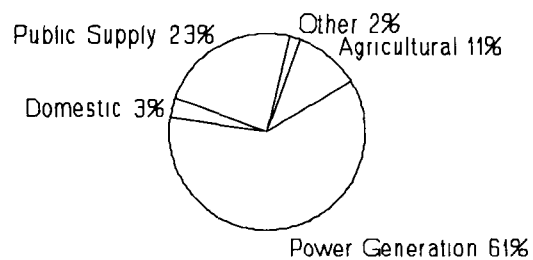


Figure A36. Volusia County—percentages, by category, of freshwater use, 1992. *Other* includes commercial/industrial, recreational, and abandoned artesian well water use.

ANNUAL WATER USE SURVEY: 1992

1992 WATER USERS IN VOLUSIA COUNTY

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Cassadaga Water Assoc.	Public supply	281	0.02	Floridan aquifer	0.00	
Daytona Beach, City of	Public supply	82,204	12.21	Floridan aquifer	0.00	
De Land, City of	Public supply	39,335	4.02	Floridan aquifer	0.00	
Edgewater, City of	Public supply	17,100	1.61	Floridan aquifer	0.00	
Hacienda Del Rio	Public supply	775	0.07	Floridan aquifer	0.00	
Halifax Plantation	Public supply	232	0.03	Floridan aquifer	0.00	
Highland Country Estates	Public supply	722	0.02	Floridan aquifer	0.00	
Holly Hill, City of	Public supply	11,198	1.28	Floridan aquifer	0.00	
John Knox Village	Public supply	790	0.18	Floridan aquifer	0.00	
Kingston Shores Water Assoc.	Public supply	250	0.03	Floridan aquifer and reverse osmosis (R/O)	0.00	
Lake Beresford Water Assoc.	Public supply	1,023	0.17	Floridan aquifer	0.00	
Lake Helen, City of	Public supply	2,374	0.23	Floridan aquifer	0.00	
New Smyrna Beach, City of	Public supply	24,126	4.01	Floridan aquifer	0.00	
Orange City Country Village	Public supply	1,367	0.17	Floridan aquifer	0.00	
Orange City	Public supply	5,734	0.76	Floridan aquifer	0.00	
Ormond Beach, City of	Public supply	36,900	4.62	Floridan aquifer	0.00	
Pierson, Town of	Public supply	1,179	0.10	Floridan aquifer	0.00	
Port Orange, City of	Public supply	44,913	4.93	Floridan aquifer	0.00	
South Water Front Park	Public supply	749	0.03	Floridan aquifer and R/O	0.00	
SSU, Deltona Utilities	Public supply	56,397	8.60	Floridan aquifer	0.00	
SSU, Sugar Mill	Public supply	1,422	0.13	Floridan aquifer	0.00	
Terra Mar Village Water & Sewer	Public supply	200	0.01	Floridan aquifer	0.00	
Tomoka View Water Works	Public supply	413	0.06	Floridan aquifer	0.00	
Tymber Creek Utilities	Public supply	875	0.10	Floridan aquifer	0.00	
Volusia County Utilities	Public supply	7,632	0.75	Floridan aquifer	0.00	
Total Public Supply		338,191	44.14		0.00	
Ardmore Farms	Industrial		0.14	Floridan aquifer	0.00	
Harmac Manufacturing Co.	Industrial		0.01	Floridan aquifer	0.00	
Sherwood Medical Man. Co.	Industrial		0.20	Floridan aquifer	0.00	
T.G. Lee, Orange City	Industrial		0.05	Floridan aquifer	0.00	

1992 WATER USERS IN VOLUSIA COUNTY—Continued

User Utility/Facility	Use Type	Population Served	Ground Water (mgd)	Withdrawal Source	Surface Water (mgd)	Withdrawal Source
Florida DNR, state park fac.	Institutional		0.01	Floridan aquifer	0.00	
Florida DOC, Tomoka state fac.	Institutional		0.22	Floridan aquifer	0.00	
Florida DOT, I-95 rest fac.	Institutional		0.01	Floridan aquifer	0.00	
Kampers Kove KOA	Institutional		0.03	Floridan aquifer	0.00	
Volusia County gov. complex	Institutional		0.18	Floridan aquifer	0.00	
Total Commercial/Industrial			0.85		0.00	
Florida Power & Light, Sanford	Power generation		0.23		2.37	St. Johns River
Florida Power Corp., Lake Monroe	Power generation		0.09		113.69	Lake Monroe
Florida Power Corp., DeBary	Power generation		0.02	Floridan aquifer	0.00	
Total Power Generation			0.34		116.06	

Note: mgd = million gallons per day

ANNUAL WATER USE SURVEY: 1992

VOLUSIA COUNTY ACREAGE AND WATER USE BY CROP FOR 1992

	Total Acres		Water Use (mgd)		
	Farmed	Irrigated	Ground	Surface	Total
Vegetable Crops					
Cabbage	295	295	0.25	0.00	0.25
Carrots	0	0	0.00	0.00	0.00
Cucumbers	300	300	0.09	0.00	0.09
Peppers	80	80	0.08	0.00	0.08
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
Misc. vegetables	660	140	0.06	0.00	0.06
Fruit Crops					
Blueberries	25	25	0.03	0.00	0.03
Citrus	2,796	1,326	1.68	0.13	1.81
Grapes	14	14	0.01	0.00	0.01
Peaches	0	0	0.00	0.00	0.00
Pecans	25	10	0.01	0.00	0.01
Strawberries	0	0	0.00	0.00	0.00
Watermelons	0	0	0.00	0.00	0.00
Misc. fruit	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
Misc. grains	0	0	0.00	0.00	0.00
Ornamentals and Grasses					
Ferns	6,060	5,460	12.58	2.58	15.16
Flowers and foliage	320	320	0.43	0.00	0.43
Woody ornamentals	95	95	0.20	0.03	0.23
Improved pasture	0	0	0.00	0.00	0.00
Sod	1,976	1,976	1.54	0.00	1.54
Miscellaneous					
Livestock	0	0	0.75	0.00	0.75
Fish farming	0	0	0.00	0.00	0.00
Agricultural Total	12,646	10,041	17.70	2.75	20.45
Turf grass (golf)	2,960	1,563	1.16	0.37	1.53
Turf grass (other)	245	245	0.11	0.08	0.19
Recreational Total	3,205	1,808	1.27	0.45	1.72
Sprinkler Acreage	9,683				
Low Pressure Acreage	1,351				
Flood Acreage	815				
Total Irrigated Acreage	11,849				



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