

Technical Fact Sheet SJ2011-FS1

2010 Survey of Estimated Annual Water Use
for St. Johns River Water Management District



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Introduction

St. Johns River Water Management District (SJRWMD) has published annual water use data since 1978. These “annual water use surveys” assess estimated total water use, with data arranged by source, category of use, and county. Estimated amounts are based on best available data at the time of publication. Published reports can be found on the SJRWMD website, floridaswater.com. In publishing the annual data, SJRWMD cooperates with U.S. Geological Survey (USGS) that compiles national estimates of water use on 5-year intervals.

Geographic Survey Area

SJRWMD includes all or part of 18 counties, encompassing 12,300 square miles in northeast and east-central Florida and representing 4.7 million people, or approximately 25% of the state’s population. The following water basins are located within SJRWMD: the entire St. Johns River and Nassau River basins, the Indian River Lagoon and Northern Coastal basins, and Florida’s portion of the St. Marys River Basin.

Area Rainfall Statistics

Mean annual rainfall within SJRWMD for the 10-year period January 2001–December 2010 was 50.43 inches. Annual rainfall within SJRWMD for 2010 was 41.51 inches. The driest year of the 10-year period was 2006, with 36.23 inches, 28% below normal. The wettest year of the 10-year period was 2005, with 59.82 inches, 19% above normal.

From 2006 to 2010, average annual rainfall districtwide varied by nearly 17 inches (from 52.80 to 36.23 inches). Above-average annual rainfall occurred in 2008 (52.80 inches) and 2009 (52.57 inches), while below-average rainfall occurred in 2006 (36.23 inches), 2007 (44.29 inches), and 2010 (41.51 inches).

Through evapotranspiration, nearly 70% of rainfall within SJRWMD is returned to the atmosphere, while the remaining 30% becomes runoff to surface waters or recharge to aquifers (Fernald and Purdum 1998).

Data Sources and Methodology

SJRWMD is not the only source of water use data for the reporting of 2010 Survey of Estimated Annual Water Use. Water use data were obtained from the following sources: raw water withdrawal data submitted to SJRWMD on or before March 28, 2011 (via EN-50 forms), and treated water data from Florida Department of Environmental Protection (DEP) monthly operating reports (MORs). Reuse water data were derived from the 2010 Reuse Inventory report (DEP 2010). Rainfall by county was obtained from SJRWMD’s radar rainfall data via the SJRWMD Oracle database. In this 2010 survey, the estimated amounts are based on best available data at the time of publication. SJRWMD attempts to compile the best available data, but it cannot guarantee that contributors use consistent measurement techniques or quality control standards. In most cases, very limited quality assurance of the data is conducted by SJRWMD and the information is reported as received. If water use information is not available from any other source, SJRWMD uses professional analyses of historical data and trends to

estimate values. Water use statistics are subject to change as updated information becomes available. Changes in methodologies may make year-to-year data comparisons inappropriate.



Data Collection Terminology

Freshwater. Water with concentration of total dissolved solids (TDS) less than 1,000 milligrams per liter (mg/L) is considered freshwater and may be withdrawn from either groundwater or surface water sources. This definition is based on the one provided by USGS, in Water Supply Paper 2254 (Hem 1985), and has been used for reporting consistency with USGS. This definition differs from that used by SJRWMD in determining if a source is “brackish” when identifying an alternative water supply source. Source waters that do not always meet federal and state drinking water standards for chloride, sulfate, or total dissolved solids are generally identified by SJRWMD as “brackish” waters. SJRWMD may list brackish waters as alternative water supply sources in some areas.

Saline water. Water with more than 1,000 mg/L TDS is considered saline. All water reported as saline is withdrawn from surface water or surficial aquifer sources.

Reuse. Reclaimed water is treated wastewater that has received at least secondary treatment and basic disinfection. It may be distributed for nonpotable uses that achieve a water resource benefit (SJRWMD 2006).

Data Source/Methodology: SJRWMD's methodology is based on quantities of reuse water reported by DEP in *2010 Reuse Inventory* (DEP 2010). DEP regards several applications of reclaimed water as reuse that SJRWMD does not. Therefore, it is common for SJRWMD to report beneficial reuse quantities lower than that reported by DEP. SJRWMD requires that water be applied in such a way as to achieve a water resource benefit before qualifying as reuse. In particular, SJRWMD requires that reuse must take the place of an existing or potential use of higher-quality water or be used to grow useful crops; restore or maintain adopted minimum flows and/or levels of a river, lake, or wetland; or effectively recharge a useable aquifer. If the water applied does not meet one of these requirements, it is considered by SJRWMD as disposal. Types of reclaimed water considered as reuse by DEP but disposal by SJRWMD are as follows: underground injection; absorption fields and rapid infiltration basins located in discharge areas; surface water augmentation where not required; spray fields; artificial wetlands.

Florida population. This is the estimated number of permanent residents living within Florida.

Data Source/Methodology: The source for population is the April 15, 2011, *Florida Population: Census Summary 2010* (BEBR 2011).

SJRWMD population. This is the estimated number of permanent residents living within the district's 18-county region.

Data Source/Methodology: Population estimates are intended for planning purposes only; 2010 county population estimates are from the April 15, 2011, *Florida Population: Census Summary 2010* (BEBR 2011). For counties located within more than one water management district, the amount of the 2010 estimates within SJRWMD is derived by estimating SJRWMD's portion of the 2000 U.S. Census population at the block level.

Water use category. Classification of water use is based on one of the following six categories: (1) public supply, (2) domestic self-supply and small public supply systems, (3) agricultural irrigation self-supply, (4) commercial/industrial/institutional self-supply, (5) recreational self-supply, (6) thermoelectric power generation self-supply.

Public supply. Water withdrawn, treated, and delivered to service areas within SJRWMD by privately and publicly owned water supply utilities (or systems) is defined as public supply. This encompasses both residential and nonresidential uses by utilities that withdraw more than 0.10 million gallons per day (mgd) from groundwater or surface water sources.

Data Source/Methodology: Water use data in this category were obtained from MORs submitted to DEP, representing reporting by approximately 98% of the public supply utilities for which SJRWMD had consumptive use permits in effect during 2010 for quantities greater than 0.10 mgd. (Note: Water for use by the city of Cocoa, Brevard County, is withdrawn from Orange County.)

Domestic self-supply and small public supply systems. Domestic self-supply water use refers primarily to water use by individuals not served by a public supply water utility (e.g., a residence with a private well). The population associated with small public supply utility systems (average daily flow under 0.10 mgd) is also included in this category. In most cases, small public supply utility systems need not report water use data to SJRWMD.

Data Source/Methodology: Water use statistics in this category are estimated from residential population and residential public supply per capita water use rates at the county level. Residential water use for each public supply utility is calculated by multiplying the total public supply water use by the percent of the total water use allocated to residential use, as authorized in the SJRWMD-issued consumptive use permit. The resulting water use values for each public supply utility are then summed to the county level and divided by the total county permanent/residential public supply population to obtain the county-level residential per capita value. The residential per capita value is multiplied by the domestic self-supply population, resulting in the estimated amount of water use for this category. The domestic self-supply population for each county is obtained by subtracting the total number of people served by public supply utilities in a county from the total number of permanent residents living in the county. For counties with a population of less than 5% within the jurisdiction of SJRWMD or that have no public supply water use, SJRWMD's average residential public supply per capita figure of 105 gallons per day (gpd) was used as a best estimate. For the purpose of reporting, all domestic self-supply water is assumed to be groundwater.

Commercial/industrial/institutional self-supply. This is water use for commercial, industrial, or institutional purposes not provided by public supply systems. It includes businesses, government facilities, military installations, schools, prisons, hospitals, and industrial uses such as mining, processing, and manufacturing. (Note: For this report, surface water use by mining operations in the commercial/industrial/institutional self-supply category represents 5% of surface water use, to account for the loss of water in mining products. The remaining surface water is assumed to be recirculated in the mining process and, therefore, is considered nonconsumptive. Nonconsumptive is defined by SJRWMD as any use of water that does not reduce the supply from which it is withdrawn or diverted.)

Data Source/Methodology: Data in this category reflect water use information reported to SJRWMD by consumptive use permittees via EN-50 forms.

Thermoelectric power generation self-supply. This is water withdrawn from groundwater and surface water sources and used by power plants not supplied by public supply systems. (Note: This does not include water used for once-through cooling, which is considered nonconsumptive.)

Data Source/Methodology: Data in this category reflect water use information reported to SJRWMD by power plant operators via EN-50 forms or through SJRWMD survey.

Agricultural irrigation self-supply. This is water withdrawn from groundwater and surface water sources for use in supplemental crop irrigation.

Data Source/Methodology: Water use for irrigation is assessed by crop type due to crop-specific consumption requirements. Monthly water use estimates are based on a modified Blaney-Criddle model (for calculating evapotranspiration). For running a modified Blaney-Criddle model, climate data are obtained from the National Oceanic and Atmospheric Administration and the Florida Climate Center. In places where climate data are missing, substitute data are obtained from historical (or average) values or data from the next closest weather station. For those areas where Benchmark Farms Program (BMF) crops are significantly represented, such as in Indian

River, Lake, Putnam, St. Johns, and Volusia counties, crop-specific data are substituted for modified Blaney-Criddle data. Crop type and acreage data are provided through SJRWMD surveys and geographic information system (GIS)-based crop layers or through data from the University of Florida–Institute of Food and Agricultural Sciences, county agricultural extension agents, and U.S. Department of Agriculture surveys.

Recreational self-supply. This is water withdrawn from groundwater and surface water sources for use in golf course irrigation, irrigation of urban landscapes or athletic fields, water-based recreational areas, and ornamental or decorative purposes not supplied by public supply systems.

Data Source/Methodology: Data in this category reflect water use information reported to SJRWMD by consumptive use permittees via EN-50 forms or through SJRWMD survey.

2010 Estimated Water Use by Category

Water use is estimated for water withdrawals from fresh, saline, and reuse water sources, expressed in average million gallons per day (mgd) unless otherwise noted. In this 2010 survey, the estimated amounts are based on best available data at the time of publication. Water withdrawal information is reported for six categories of use: (1) public supply, (2) domestic self-supply and small public supply systems, (3) commercial/industrial/institutional self-supply, (4) agricultural irrigation self-supply, (5) recreational irrigation self-supply, and (6) thermoelectric power generation self-supply. A reporting threshold of 0.10 mgd of average daily flow by individual water users was used for all water use categories, excluding agricultural irrigation, in the reporting of consumptive use for 2010. Consumptive use is defined by SJRWMD as any use of water that reduces the supply from which it is withdrawn or diverted.

Rainfall and water use totals within SJRWMD are shown in Table 1, with figures tabulated by county. Table 2 shows total water use by category, and Table 3 shows water use by county and category. Total consumptive use in SJRWMD, including fresh, saline, and reuse (reclaimed) water, was 1,334.47 mgd. Of the total consumptive amount, 1,187.39 mgd was freshwater and 2.78 mgd was saline water (Tables 1–3). In 2010, the largest consumptive use of freshwater within SJRWMD was public supply, which totaled 537.24 mgd, or 45% of total consumptive freshwater use (Table 3, Figure 1). Next was agricultural irrigation, which used 413.23 mgd, or 35% of total consumptive freshwater within SJRWMD (Figure 1). Reuse water accounted for 144.30 mgd and was reported under the commercial/industrial/institutional, agricultural irrigation, and recreational categories of water use (Table 2).

Public Supply

The public supply water use category consists of water supplied to homes and industries by both privately and publicly owned water supply utilities. It includes both residential and nonresidential uses. Utilities that withdraw 0.10 mgd or more from groundwater or surface water sources are included in this category.

In 2010, 191 public supply utilities (or systems) served an estimated 4,079,938 people, or 87% of the SJRWMD total population (see Table 4 note). Total water use, from both groundwater and surface water sources, was 537.24 mgd (Table 2, Figure 2), nearly 6% below the average annual use of 569.72 mgd for the 10-year period. Average gross per capita use, based on the population served by public supply, was 132 gallons per capita per day (gpcd). Public supply water use typically fluctuates during the year in response to seasonal rainfall and temperature variations.

Water use tends to increase during the warm season (April–October), when outdoor use is highest. The monthly average gross per capita also fluctuates throughout the year in response to these variations. In 2010, water use ranged from a low of 437.99 mgd (107 gpcd) in February to a high of 594.27 mgd (146 gpcd) in May (Figure 2).

Of the total water withdrawn for public supply use, 97% was groundwater, of which 89% was withdrawn from the Floridan aquifer; the remaining 11% was withdrawn from the intermediate and surficial aquifers.

Counties with the largest public supply water use during 2010 were Duval County (122.14 mgd, serving 821,050 people; 149 gpcd) and Orange County (111.76 mgd, serving 775,067 people; 144 gpcd) (Table 3, Figures 3 and 4). These counties combined represented 44% of total public supply water use for 39% of the public supply population. (Note: There is no public supply water use in the portions of Okeechobee and Osceola counties within SJRWMD.)

Domestic Self-Supply

The domestic self-supply category includes water withdrawn from individual domestic wells. Water use for domestic self-supply was not inventoried, so water use is estimated at a county level based on population not served by public supply and residential per capita rates for the public supply utilities within the county. For the purpose of reporting, all domestic self-supply water was assumed to be groundwater.

In 2010, an estimated 622,185 people used 67.76 mgd of domestic self-supply water, or 6% of total freshwater used in SJRWMD (Figure 1). Marion County had the largest self-supplied population, with 90,147 people. Orange County had the second-largest population, 86,119, followed by Putnam County, 60,978 (Table 4).

Domestic self-supply water use has fluctuated over the 10-year period, reaching a low of 64.40 mgd in 2009 to a high of 72.91 mgd in both 2004 and 2006. The average for the 10-year period was 69.53 mgd; water use in 2010 was about 3% below average. Fluctuations in water use are attributed to changes in methodologies over the years. For each county, the residential public supply per capita was calculated by multiplying the percent of the total public supply water use allocated to residential use by the total public supply water use. In 2010, average residential public supply per capita within SJRWMD was 105 gpcd. This average figure was used to estimate the total for domestic self-supplied water in Bradford, Okeechobee, and Osceola counties.

Commercial/Industrial/Institutional Self-Supply

The commercial/industrial/institutional self-supply use category consists of larger commercial, industrial, and institutional users not served by public supply utilities that withdraw more than 0.10 mgd. The commercial and institutional categories include businesses and institutions, such as government facilities, military installations, schools, prisons, and hospitals. The industrial category includes mining, processing, and manufacturing facilities; it does not include water used for power generation by thermoelectric power plants. Surface water use by mining operations in the commercial/industrial/institutional self-supply category represents 5% of surface water use, to account for the loss of water in mining products. The remaining surface water is assumed to be recirculated in the mining process and, therefore, is considered nonconsumptive. There were 93 commercial, industrial, and institutional users reported in 2010.

Total freshwater use in the commercial/industrial/institutional category was 97.36 mgd, or 8% of total freshwater use (Table 2, Figure 1). Of this freshwater total, 71.22 mgd was groundwater and 26.14 mgd was surface water. Saline surface water accounted for 2.78 mgd, and reuse was 22.67 (Table 2).

Most of the freshwater withdrawn for commercial/industrial/institutional purposes supplied the pulp and paper industries in Duval, Nassau, and Putnam counties. Water use for pulp and paper production in 2010 included 42.59 mgd of fresh groundwater, 21.86 mgd of fresh surface water, and 0.97 mgd of saline surface water. The second-largest water user in this category was the mining industry, which accounted for 6.17 mgd of fresh groundwater and 1.13 mgd of fresh surface water. Pulp and paper production and mining accounted for a combined total of 71.74 mgd of freshwater, or 74% of the commercial/industrial/institutional freshwater use.

Commercial/industrial/institutional self-supply water use was highest in 2004 (154.83 mgd) and lowest in 2009 (95.50 mgd). The average for the 10-year period was 117.73 mgd; water use in 2010 was about 17% below the average. Commercial/industrial/institutional freshwater use in 2010 varied from a low of 87.66 mgd in November to a high of 124.12 mgd in January (Figure 5).

Agricultural Irrigation Self-Supply

The agricultural irrigation self-supply category consists of estimated water withdrawals from freshwater sources for supplemental crop irrigation. Estimates of the acreage planted in various crops are multiplied by estimates of the quantity of water per acre necessary to irrigate those crops. Water use for irrigation is assessed by crop, because crops have specific consumptive use requirements and suitable water quality.

Total consumptive use of freshwater for agricultural irrigation was estimated at 413.23 mgd, which is 35% of total freshwater use in SJRWMD during 2010 (Table 2, Figure 1). Reuse water accounted for 7.65 mgd of agricultural irrigation use. Although both groundwater and surface water were used for agricultural irrigation, use by water source has not been defined for this report. Agricultural irrigation allocations with SJRWMD permits in effect during 2010 indicated that 66% of agricultural irrigation use was groundwater and 34% was surface water. For the purpose of reporting, it was assumed that groundwater for agricultural irrigation originated from the Upper and Lower Floridan aquifers, because of available quantities.

It is estimated that of the total 179,047 acres irrigated, 72,021 acres were irrigated by low-pressure/low-volume systems; 65,440 acres were irrigated by flood systems; 41,586 acres were irrigated by sprinkler systems. Agricultural irrigation water use in 2010 had the largest seasonal fluctuation than any other water use category, reaching a low of 55.74 mgd in March to a high of 712.18 mgd in July (Figure 6). These fluctuations are typical of irrigation water use and inversely correlated to rainfall.

By county, the largest water use for agricultural irrigation occurred in Indian River County, with 112.22 mgd of freshwater, accounting for 27% of total agricultural irrigation water use (Table 3). Based on agricultural irrigation allocations with permits in effect during 2010, Indian River County is permitted to use 66% of its agricultural irrigation from surface water sources and 34%

from groundwater sources. This would imply a surface water use of 74.07 mgd and an estimated groundwater use of 38.15 mgd.

The largest estimated water use for a single crop was for improved pasture, which accounted for 153.41 mgd, or 37% of total agricultural irrigation water use. Citrus irrigation accounted for 94.65 mgd, or 23% of total agricultural irrigation water use (Figure 7).



Recreational Irrigation Self-Supply

The recreational irrigation self-supply category includes water used to irrigate turf grass for golf courses, urban landscapes, athletic fields, water-based recreational areas, or for ornamental or decorative purposes. Water use in the recreational irrigation category totaled 63.71 mgd, about 5% of total freshwater use in 2010. Reuse water accounted for 113.98 mgd of recreational irrigation use. By county (Table 3), the largest freshwater use for recreational irrigation occurred in Indian River County (14.70 mgd), followed by Lake County (10.74 mgd), and Brevard County (7.67 mgd).

During the 10-year period (January 2001–December 2010), recreational irrigation freshwater use was highest in 2010 (63.71 mgd) and lowest in 2002 (39.83 mgd), with 2002 as one of the wettest years. Average water use for the 10-year period was 52.17 mgd. Recreational irrigation water use was 22% above the 10-year average, because of the inclusion of other recreational water uses within this category. (Historically, recreational irrigation water use has only included water for turf grass irrigation at golf courses.) Recreational irrigation freshwater use in 2010 varied from a low of 20.87 mgd in February to a high of 109.94 mgd in July (Figure 8).

Thermoelectric Power Generation Self-Supply

The thermoelectric power generation self-supply category consists of water withdrawn from groundwater and surface water sources by power plants, excluding reuse water or water used for once-through cooling, which is considered nonconsumptive use. Estimates for 2010 reflect consumptive use data for 15 self-supplied thermoelectric power plants, totaling 8.09 mgd (Figure 1). The largest amount of freshwater use within this category (Table 3) occurred in Duval County (5.86 mgd).

Thermoelectric power generation freshwater use in 2010 fluctuated from a low of 6.48 mgd in March to a high of 9.22 mgd in June (Figure 9). Fluctuations in water use are related to power plant shutdowns for maintenance or increased power demands during periods of extremely high or low temperatures.

Summary of 2010 Estimated Water Use

Since 1978, when SJRWMD published its first annual survey, there has been a gradual increase in freshwater use. Total public supply water use has increased by nearly 130% (from 233.84 mgd to 537.24 mgd) during this 32-year period, while total population served by public supply has increased by 179% (from 1,460,900 to 4,079,938). However, between 2006 and 2010, public supply water use decreased by 15% (from 630.45 mgd to 537.24 mgd), while population served by public supply increased by 3% (from 3,977,247 to 4,079,938). Decreases in public supply water use are attributed to fluctuations in rainfall and conservation. For example, during the 5-year period extending January 2006–December 2010, average annual rainfall throughout SJRWMD varied by nearly 17 inches (from 52.80 inches in 2008 to 36.23 inches in 2006). Above-average annual rainfall occurred in 2008 (52.80 inches) and 2009 (52.57 inches), while below-average rainfall occurred in 2006 (36.23 inches), 2007 (44.29 inches), and 2010 (41.51 inches). Meanwhile, improved irrigation management by growers has brought a decrease in agricultural irrigation self-supply water use. In general, the trend in agricultural irrigation is static if not declining within SJRWMD. Water use amounts reported in this 2010 survey are estimated based on best available data at the time of publication. For additional information, please visit floridaswater.com or contact: David Hornsby, Ph.D., at (386) 312-2371 or dhornsby@sjrwmd.com.



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Table 1. Total water use (mgd) and rainfall by county in SJRWMD, 2010

County	Freshwater (mgd)	Saline Water (mgd)	Reuse (mgd)	Total Water Use (mgd)	Rainfall (inches)
Alachua	29.23	0.00	3.13	32.36	43.17
Baker	4.73	0.00	0.00	4.73	41.62
Bradford	0.87	0.00	0.00	0.87	40.15
Brevard	137.33	0.00	22.90	160.23	38.09
Clay	23.66	0.00	4.83	28.49	38.66
Duval	160.42	0.00	9.50	169.92	35.36
Flagler	23.42	1.81	4.76	29.99	36.17
Indian River	142.54	0.00	5.72	148.26	42.94
Lake	104.18	0.00	9.23	113.41	46.14
Marion	45.02	0.00	3.97	48.99	49.70
Nassau	50.49	0.97	0.91	52.37	37.87
Okeechobee	17.17	0.00	0.00	17.17	42.22
Orange	144.64	0.00	34.78	179.42	47.99
Osceola	23.41	0.00	0.00	23.41	46.52
Putnam	56.91	0.00	0.47	57.38	38.29
St. Johns	44.18	0.00	3.64	47.82	34.66
Seminole	69.14	0.00	18.91	88.05	46.32
Volusia	110.05	0.00	21.55	131.60	41.31
Total	1,187.39	2.78	144.30	1,334.47	41.51

Note: Total water use is in million gallons per day (mgd).

Estimated amounts are based on best available data at the time of publication.

Source of domestic self-supply is assumed to be groundwater, and domestic self-supply is an estimate.

Table 2. Total water use (mgd) by category in SJRWMD, 2010

Category	Freshwater (mgd)	Saline Water (mgd)	Reuse (mgd)	Total Water Use (mgd)
Public supply	537.24	0.00	0.00	537.24
Domestic self-supply and small public supply systems	67.76	0.00	0.00	67.76
Commercial/industrial/institutional self-supply	97.36	2.78	22.67	122.81
Agricultural irrigation self-supply	413.23	0.00	7.65	420.88
Recreational self-supply	63.71	0.00	113.98	177.69
Thermoelectric power generation self-supply	8.09	0.00	0.00	8.09
Total	1,187.39	2.78	144.30	1,334.47

Note: Water use is in million gallons per day (mgd).

Source of domestic self-supply is assumed to be groundwater, and domestic self-supply is an estimate.

Estimated amounts are based on best available data at the time of publication.

Table 3. Total water use (mgd) by county and category in SJRWMD, 2010

County	Freshwater							Saline Water	Reuse (mgd)	All Water Use (mgd)
	Public Supply (mgd)	Domestic Self-Supply (mgd)	Commercial/Industrial/Institutional Fresh Water (mgd)	Agricultural Irrigation Self-Supply (mgd)	Recreational Self-Supply (mgd)	Thermoelectric Power Generation Self-Supply (mgd)	Total Freshwater (mgd)	Commercial/Industrial/Institutional Saline Water (mgd)		
Alachua	23.76	0.73	0.42	2.86	1.13	0.33	29.23	0.00	3.13	32.36
Baker	0.91	2.97	0.42	0.43	0.00	0.00	4.73	0.00	0.00	4.73
Bradford	0.46	0.09	0.23	0.09	0.00	0.00	0.87	0.00	0.00	0.87
Brevard	53.53	1.90	6.00	68.23	7.67	0.00	137.33	0.00	22.90	160.23
Clay	11.13	4.11	0.35	4.78	3.29	0.00	23.66	0.00	4.83	28.49
Duval	122.14	6.40	16.58	3.52	5.92	5.86	160.42	0.00	9.50	169.92
Flagler	8.70	2.09	0.00	11.30	1.33	0.00	23.42	1.81	4.76	29.99
Indian River	14.78	0.84	0.00	112.22	14.70	0.00	142.54	0.00	5.72	148.26
Lake	40.55	7.09	6.13	38.91	10.74	0.76	104.18	0.00	9.23	113.41
Marion	18.62	7.76	6.55	9.18	2.91	0.00	45.02	0.00	3.97	48.99
Nassau	7.41	6.87	31.78	1.47	2.96	0.00	50.49	0.97	0.91	52.37
Okeechobee	0.00	0.08	0.00	17.09	0.00	0.00	17.17	0.00	0.00	17.17
Orange	111.76	11.58	1.39	17.41	2.06	0.44	144.64	0.00	34.78	179.42
Osceola	0.00	0.10	0.00	23.31	0.00	0.00	23.41	0.00	0.00	23.41
Putnam	2.56	6.87	24.93	21.69	0.41	0.45	56.91	0.00	0.47	57.38
St. Johns	13.49	2.80	1.04	21.34	5.51	0.00	44.18	0.00	3.64	47.82
Seminole	54.97	1.71	0.00	10.68	1.78	0.00	69.14	0.00	18.91	88.05
Volusia	52.47	3.77	1.54	48.72	3.30	0.25	110.05	0.00	21.55	131.60
Total	537.24	67.76	97.36	413.23	63.71	8.09	1,187.39	2.78	144.30	1,334.47

Note: Water use is in million gallons per day (mgd).

Estimated amounts are based on best available data at the time of publication.

Source of domestic self-supply is assumed to be groundwater, and domestic self-supply is an estimate.

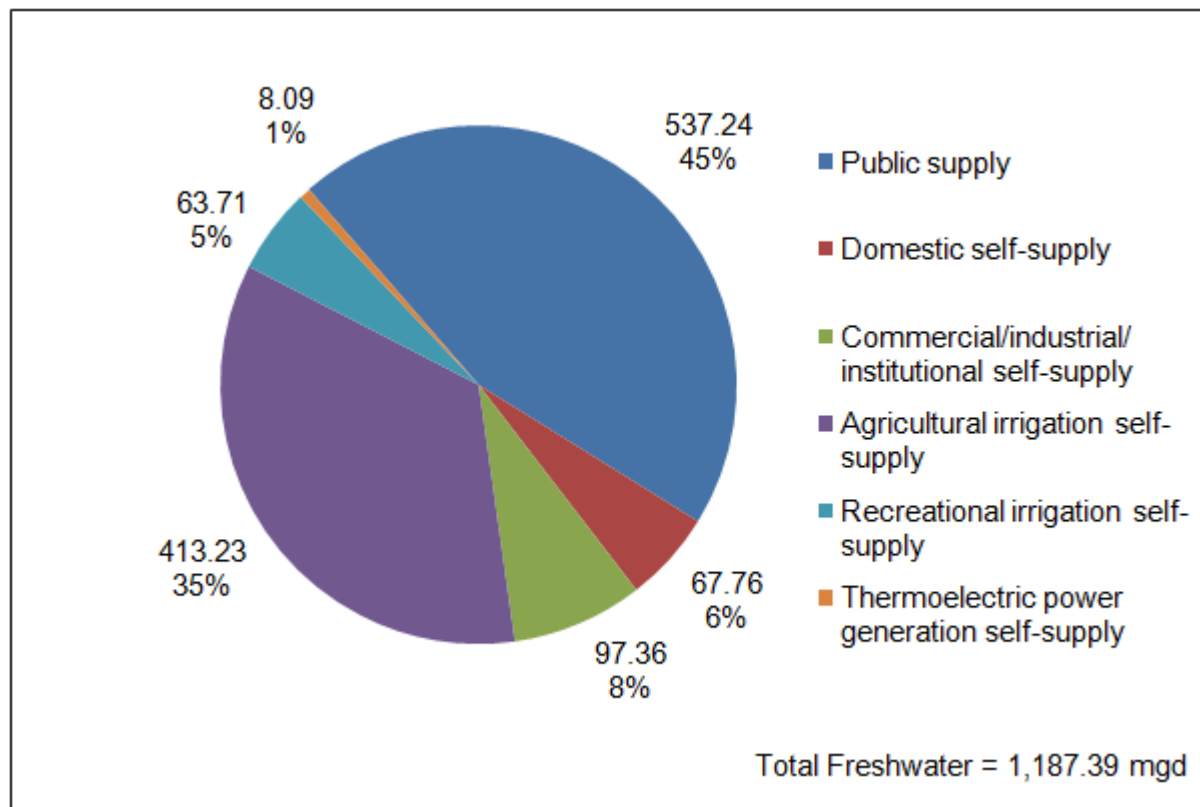


Figure 1. Total freshwater use (mgd), 2010

Note: Water use is in million gallons per day (mgd).

Estimated amounts are based on best available data at the time of publication.

Source of domestic self-supply is assumed to be groundwater, and domestic self-supply is an estimate.

Table 4. Population by county, 2010

County	County Population	Percentage of County Population in SJRWMD	SJRWMD Population	Public Supply Population	Domestic Self-Supply and Small Public Supply Systems Population
Alachua	247,336	79.5%	196,731	186,894	9,837
Baker	27,115	98.1%	26,597	5,053	21,544
Bradford	28,520	4.2%	1,209	326	883
Brevard	543,376	100.0%	543,376	516,207	27,169
Clay	190,865	100.0%	190,865	135,514	55,351
Duval	864,263	100.0%	864,263	821,050	43,213
Flagler	95,696	100.0%	95,696	76,557	19,139
Indian River	138,028	100.0%	138,028	120,084	17,944
Lake	297,052	99.8%	296,309	240,010	56,299
Marion	331,298	69.8%	231,147	141,000	90,147
Nassau	73,314	100.0%	73,314	35,924	37,390
Okeechobee	39,996	1.9%	748	0	748
Orange	1,145,956	75.2%	861,186	775,067	86,119
Osceola	268,685	0.4%	940	0	940
Putnam	74,364	100.0%	74,364	13,386	60,978
St. Johns	190,039	100.0%	190,039	152,031	38,008
Seminole	422,718	100.0%	422,718	405,809	16,909
Volusia	494,593	100.0%	494,593	455,026	39,567
Total	5,473,214		4,702,123	4,079,938	622,185

Notes:

Population estimates: *Florida Population: Census Summary 2010* (BEBR 2011)

Total Florida population in 2010 = 18,801,310

Percent of total Florida population within SJRWMD in 2010 = 25%

Percent of SJRWMD population served by public supply in 2010 = 87%

SJRWMD population is derived from the county population multiplied by the percentage of county population in SJRWMD. The percentage of county population, as presented, is rounded to the nearest tenth. Thus, in some cases, the presented SJRWMD population is slightly different from the product of the county population multiplied by the percentage of county population within SJRWMD.

The domestic self-supply category includes water withdrawn from individual domestic wells. Water use for domestic self-supply was not inventoried, so water use is estimated at a county level based on population not served by public supply and residential per capita rates for the public supply utilities within the county. Source of domestic self-supply is assumed to be groundwater, and domestic self-supply is an estimate.

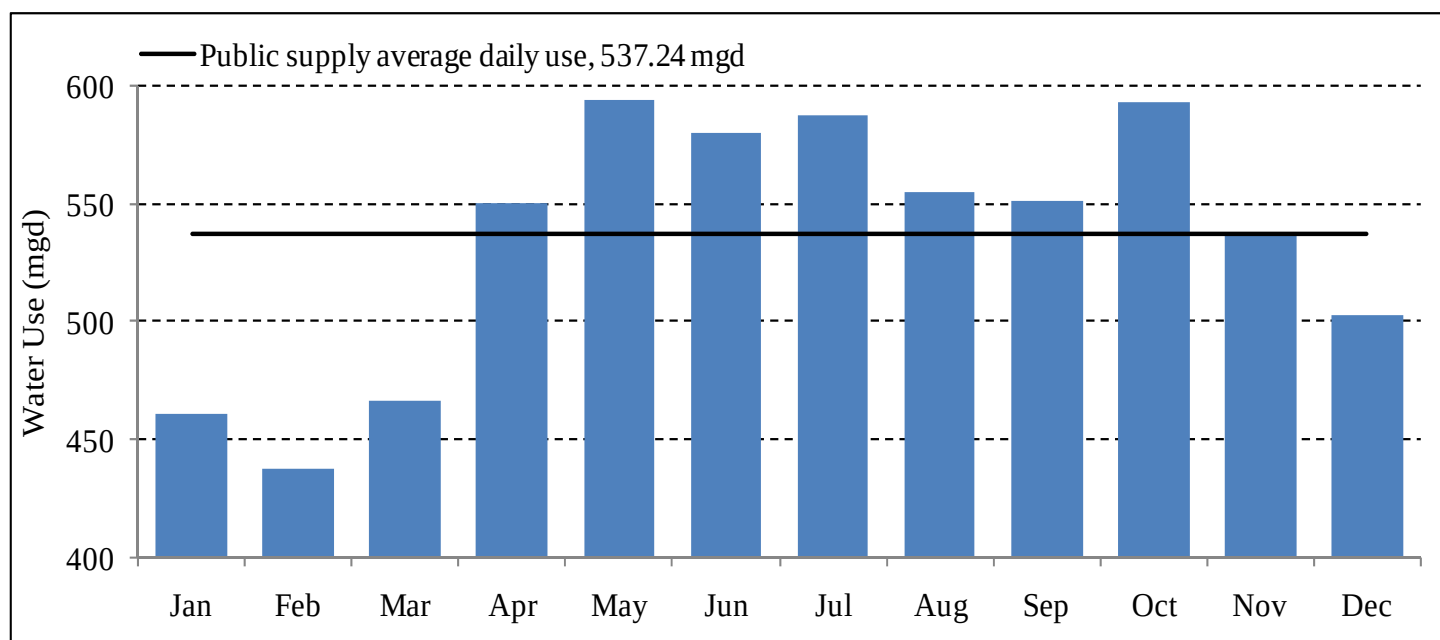


Figure 2. Average daily public supply water use (mgd) by month, 2010

Note: Water use is in million gallons per day (mgd).

Estimated amounts are based on best available data at the time of publication.

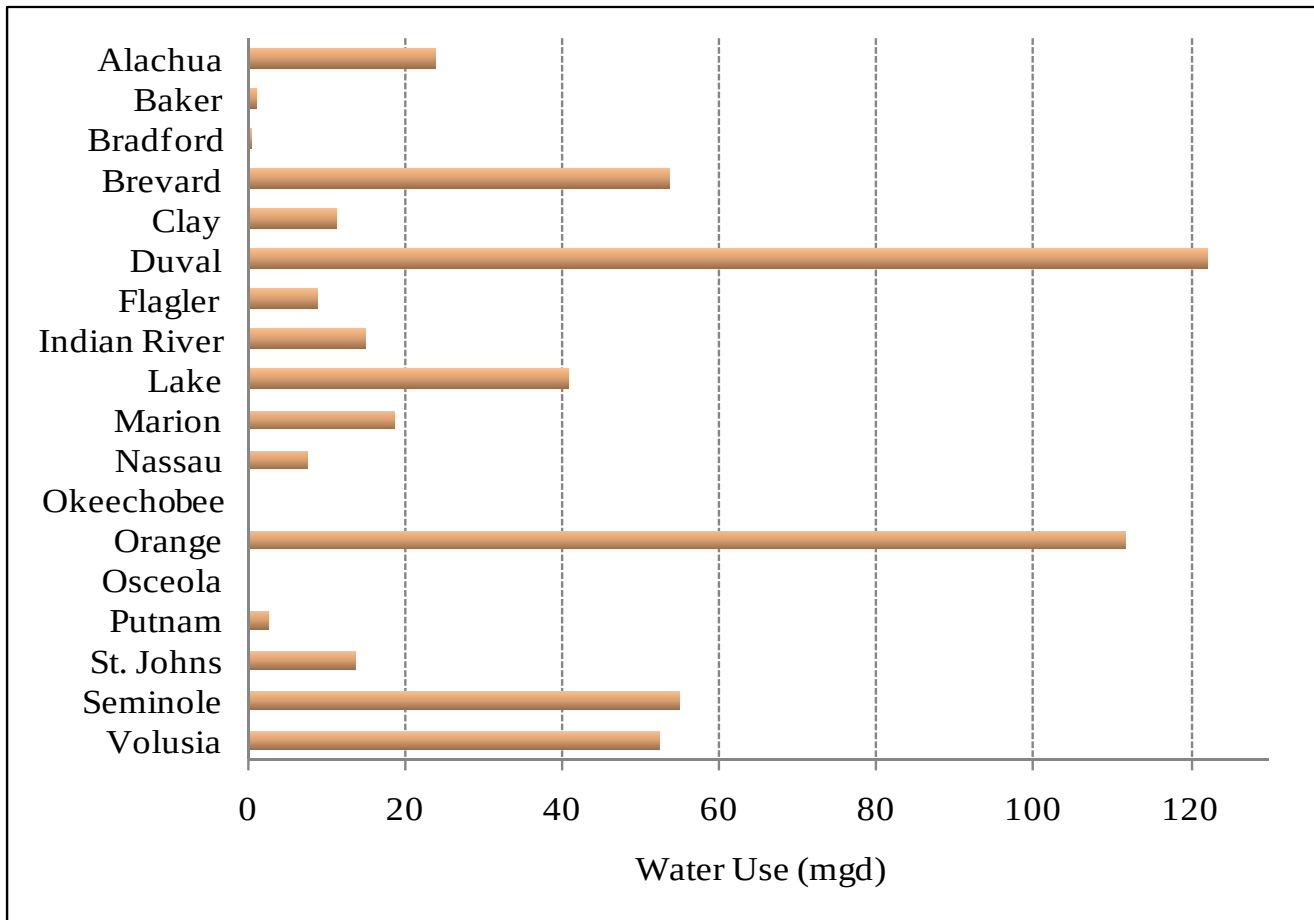


Figure 3. Freshwater use (mgd) for public supply in SJRWMD, 2010

Note: Water use is in million gallons per day (mgd).

Estimated amounts are based on best available data at the time of publication.

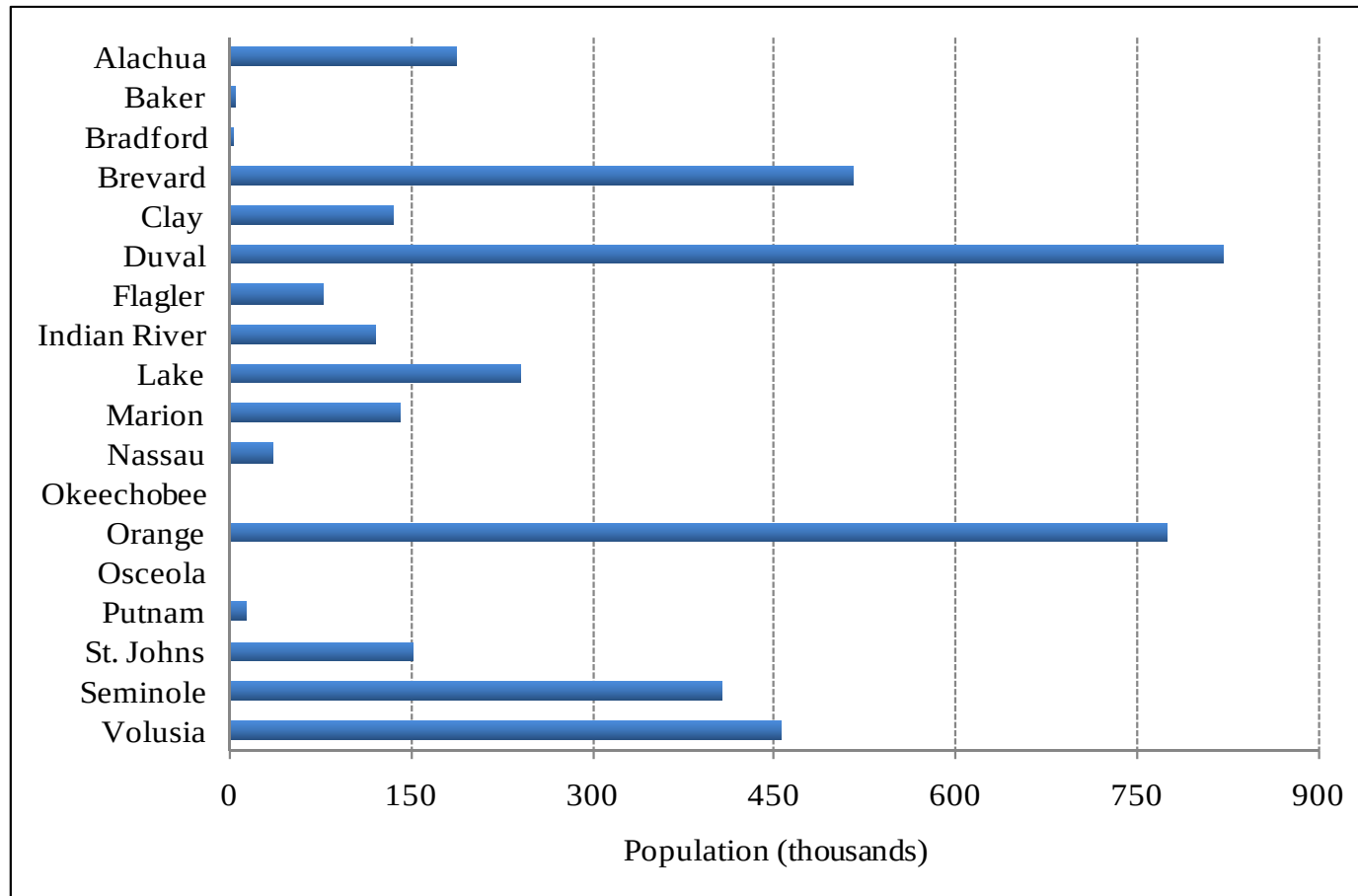


Figure 4. Population served by public supply in SJRWMD, 2010

Note: Estimated amounts are based on best available data at the time of publication.

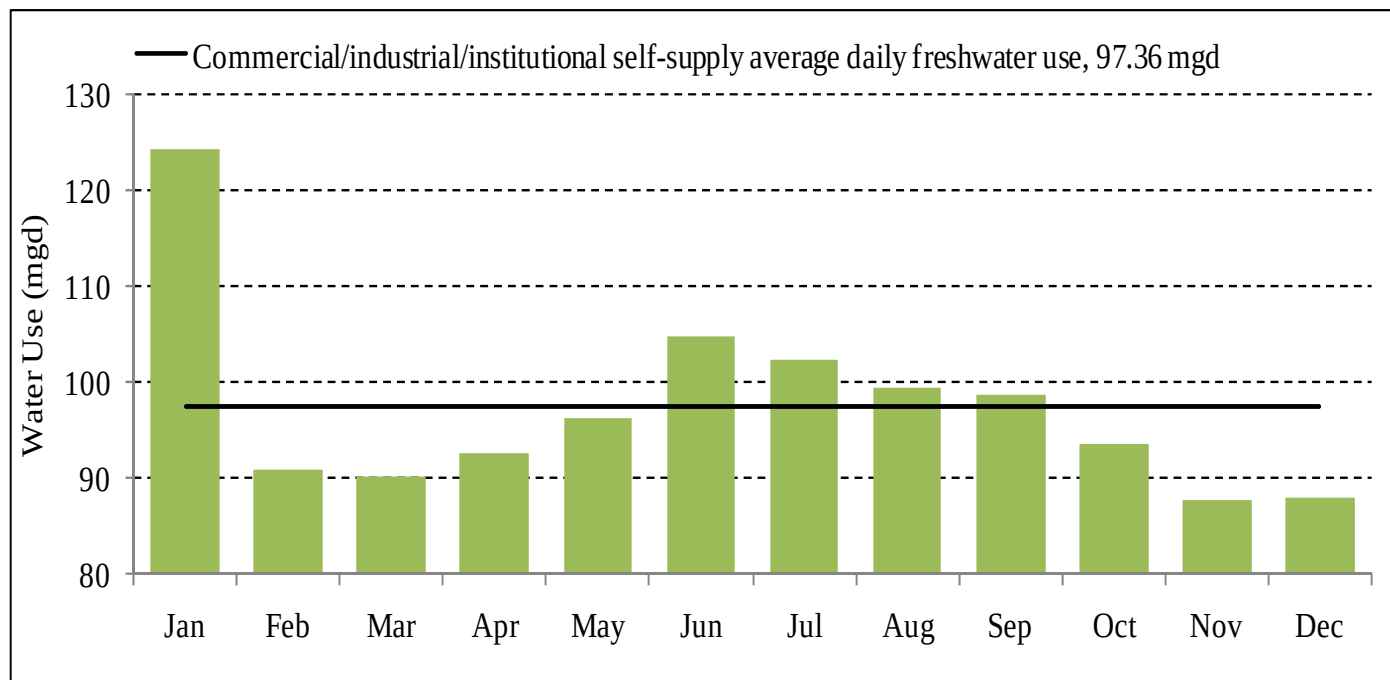


Figure 5. Average daily commercial/industrial/institutional self-supply freshwater use (mgd) by month, 2010

Note: Water use is in million gallons per day (mgd).

Estimated amounts are based on best available data at the time of publication.

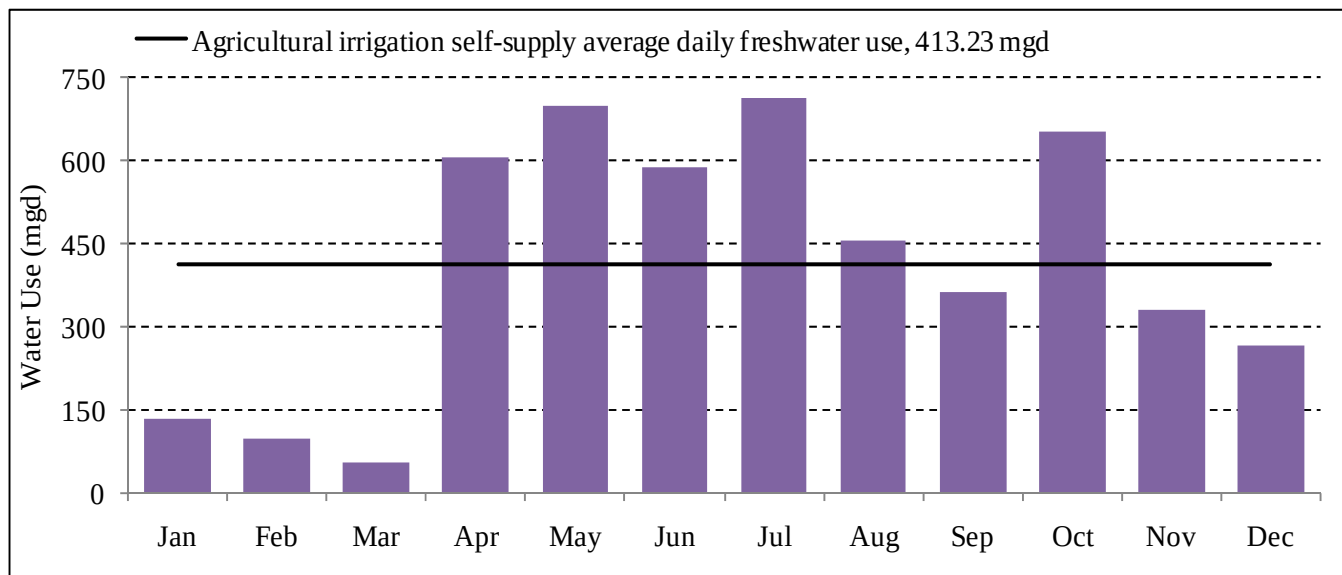


Figure 6. Average daily agricultural irrigation self-supply freshwater use (mgd) by month, 2010

Note: Water use is in million gallons per day (mgd).

Withdrawal amounts are estimated.

All estimates are based on best available data at the time of publication.

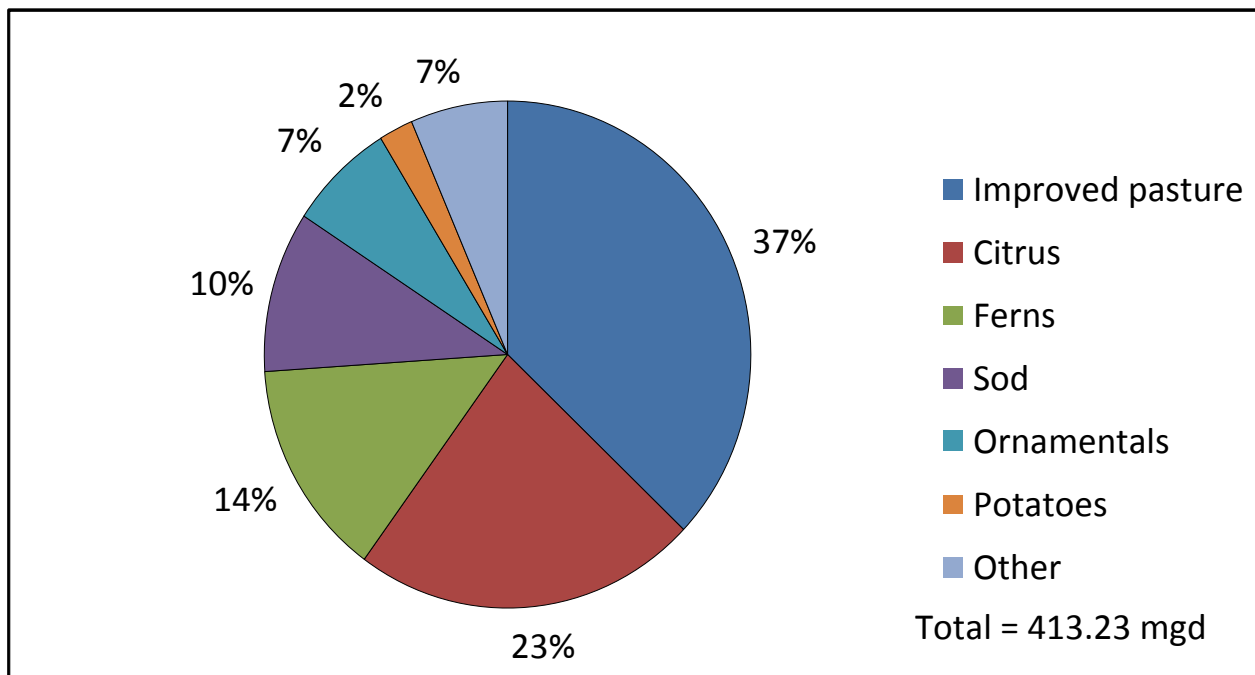


Figure 7. Agricultural irrigation by crop, 2010

Note: Water use is in million gallons per day (mgd).

Estimated amounts are based on best available data at the time of publication.

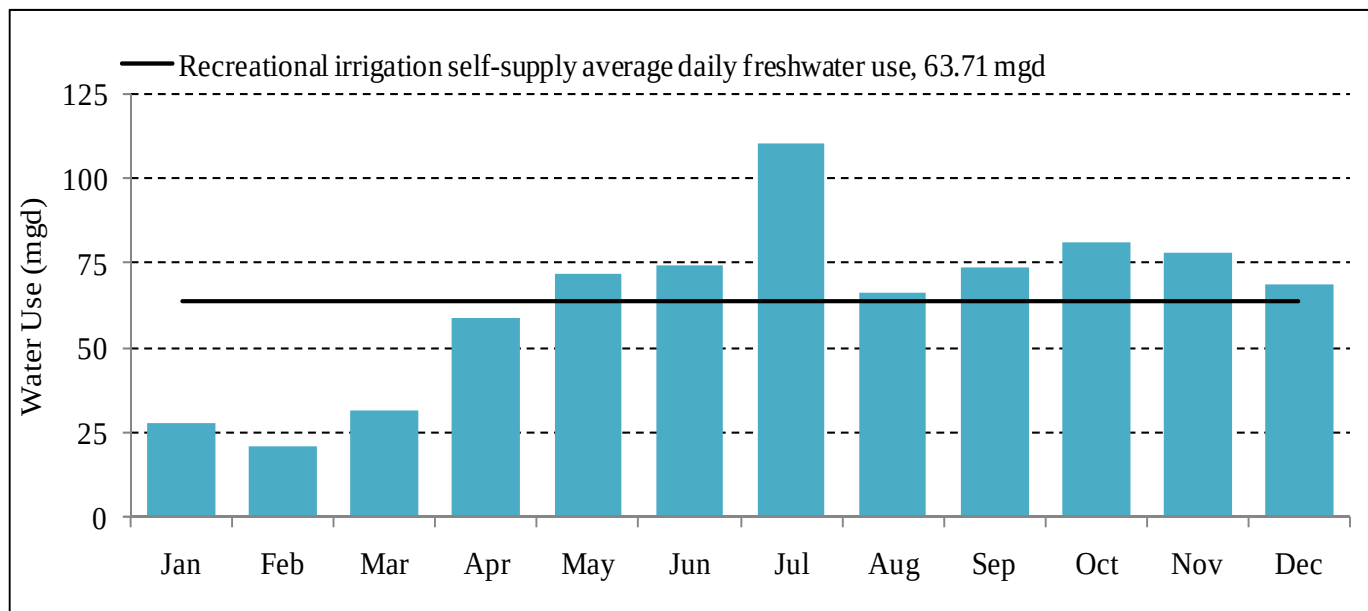


Figure 8. Average daily recreational irrigation self-supply freshwater use by month, 2010

Note: Water use is in million gallons per day (mgd).

Estimated amounts are based on best available data at the time of publication.

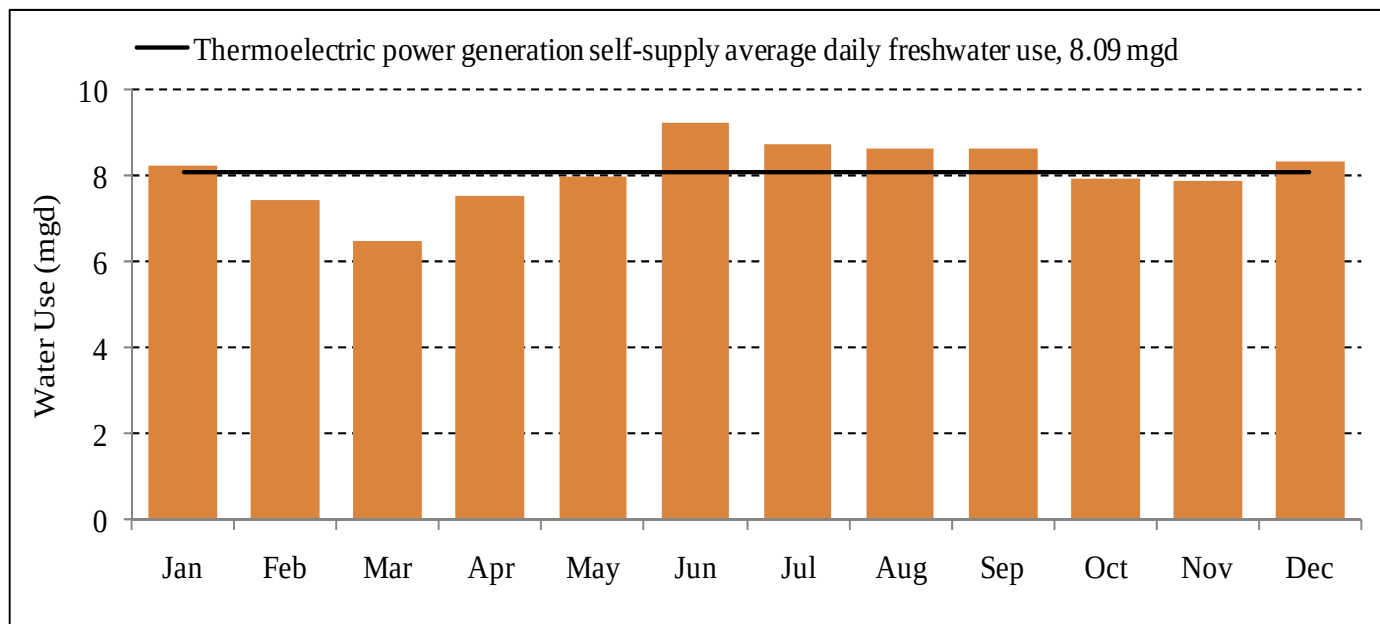


Figure 9. Average daily thermoelectric power generation self-supply freshwater use by month, 2010

Note: Water use is in million gallons per day (mgd).

Estimated amounts are based on best available data at the time of publication.