Technical Fact Sheet SJ2021-FS1

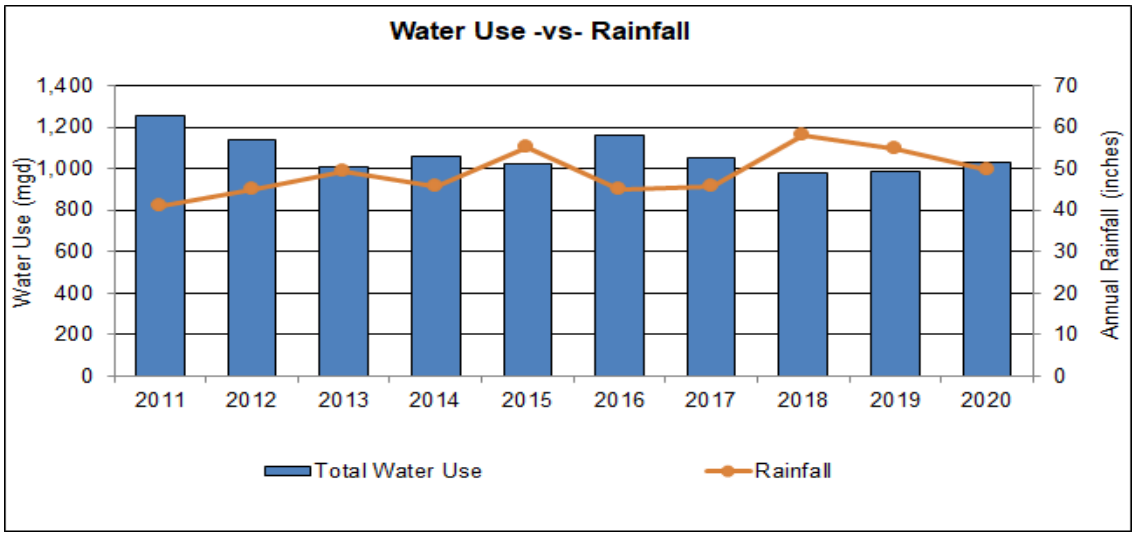
2020 Report of Annual Water Use for St. Johns River Water Management District

St. Johns River Water Management District
2020 Annual Water Use Executive Summary

This executive summary provides a brief overview of the water use statistics for the last 10 years. Definitions for the categories of water use and explanations regarding changes in water use are included in the report, following the executive summary. Unless specifically indicated, water use data in this report does not include beneficial reclaimed water use amounts.

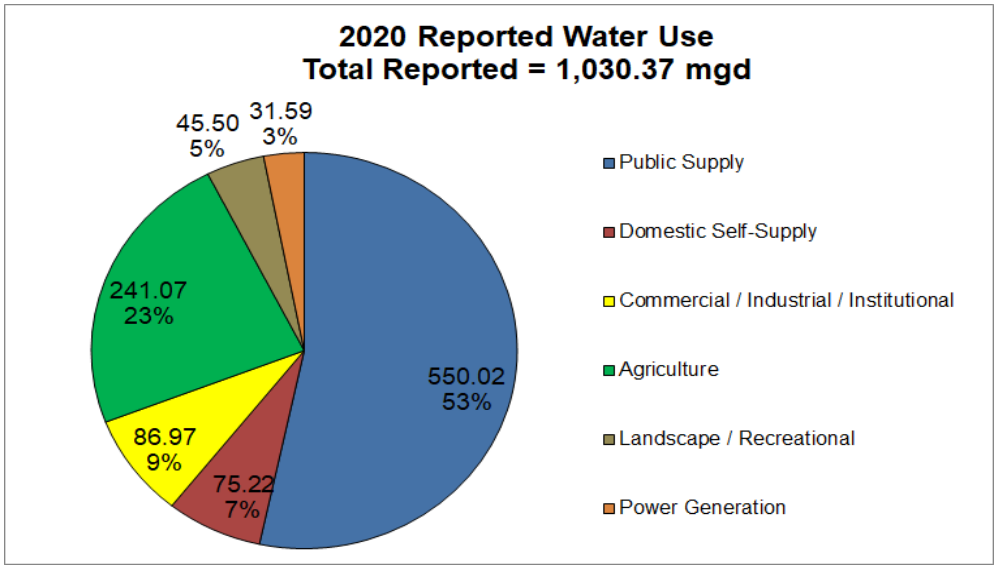
2020 Rainfall

- At 49.7 inches, it was the fourth wettest year in the last decade
- 8.6 inches higher than the 10-year low in 2011 and 0.74 inches higher than the 10-year average
- The majority of the rainfall (over 61%) occurred during the second half of 2020



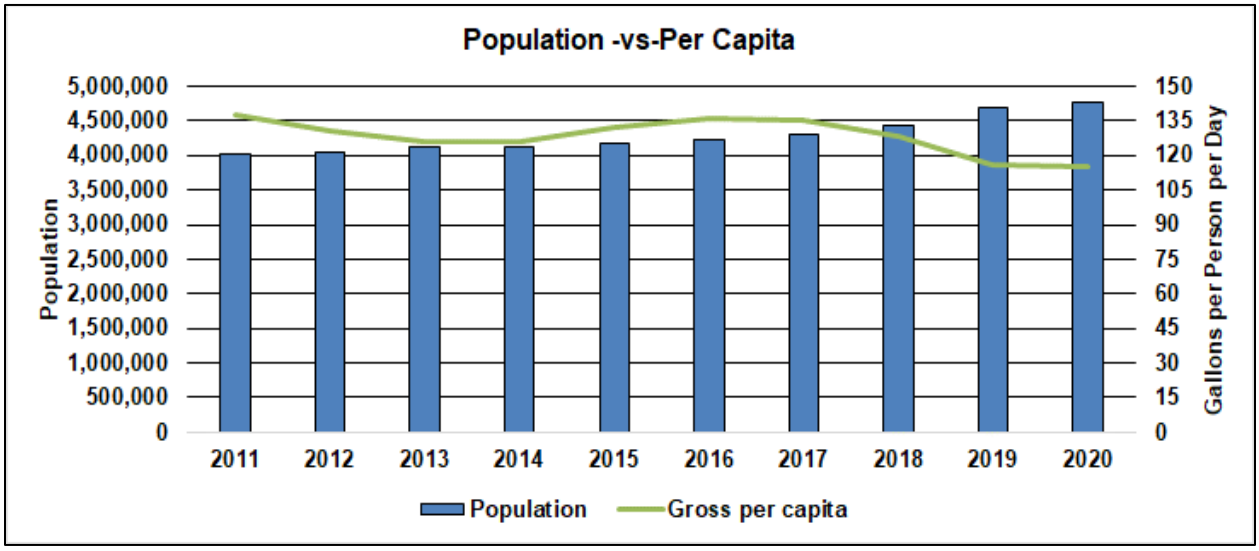
2020 Total Water Use

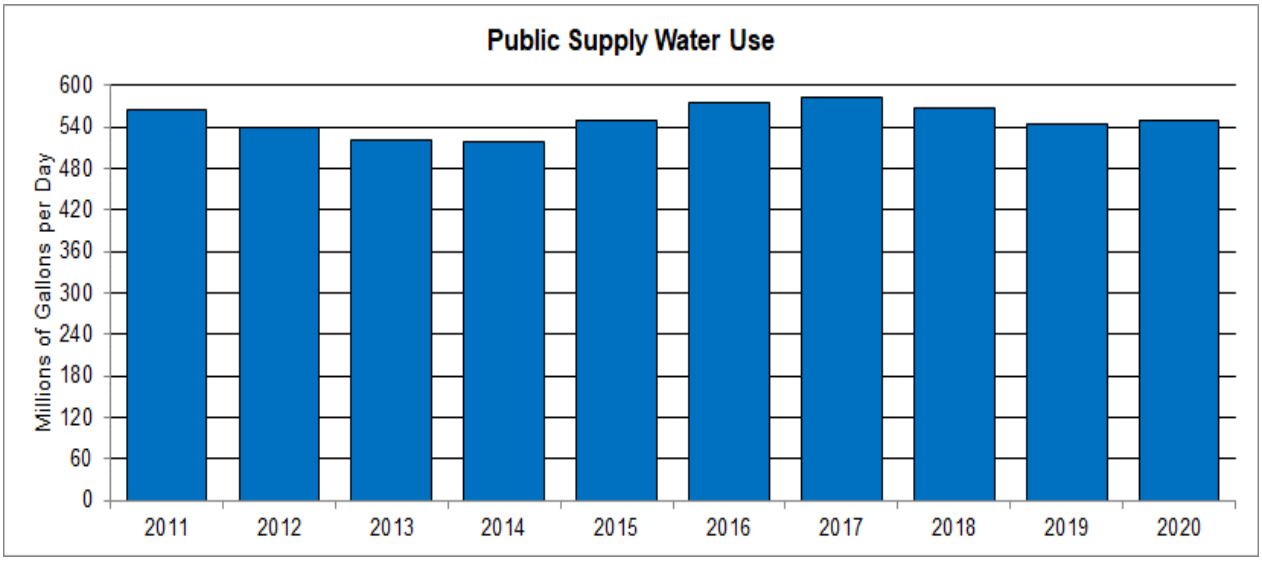
- 1% lower than the five-year average and 4% higher than 2019 use



Public Supply Water Use

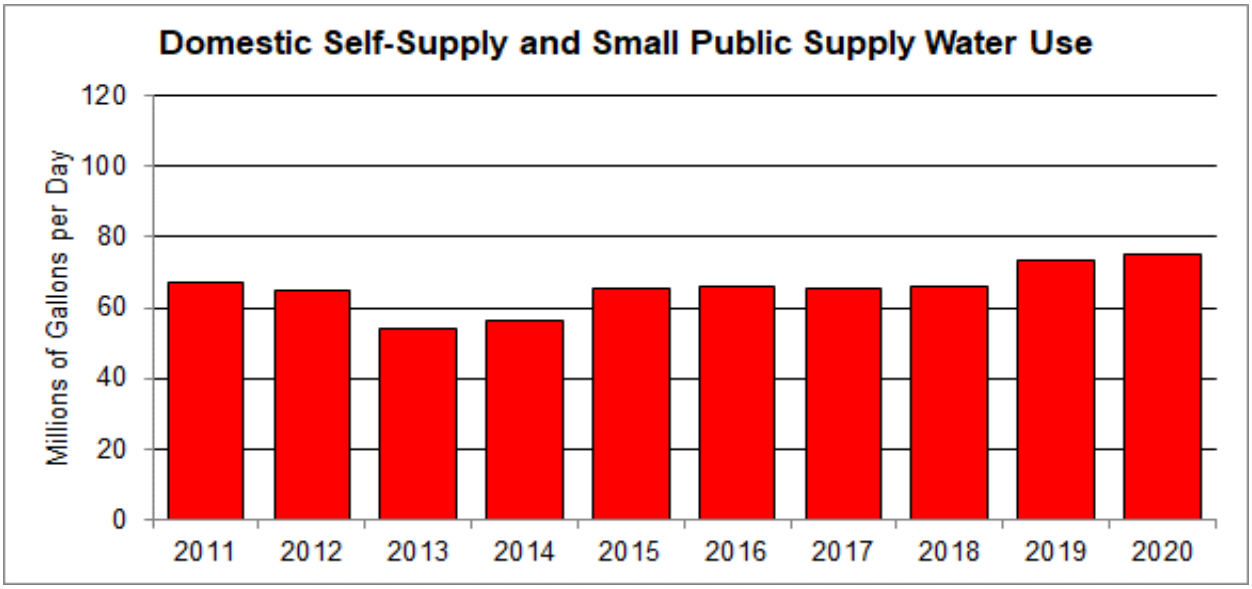
- Between 2011 and 2020, public supply water use remained relatively constant, decreasing 3% from 565.50 million gallons per day (mgd) to 550.02 mgd, while population increased 19% from 4,011,865 to 4,777,164 persons
- Between 2011 and 2020, gross per capita rates decreased 20% from 138 gallons per person per day to 115 gallons per person per day (the 10-year average was 128).
- Changes in public supply water use can be attributed to several factors, such as rainfall, implementation of conservation, increased use of reclaimed water, economic factors, etc.
- Public supply water use increased 1% from 2019, while population increased 2% from 4,684,674 to 4,777,164.





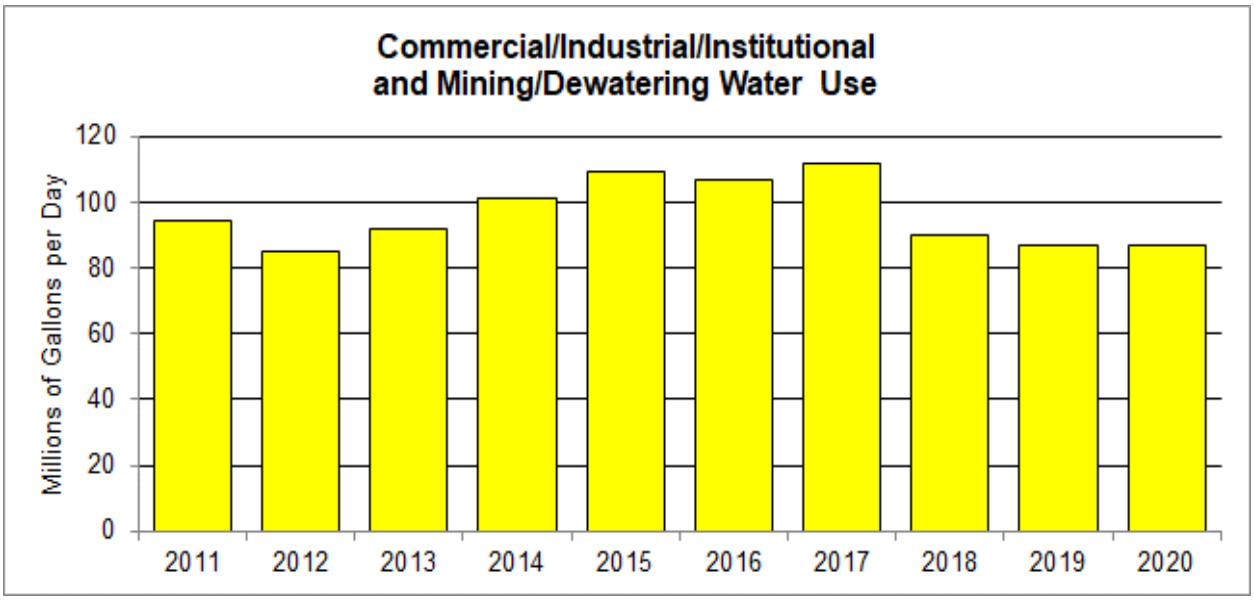
2020 Domestic Self-Supply

- At 75.22 mgd, 2020 use was 15% higher than the average use over the last 10 years and 2.3% above 2019 water use.
- Changes in domestic-self supply water use can be attributed to several factors, such as increase in population (2% increase from 2019 of 861,779 to 879,231 in 2020), rainfall, and implementation of conservation.
- Self-supplied households consumed an average 86 gallons per person per day



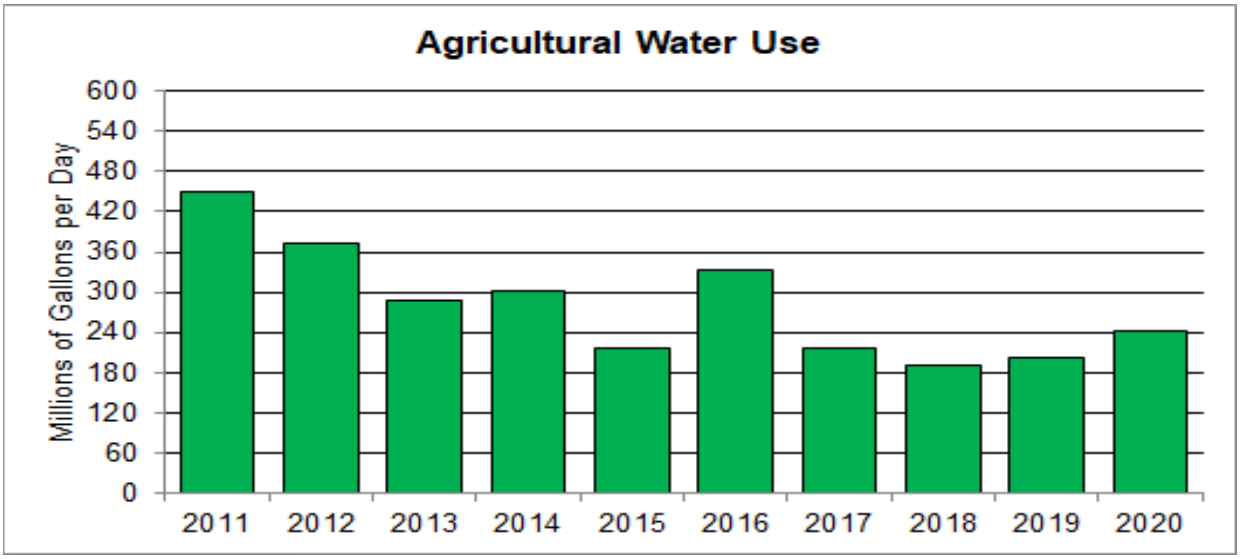
2020 Commercial/Industrial/Institutional and Mining/Dewatering (CII/MD)

- Mining and pulp and paper make up 68% of CII/MD water use
- At 86.97 mgd, CII/MD use was 10% below the annual average of the last 10 years



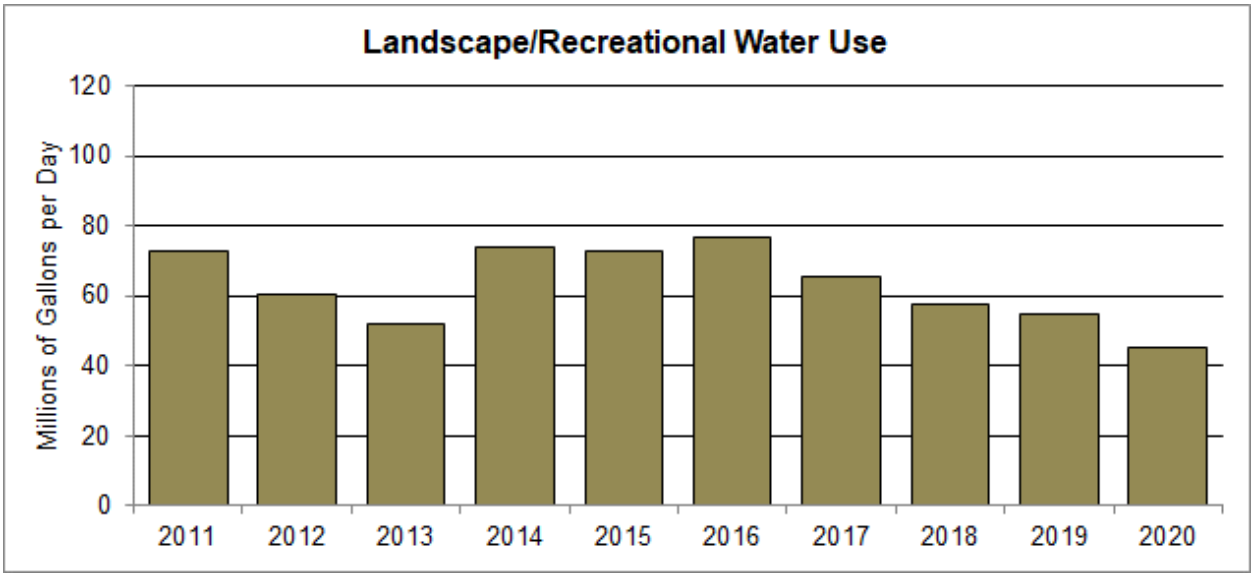
2020 Agricultural Water Use

- At 241.07 mgd, reported water use was 14% lower than the annual average over the last 10 years.
- The majority of rainfall occurred during the second half of the year, requiring more water for irrigation of crops during the first half of the year and increasing 2020 water use 19% above 2019 water use.



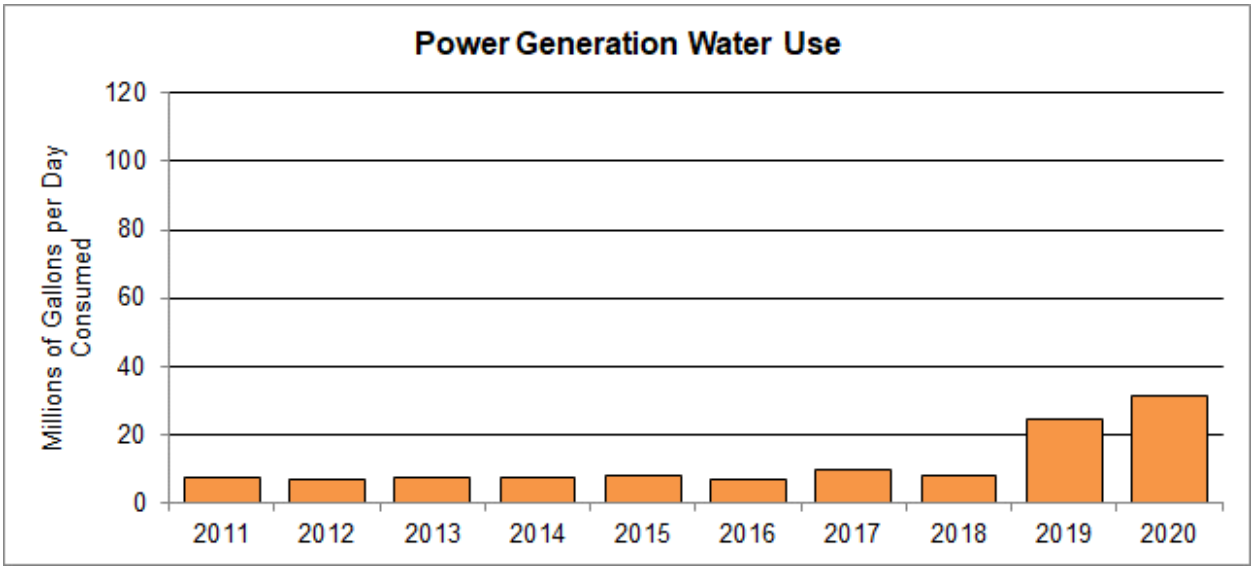
2020 Landscape/Recreational (LR)

- The LR category used 45.50 mgd of water in 2020, and active golf courses represent 72% of this use (32.86 mgd)
- Total LR water use was 17% lower than 2019 and was 28% lower than the annual average over the last 10 years, reflecting the increased use of reclaimed water for irrigation.



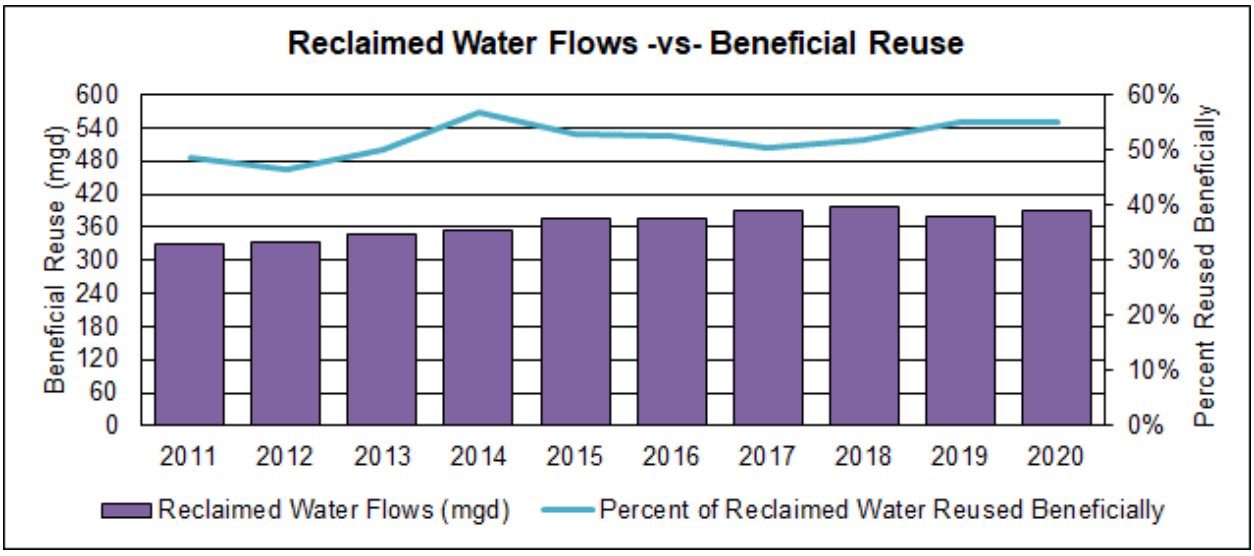
2020 Power Generation Water Use

- In 2020, the combined consumptive water use was 31.59 mgd
- 2% of surface water withdrawals account for evaporative losses
- This category represents approximately 3% of the total water withdrawals
- The 2020 value continues to be larger than past years due to water use in Brevard County (9.03 mgd) and Duval County (11.83 mgd) that was previously not accounted for prior to 2019. Also of note, water use (6.17 mgd) for the second year is included for the new power generation facility in Okeechobee County.



2020 Beneficial Reuse

- Beneficial Reuse totaled 211 mgd, with an additional 13 mgd of recharge in Alachua County
- Districtwide, more than 50% of wastewater flows have been reused beneficially since 2014
- Countywide reuse utilization rates range from 7% (Baker) to 96% (Alachua)



20-Year Historical Perspective

Category	2001		2020		% Change
	Water Use	Percent of Total	Water Use	Percent of Total	
Public supply (PS)	531.16	44	550.02	53	4
Agriculture irrigation self-supply (AG)	410.53	34	241.07	23	-41
Power generation self-supply (PG)	32.39	3	31.59	3	-2
Commercial / Industrial / Institutional and Mining Dewatering self-supply (CII/MD)	103.37	9	86.97	9	-16
Landscape / Recreational self-supply (LR)	45.03	4	45.50	5	1
Domestic self-supply and small public supply systems (DSS)	72.48	7	75.22	7	4
Total	**1,194.96**	**100**	**1,030.37**	**100**	**-14**

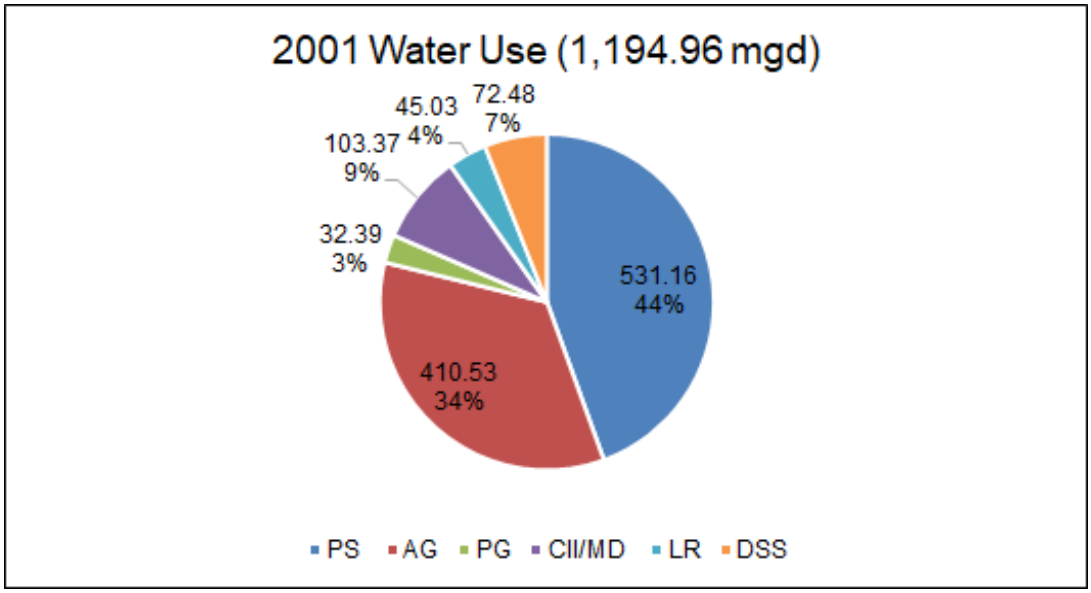
Category	2001		2020		% Change
	Population	Percent of Total	Population	Percent of Total	
Public supply	3,420,415	85	4,777,164	84	40
Domestic self-supply and small public supply systems	589,658	15	879,231	16	49
Total	**4,010,073**	**100**	**5,656,395**	**100**	**41**

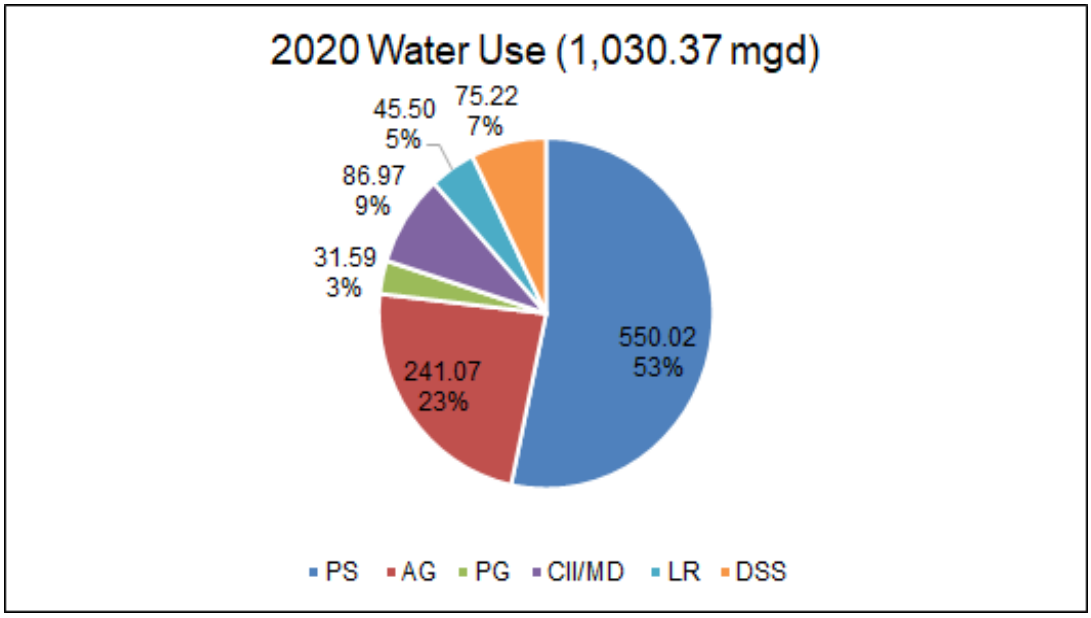
Per Capita Rates	2001	2020	% Change
Gross Per Capita	155	115	-26
Residential Per Capita	123	86	-30

Reclaimed Water	2001	2020	% Change
Total flow	289.38	390.56	35
Beneficially used	108.35	210.77	95
Percent beneficially used	37	55	46

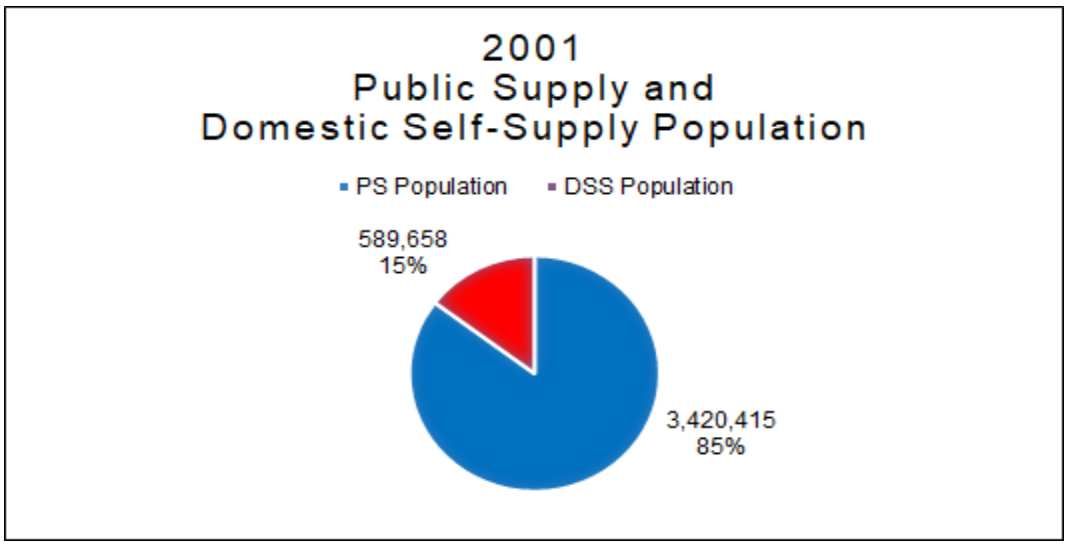
Note: Water use and reclaimed water flows are shown in million gallons per day (mgd).

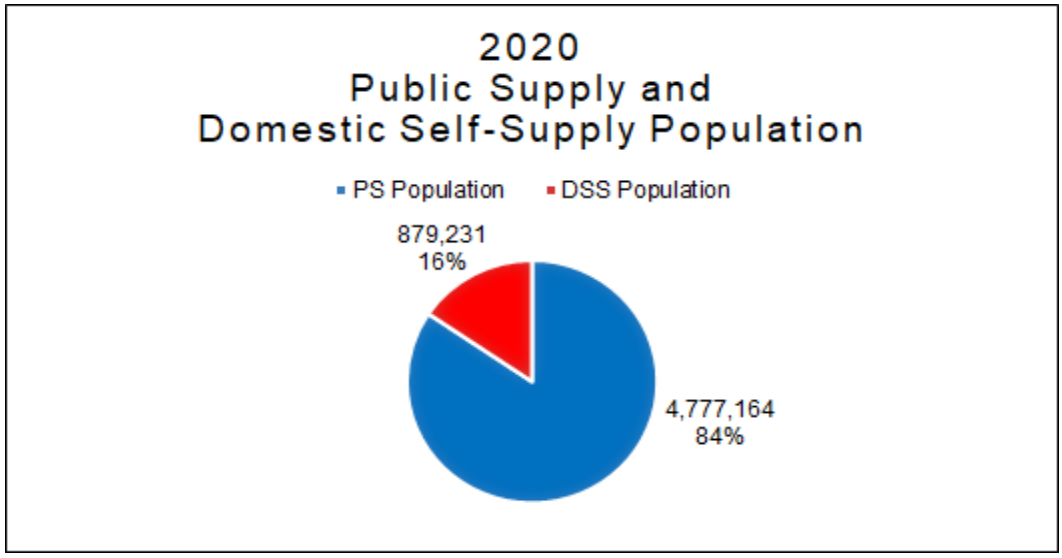
20-Year Historical Perspective (Cont.)

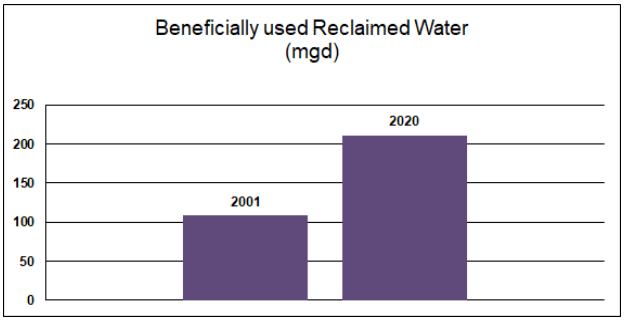


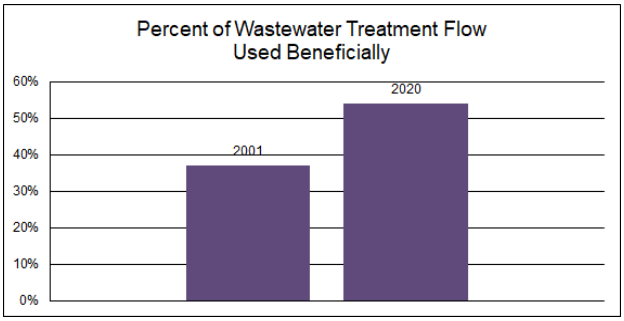


20-Year Historical Perspective (Cont.)









Technical Fact Sheet SJ2021-FS1
2020 Survey of Annual Water Use
for St. Johns River Water Management District

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

Since 2001, total public supply water use, which represents 53% of total water use in 2020, has increased by 4% (from 531.16 mgd to 550.02 mgd). At the same time, total population served by public supply has increased 40% (from 3,420,415 to 4,777,164 persons). In the 10-year period ending in 2020, public supply water use decreased 3% (from 565.50 mgd to 550.02 mgd), while population served by public supply increased 19% from 4,011,865 to 4,777,164 persons. Although public supply water use in 2020 is slightly higher than the 10-year average (due to factors such as rainfall / drought conditions and economic factors), the gross per capita rate has seen a significant decrease since 2001 and is 17% lower than 2011.

Factors such as conservation, less landscape irrigation with potable water, and increases in multifamily housing occupancy can decrease gross per capita rates. Conversely, expanded tourism and other commercial development, larger irrigated lots, and increases in single family housing can increase gross per capita rates. Since 2001, gross per capita water use has decreased from 155 gallons per person per day to 115 gallons per person per day.

Geographic Survey Area. SJRWMD includes all or part of 18 counties, encompassing 12,300 square miles in northeast and east-central Florida and representing more than 5.6 million people, or approximately 26% of the state's population. The following water basins are located within SJRWMD: the entire St. Johns River and Nassau River basins, the North coastal Basin, a portion of the Indian River Lagoon, and portions of the St. Marys River Basin and Florida Ridge.

Area Rainfall Statistics. Average annual rainfall within SJRWMD for 2020 was 49.70 inches. From the most recent 10-year period, 2011–2020, average annual rainfall within SJRWMD varied by 16.86 inches (from 41.10 to 57.96 inches). Average annual rainfall within SJRWMD for the 10-year period January 2011–December 2020 was 48.96 inches. A comparison of rainfall and water use over the most recent 10-year period, 2011–2020, is shown in Figures 11 and 12.

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, Methodology and Terminology. Data for the 2020 Annual Water Use Survey (AWUS) came from a variety of sources: raw water withdrawal data submitted to SJRWMD (via EN-50 forms, which represents 79% of the 2020 water use in this report) and treated water data from Florida Department of Environmental Protection (DEP) monthly operating reports (MORs). Reuse water data were derived from the *2020 Reuse Inventory Report* (DEP 2021). Rainfall by county was obtained from SJRWMD's monthly hydrologic conditions reports (SJRWMD 2020).

Water use for those small users (21% of the 2020 total water use) that are not required to report information to SJRWMD or DEP is estimated using analyses of historical data and trends.

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. The state's five water management districts have efforts underway to standardize the classification of freshwater for water supply planning and consumptive use permitting practices.

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 in SJRWMD.

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 the *2020 Reuse Inventory Report* (DEP 2021). Water management districts refine the quantities of beneficial reuse reports in DEP's Reuse

Inventory Report to reflect those uses of reclaimed water that achieve a water resource benefit. In particular, 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 as disposal. Types of reclaimed water considered as reuse by DEP are as follows: underground injection for disposal; 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 number of permanent residents living within Florida.

Data Source/Methodology: The source for population is *Projections of Florida Population by County, 2025–2045, with Estimates for 2020* (BEBR 2020a).

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

Data Source/Methodology: Population estimates are intended for planning purposes only; 2020 county population estimates are from *Projections of Florida Population by County, 2025–2045, with Estimates for 2020* (BEBR 2020a).

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 self-supply, (4) commercial/industrial/institutional and mining/dewatering self-supply, (5) landscape/recreational self-supply, and (6) power generation self-supply. Beneficial use of reclaimed water is also included in this report. Listed below are the definitions for each water use category and the source or methodology for the data presented in this report.

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 are permitted to withdraw equal to or 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 two sources: SJRWMD EN-50 forms and DEP's MOR datasets. All Individual consumptive use permits (CUPs) require the permittee to measure their water use. Individual CUPs that are permitted to withdraw more than 0.10 mgd are required to submit this pumpage data to SJRWMD via the EN-50. Water use data for permits with allocations of 0.10 mgd or less are also required to measure their water use and maintain the data, but are not required to report water use to SJRWMD unless specifically requested. The water use data for these CUPs was obtained from MORs. These are submitted to DEP by approximately 98% of the public supply utilities for which SJRWMD had individual CUPs in effect during 2020. (Water for use by the city of Cocoa, in Brevard County, is withdrawn from wells in 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 (permitted 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. However, many of these small public supply utility systems do report water use data to DEP via MORs.

> Data Source/Methodology: Domestic self-supply water use is calculated from residential population and residential public supply (including small public supply systems) per capita water use rates at the county level. Residential water use for each public supply utility and small public supply system is calculated by multiplying the total public supply and small public supply system water use by the percent of the total water use allocated to residential use, as authorized in the SJRWMD-issued CUP. The resulting water use values for each public supply utility and small public supply system are then summed to the county level and divided by the total county permanent/residential public supply and small public supply population to obtain the county-level residential per capita value. The county residential per capita value is multiplied by the domestic self-supply population, resulting in the amount of water use for domestic self-supply. The domestic self-supply population for each county partially within SJRWMD is obtained using BEBR countywide estimates (BEBR 2020b), Public Supply Service Area Boundaries, a land use parcel layer containing residential units, and served population estimates. For counties with a population of less than 5% within the jurisdiction of SJRWMD or that have no public supply or small public supply system water use, SJRWMD's average residential public supply (including small public supply systems) per capita figure of 86 gallons per day (gpd) was used. For the purpose of reporting, all domestic self-supply water is assumed to be groundwater. Water use data for small public supply systems was obtained from SJRWMD EN-50 and/or DEP MORs.

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

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

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: Surface water use for once-through cooling represents 2% of surface water use, to account for the loss of water through evaporation.)

Data Source/Methodology: Data in this category reflect water use information reported to SJRWMD by power plant operators via SJRWMD EN-50 forms or through a yearly SJRWMD survey. Monthly operating report data from DEP was used to cross-check EN-50 data and fill in any data gaps.

Agricultural self-supply. This is reported and calculated water from groundwater and surface water sources for use in supplemental crop irrigation. It also includes non-irrigation use such as draining an agricultural field after a large rainstorm, as well as water use associated with aquaculture, livestock, etc.

Data Source/Methodology: Data in this category reflect water use information reported to SJRWMD by agricultural water users via SJRWMD EN-50 forms and water use amounts provided by the Florida Department of Agriculture and Consumer Services (FDACS) Florida Statewide Agricultural Irrigation Demand (FSAID VI). Individual CUPs report water use data via the EN-50 forms. For smaller CUPs and non-permitted agricultural fields, water use was obtained from the draft FSAID VII (Balmoral, 2020).

Landscape/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 SJRWMD EN-50 forms.

2020 Water Use by Category. Water use is reported for water withdrawals from fresh, saline, and reuse water sources, expressed in average mgd unless otherwise noted. In this 2020 survey, the water use amounts are based on best available data as of April 2, 2021. As shown in Figure 1, 79% of the 2020 water use was reported to SJRWMD via EN-50 forms. 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 and mining/dewatering self-supply, (4) agricultural self-supply, (5) landscape/recreational irrigation self-supply, and (6) power generation self-supply. This report also includes information on beneficially reused wastewater flows. A reporting threshold of 0.10 mgd of permitted average daily flow by individual water users was used for all water use categories, excluding the agricultural self-supply and domestic self-supply and small public supply systems categories, in the reporting of consumptive use for 2020. 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. The total consumptive use in SJRWMD for 2020, including fresh, saline and reuse (reclaimed) water, was 1,245.24 mgd. Of the total consumptive amount, 1,030.37 mgd was freshwater and 4.10 mgd was saline water (Tables 1–3). In 2020, the largest consumptive use of freshwater within SJRWMD was public supply, which totaled 550.02 mgd, or 53%, of total consumptive freshwater use (Tables 2 and 3, Figure 2). Next was agricultural water use, which used 241.07 mgd, or 23%, of total consumptive freshwater within SJRWMD (Tables 2 and 3, Figure 1). Beneficial use of reclaimed water accounted for 210.77 mgd and was reported under the agricultural, commercial/industrial/institutional and landscape/recreational categories of water use (Tables 2 and 3). An additional 12.59 mgd in Alachua County was used for recharge.

A reverse osmosis membrane treatment unit, left. Reclaimed water lines, right.

Public Supply. In 2020, approximately 4,777,164 people were served by a public supply utility; this is around 84% of the SJRWMD total population (Table 4 note). Public supply water use, from both groundwater and surface water sources, was 2% below the recent five-year average (Tables 2 and 3, Figures 2 and 3). Average gross per capita use, based on the population served by a public supply system, was 115 gallons per capita per day (gpcd). As seen in Table 5, gross per capita ranges from 79 gpd to 152 gpd. Average residential per capita (with the inclusion of Bradford and Okeechobee counties) for SJRWMD is 86 gpd. It ranges from 36 gpd to 126. 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. In 2020, public supply water use ranged from a low of 506.20 mgd in November to a high of 631.31 mgd in May (Figure 3). Of the total water withdrawn for public supply use, 98% was groundwater.

Counties with the largest public supply water use during 2020 were Duval County (116.30 mgd, serving 809,756 people; 144 gpcd) and Orange County[1] (113.18 mgd, serving 1,076,813 people; 105 gpcd) and (Table 3, Figures 4 and 5). These counties combined represented 42% of total public supply water use and 39% of the public supply population. (Note: There is no public supply water use in the portions of Okeechobee and Osceola counties within SJRWMD.)

[1] Orange County (Orange County Utilities / Orlando Utilities Commission) totals only include the water consumed and population served in SJRWMD.

Domestic Self-Supply and Small Public Supply Systems. In 2020, approximately 879,231 people used 75.22 mgd of domestic self-supply water (including small public supply systems), or 7%, of total water used in SJRWMD (Tables 1–3, Figure 2). Duval County had the largest self-supplied population, with 172,325 people (16.91 mgd). Marion County had the second-largest population, 118,507 (8.02 mgd), followed by St. Johns County, 109,099 (10.22 mgd) (Table 4).

Domestic self-supply water use (including small public supply systems) has fluctuated over the 10-year period, reaching a low of 53.84 mgd in 2013 to a high of 75.22 mgd in 2020. The average for the 10-year period was 65.39 mgd; water use in 2020 was 15% above average. Fluctuations in water use are mainly attributed to changes in methodologies since the initial publication of the AWUS in 1978. In 2020, average domestic self-supply and small public supply system water use per capita within SJRWMD was 86 gpcd (Table 5).

Commercial/Industrial/Institutional and Mining/Dewatering Self-Supply. In 2020, total freshwater use in the commercial/industrial/institutional and mining/dewatering category was 86.97 mgd, or 9%, of total freshwater use (Tables 2 and 3, Figure 2). Of this freshwater total, 65.04 mgd was groundwater and 21.93 mgd was surface water. Additional reclaimed water use totaled 28.40 mgd (Tables 2 and 3).

Most of the water withdrawn for commercial/industrial/institutional and mining/dewatering purposes supplied the pulp and paper industries in Duval, Nassau, and Putnam counties. Water use for pulp and paper production in 2020 totaled 52.17 mgd. It included 32.96 mgd of fresh groundwater, 15.11 mgd of fresh surface water, and 4.10 mgd of saline surface water. The second-largest water user in this category was the mining industry, which accounted for 8.96 mgd of fresh groundwater and 2.05 mgd of fresh surface water. Pulp/paper production and mining accounted for a combined total of 59.08 mgd of freshwater, or 68%, of the commercial/industrial/institutional and mining/dewatering freshwater use.

Over the last 10 years commercial/industrial/institutional and mining/dewatering self-supply water use was highest in 2017 (111.77 mgd) and lowest in 2012 (84.91 mgd). The average for the 10-year period was 96.29 mgd; water use in 2020 was 10% below this average. Commercial/industrial/institutional and mining/dewatering freshwater use in 2020 varied from a low of 82.31 mgd in December to a high of 96.96 mgd in May (Figure 6).

Agricultural Self-Supply. Total consumptive use of water for agricultural water use was 241.07 mgd, which is 23% of total freshwater use in SJRWMD during 2020 (Tables 2 and 3, Figure 2). Reuse water accounted for 1.40 mgd of agricultural water use. Agricultural permittees used 184.95 mgd of groundwater (77%) and 56.12 mgd of surface water (23%). Agricultural water use in 2020 reached a low of 178.26 mgd in September and October and a high of 343.83 mgd in April (Figure 7). This fluctuation is typical of irrigation water use and is related to rainfall patterns and timing of planting and harvesting.

By county, the largest water use for agriculture occurred in Indian River County, with 48.91 mgd, accounting for 20% of total SJRWMD agricultural water use (Table 3). Seventy-six percent of the water used in this county was withdrawn from groundwater sources.

During 2020 in SJRWMD, the largest agricultural water use was for cut foliage and ornamentals, which accounted for 49.23 mgd, 20.42% of total agricultural water use. Citrus and hay were the two other largest categories; accounting for 20.42 and 17.63%, respectively, of total agricultural water use (Figure 8).

Landscape/Recreational Irrigation Self-Supply. The landscape/recreational (LR) 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. Use of freshwater in the LR irrigation category totaled 45.50 mgd, about 5% of total freshwater use in 2020. Nearly 75% (33.97 mgd) of the quantities were withdrawn from surface water sources. The remaining 11.54 mgd (25%) came from groundwater sources. Reuse water under this category totaled 180.97 mgd. By county (Table 3), the largest freshwater use for LR irrigation occurred in Indian River County (10.74 mgd), followed by Lake County (8.36 mgd), and Volusia (4.70 mgd). In terms of reuse, the four counties with the largest reclaimed water used for LR are Orange (54.54 mgd), Brevard (24.84 mgd), Volusia (22.57 mgd), and Seminole (21.90 mgd).

During the past 10 years (2011–2020), LR irrigation freshwater use was highest in 2016 (77.03 mgd) and lowest in 2020 (45.50 mgd). Average water use over the 10-year period was 63.22 mgd. Landscape/recreational irrigation water use in 2020 was 28% below the 10-year average. Landscape/recreational irrigation freshwater use in 2020 varied from a low of 25.38 mgd in December to a high of 70.88 mgd in May (Figure 9).

Power Generation Self-Supply. The power generation self-supply category consists of water withdrawn from groundwater and surface water sources by power plants. Consumptive water use includes 2% of surface water by power generation facilities. This is to account for the loss of water due to evaporation for once-through cooling. Water use amounts for 2020 totaled 31.59 mgd (Tables 2 and 3, Figure 2). The largest amount of consumptive water use within this category (Table 3) occurred in Duval County (11.83 mgd).

Power generation water use in 2020 fluctuated from a low of 22.56 mgd in April to a high of 37.83 mgd in June (Figure 10). Fluctuations in water use are related to power plant shutdowns for maintenance or increased power demands during periods of high or low temperatures.

Beneficial Reuse (Reclaimed Water). As explained on Page 10, beneficially reused wastewater has received at least secondary treatment and basic disinfection. It is currently used by permittees to help meet agricultural, commercial/industrial/institutional, and landscape/recreation demands. In 2020, 210.77 mgd of reclaimed water was used for beneficial purposes. In terms of beneficial utilization rates, the top four counties were Alachua (96%), Indian River (90%), Putnam (87%), and Lake (86%) (Figures 13 and 14).

Eighty-six percent of the reclaimed water is applied to landscape, fields and golf courses (Figure 15). Of note, 12.59 mgd in Alachua County was used for recharge.

Construction crews work to complete the Altamonte Springs Regional Water Reclamation Facility cost-share project, which improves treatment processes to advanced wastewater treatment standards and reduces nutrient concentrations.

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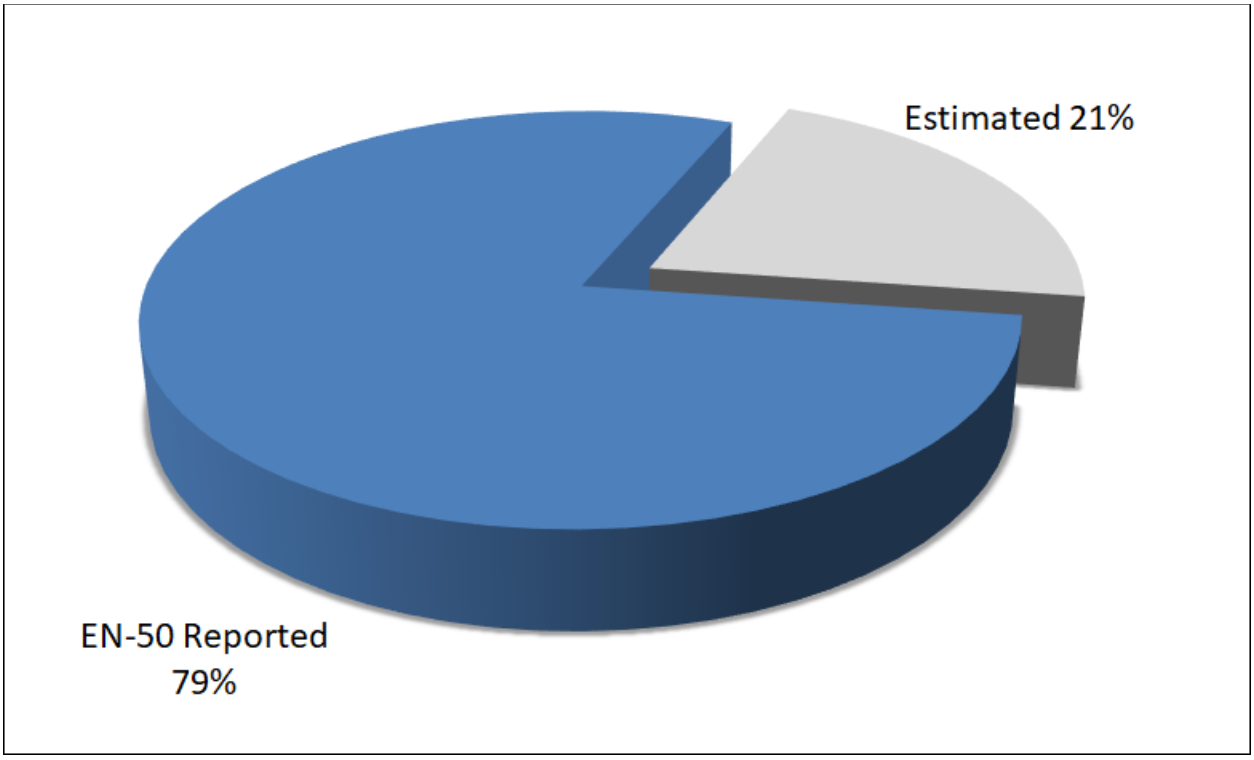

Figure 1. Reported and estimated water use (mgd) in SJRWMD, 2020

Table 1. Total water use (mgd) and rainfall by county in SJRWMD, 2020

County	Freshwater (mgd)	Saline Water (mgd)	Reuse (mgd)	Total Water Use (mgd)	Rainfall (inches)
Alachua	27.79	0.00	1.61	29.40	47.90
Baker	4.09	0.00	0.08	4.17	51.73
Bradford	1.51	0.00	0.00	1.51	45.44
Brevard	105.69	0.00	27.30	132.99	48.92
Clay	21.98	0.00	6.16	28.14	47.93
Duval	162.78	0.00	19.64	182.42	52.52
Flagler	23.18	2.80	9.39	35.37	47.26
Indian River	78.84	0.00	6.63	85.47	52.58
Lake	98.01	0.00	14.88	112.89	47.56
Marion	41.93	0.00	3.67	45.60	48.89
Nassau	43.77	1.30	1.73	46.80	51.89
Okeechobee	11.78	0.00	0.00	11.75	56.64
Orange	129.71	0.00	65.03	194.74	51.32
Osceola	14.81	0.00	0.00	14.81	49.82
Putnam	47.42	0.00	1.34	48.76	45.84
St. Johns	68.42	0.00	3.58	72.00	45.47
Seminole	63.24	0.00	25.69	88.93	50.93
Volusia	85.42	0.00	24.04	109.46	54.91
Total	**1,030.37**	**4.10**	**210.77**	**1,245.24**	**49.70**

Note: Total water use is in million gallons per day (mgd).
Amounts are based on best available data as of April 2, 2021.
Source of domestic self-supply is assumed to be groundwater.
Orange County (Orange County Utilities / Orlando Utilities Commission) totals only include the water consumed and population served in SJRWMD.

Table 2. Total water use (mgd) by category in SJRWMD, 2020

Category	Freshwater (mgd)	Saline Water (mgd)	Reuse (mgd)	Total Water Use (mgd)
Public supply	589.49	0.00	0.00	550.02
Domestic self-supply and small public supply systems	75.22	0.00	0.00	75.22
Commercial / Industrial / Institutional and Mining / Dewatering self-supply	86.97	4.10	28.40	119.47
Agricultural irrigation self-supply	241.07	0.00	1.40	242.47
Landscape / Recreational self-supply	45.50	0.00	180.97	226.47
Power generation self-supply	31.59	0.00	0.00	31.59
Total	**1,030.37**	**4.10**	**210.77**	**1,245.24**

Note: Water use is in million gallons per day (mgd).
Source of domestic self-supply is assumed to be groundwater.
Amounts are based on best available data as of April 2, 2021.

Table 3. Total water use (mgd) by county and category in SJRWMD, 2020

County	Freshwater							Saline Water	Reuse	All Water Use
	Public Supply	Domestic Self-Supply	Commercial/ Industrial/ Institutional	Agricultural Self-Supply	Landscape/ Recreational Self-Supply	Power Generation Self-Supply	Total Freshwater	Commercial/ Industrial/ Institutional		
Alachua	22.56	0.89	0.45	3.03	0.20	0.66	27.79	0.00	1.61	29.40
Baker	0.83	2.39	0.39	0.48	0.00	0.00	4.09	0.00	0.08	4.17
Bradford	0.04	1.47	0.00	0.00	0.00	0.00	1.51	0.00	0.00	1.51
Brevard	47.35	2.39	2.73	41.30	2.89	9.03	105.69	0.00	27.30	132.99
Clay	13.81	6.12	0.22	1.35	0.48	0.00	21.98	0.00	6.16	28.14
Duval	116.30	16.91	11.98	1.56	4.20	11.83	162.78	0.00	19.64	182.42
Flagler	10.92	0.49	0.00	10.31	1.46	0.00	23.18	2.80	9.39	35.37
Indian River	18.76	0.27	0.16	48.91	10.74	0.00	78.84	0.00	6.63	85.47
Lake	46.53	7.46	11.38	24.07	8.36	0.21	98.01	0.00	14.88	112.89
Marion	19.38	8.02	2.81	8.51	3.21	0.00	41.93	0.00	3.67	45.60
Nassau	8.59	4.38	28.78	0.65	1.37	0.00	43.77	1.30	1.73	46.80
Okeechobee	0.00	0.14	0.00	5.47	0.00	6.17	11.78	0.00	0.00	11.78
Orange	113.18	4.54	1.96	7.81	1.30	0.92	129.71	0.00	65.03	194.74
Osceola	0.00	0.10	0.00	14.71	0.00	0.00	14.81	0.00	0.00	14.81
Putnam	1.67	1.85	23.16	19.80	0.20	0.74	47.42	0.00	1.34	48.76
St. Johns	21.12	10.22	0.60	32.09	4.39	0.00	68.42	0.00	3.58	72.00
Seminole	55.65	2.59	0.17	2.83	2.00	0.00	63.24	0.00	25.69	88.93
Volusia	53.33	4.99	2.18	18.19	4.70	2.03	85.42	0.00	24.04	109.46
Total	**550.02**	**75.22**	**86.97**	**241.07**	**45.50**	**31.59**	**1,030.37**	**4.10**	**210.77**	**1,245.24**

Note: Water use is in million gallons per day (mgd).
Amounts are based on best available data as of April 2, 2021.
Source of domestic self-supply is assumed to be groundwater.
Small public supply systems are included in the domestic self-supply category.
Mining and dewatering are included in the commercial/industrial/institutional category.
Orange County (Orange County Utilities / Orlando Utilities Commission) totals only include the water consumed and population served in SJRWMD.

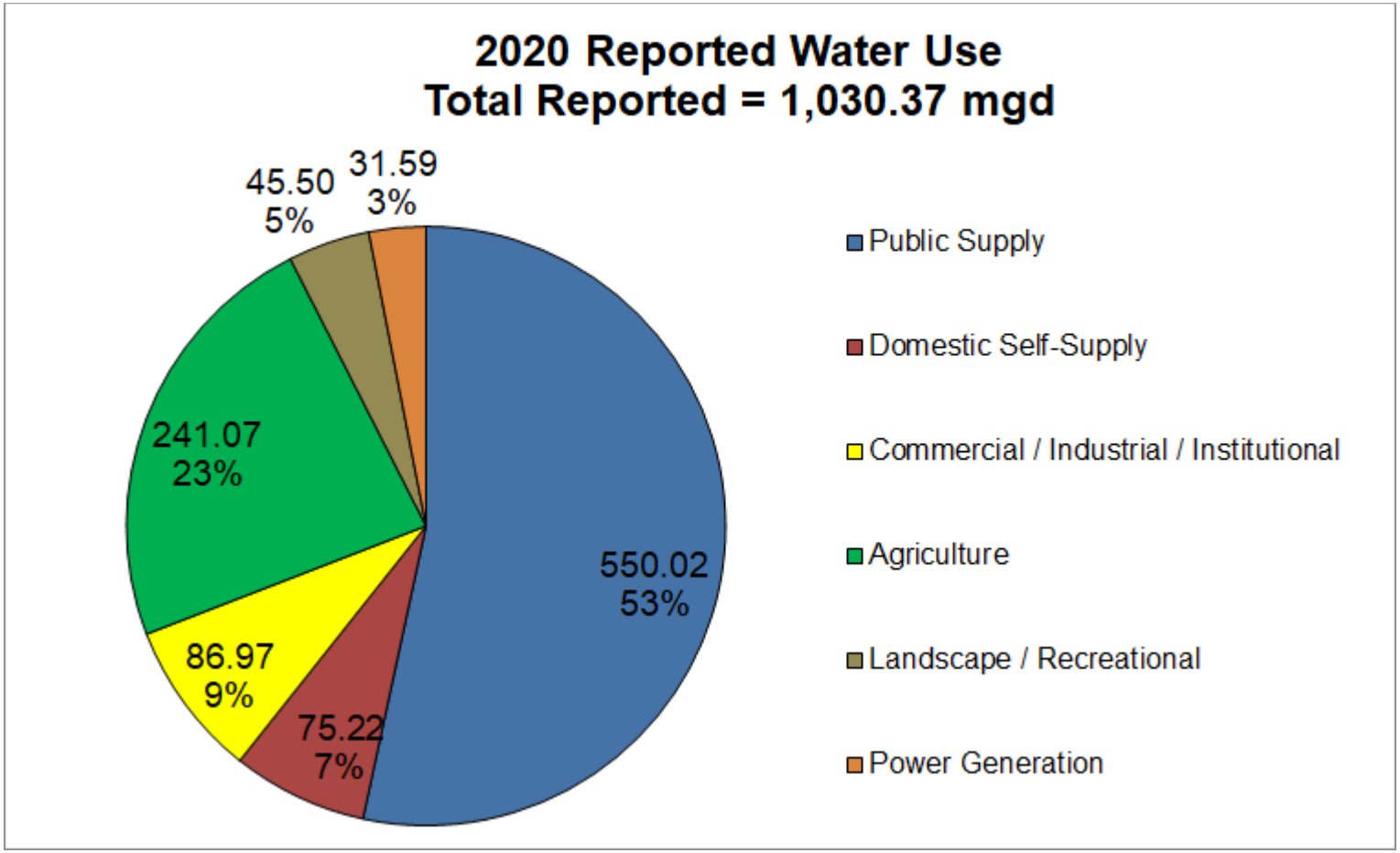

Figure 2. Total water use (mgd), 2020

Note: Water use is in million gallons per day (mgd).
Amounts are based on best available data as of April 2, 2021.
Source of domestic self-supply is assumed to be groundwater.

Table 4. Population by county, 2020

County	SJRWMD Population	Public Supply Population	Domestic Self-Supply and Small Public Supply Systems Population
Alachua*	209,136	195,227	13,909
Baker*	28,047	7,220	20,827
Bradford*	5,677	931	4,746
Brevard	622,623	576,910	45,713
Clay	219,572	140,274	79,298
Duval	982,081	809,756	172,325
Flagler	119,244	112,027	7,217
Indian River	173,845	167,323	6,522
Lake*	374,645	310,749	63,896
Marion*	245,809	127,302	118,507
Nassau	95,977	61,184	34,793
Okeechobee*	1,611	0	1,611
Orange*	1,122,638	1,076,813	45,825
Osceola*	1,309	0	1,309
Putnam	73,308	21,229	52,079
St. Johns	261,899	152,800	109,099
Seminole	499,558	465,674	33,884
Volusia	619,416	551,745	67,671
Total	**5,656,395**	**4,777,164**	**879,231**

Note: 2020 county population is from BEBR, Florida Estimates of Population (BEBR 2020a)
Total population for the state of Florida in 2020 = 21,596,068
Percent of total state of Florida population that lives within SJRWMD = 26%
Percent of SJRWMD population served by public supply = 84%
Orange County (Orange County Utilities / Orlando Utilities Commission) totals only include the population served in SJRWMD.
*County population only represents the population in SJRWMD.

Table 5. Gross and residential public supply per capita water use in gallons per day

County	PS Gross Per Capita (gpcd)	PS Residential Per Capita (gpcd)
Alachua	116	64
Baker	115	115
Bradford	98	77
Brevard	82	52
Clay	98	77
Duval	144	98
Flagler	97	68
Indian River	112	41
Lake	150	117
Marion	152	68
Nassau	140	126
Okeechobee	N/A	87
Orange	105	99
Osceola	N/A	76
Putnam	79	36
St. Johns	138	94
Seminole	120	76
Volusia	97	74
Total	**115**	**86**

Note: As of December 2020, there were no significant permitted public supply uses in SJRWMD's portion of Okeechobee and Osceola counties. The population residing therein rely on domestic wells for their potable needs.

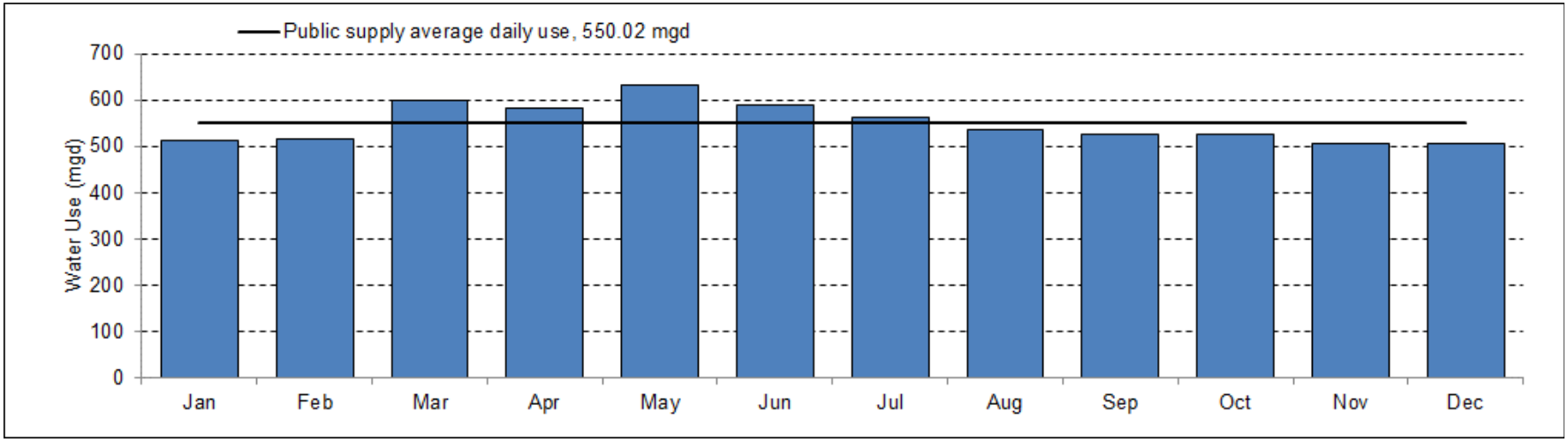

Figure 3. Average daily public supply water use (mgd) by month, 2020

Note: Water use is in million gallons per day (mgd).
Amounts are based on best available data as of April 2, 2021.

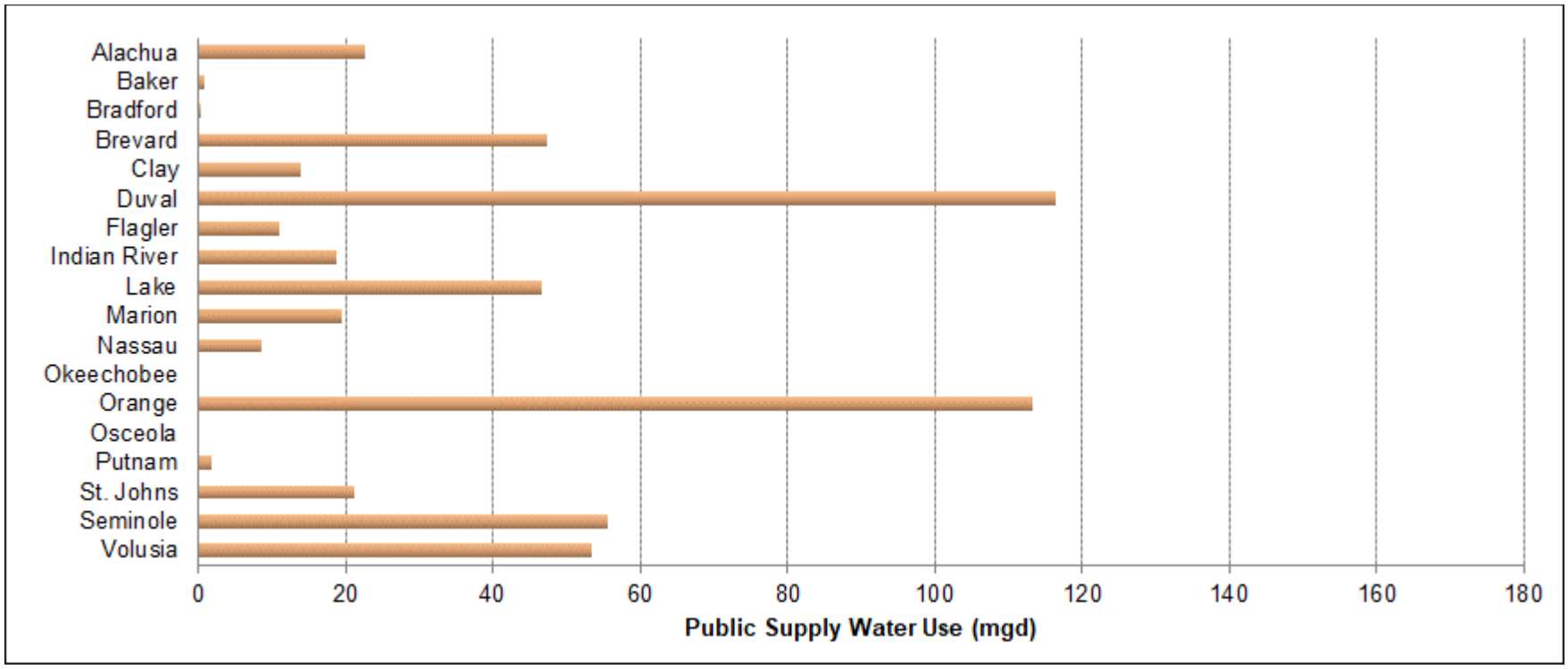

Figure 4. Water use (mgd) for public supply in SJRWMD, 2020

Note: Water use is in million gallons per day (mgd).
Amounts are based on best available data as of April 2, 2021.
Total public supply water use in SJRWMD for 2020 was 550.02 mgd.
Orange County (Orange County Utilities / Orlando Utilities Commission) totals only include the water consumed in SJRWMD.

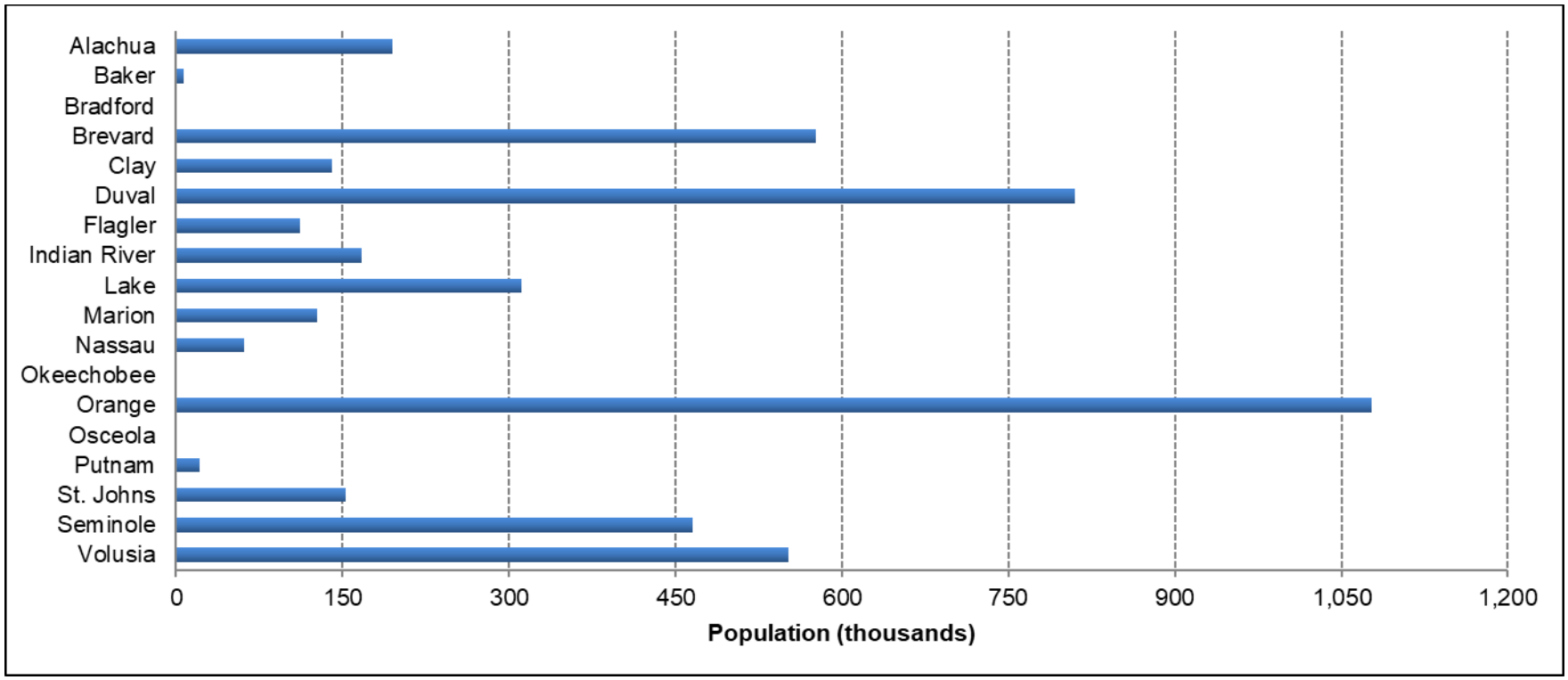

Figure 5. Population served by public supply in SJRWMD, 2020

Note: Population estimates are based on best available data as of April 2, 2021.
Total public supply population in SJRWMD for 2020 was 4,777,164.
Orange County (Orange County Utilities / Orlando Utilities Commission) totals only include the population served in SJRWMD.

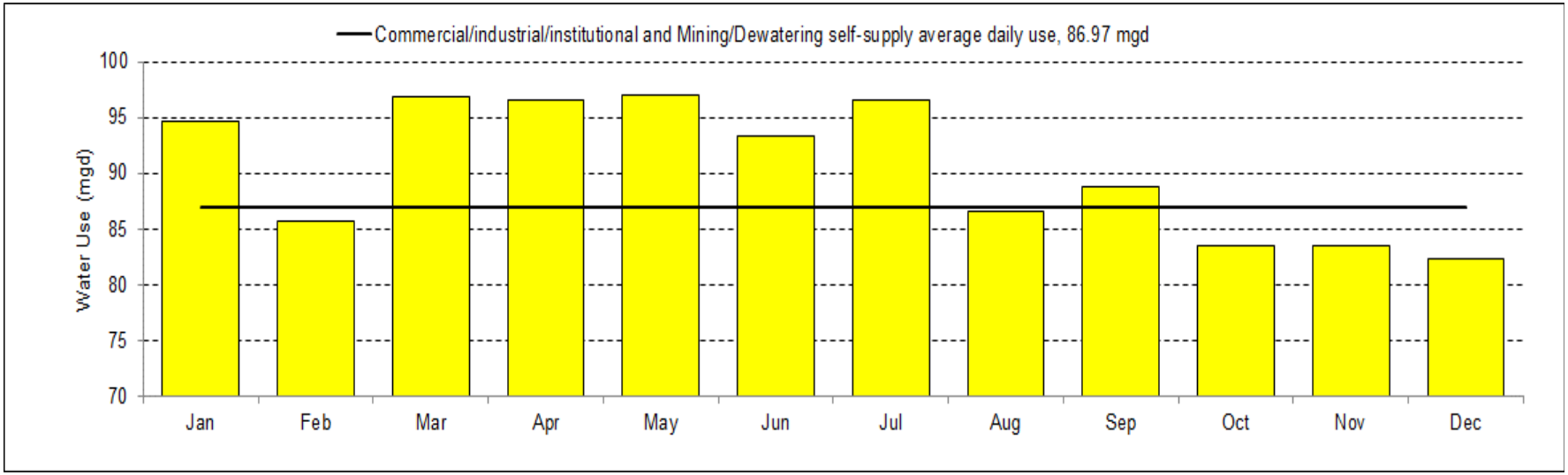

Figure 6. Average daily commercial/industrial/institutional and mining/dewatering self-supply water use (mgd) by month, 2020

Note: Water use is in million gallons per day (mgd).
Amounts are based on best available data as of April 2, 2021.

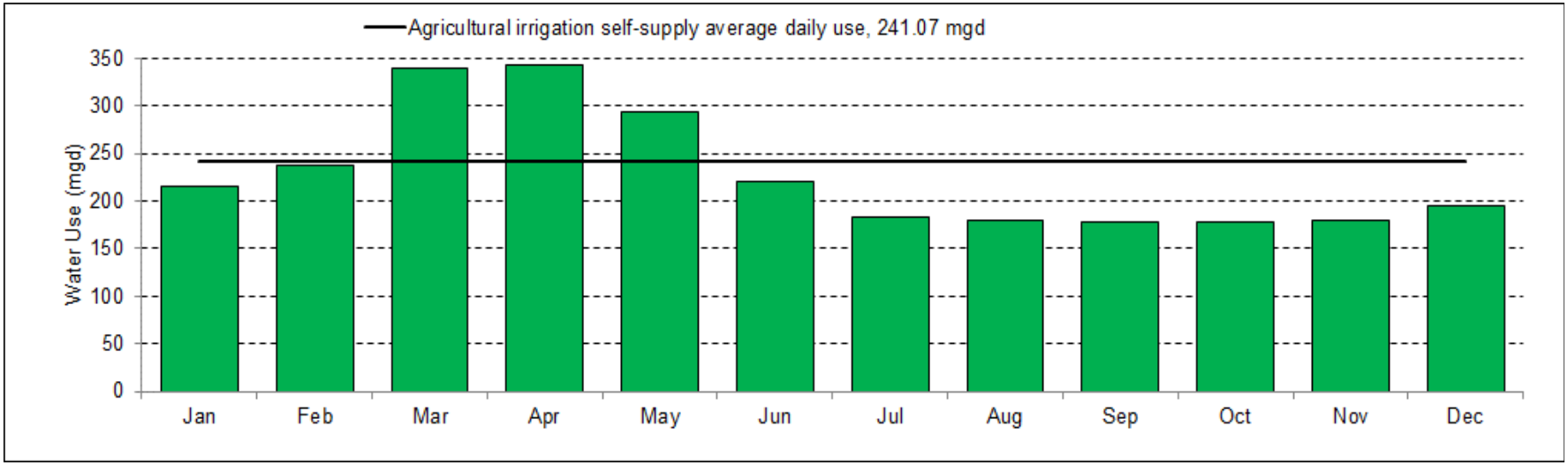

Figure 7. Average daily agricultural self-supply water use (mgd) by month, 2020

Note: Water use is in million gallons per day (mgd).
Amounts are based on best available data as of April 2, 2021.

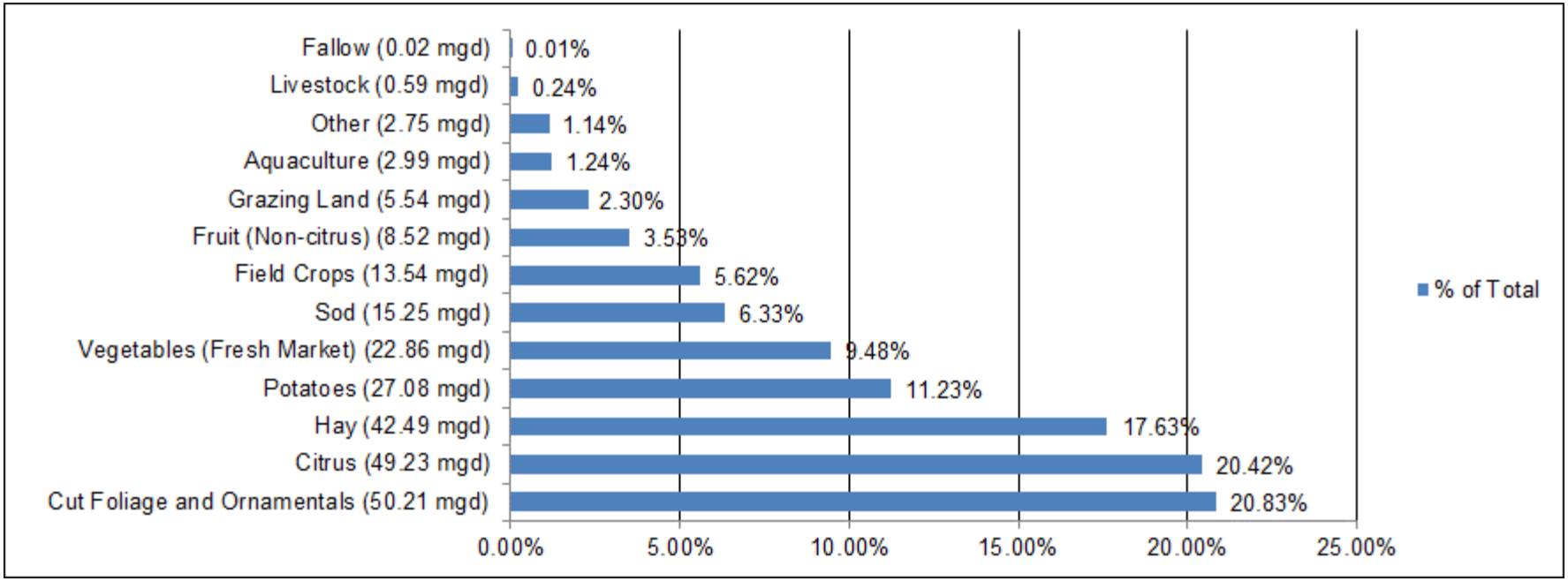

Figure 8. Agricultural water use by crop, 2020

Note: Water use is in million gallons per day (mgd).
Amounts are based on best available data as of April 2, 2021.
Calculation anomalies due to rounding account for nominal discrepancies.
Total agricultural water use in SJRWMD for 2020 was 241.07 mgd.

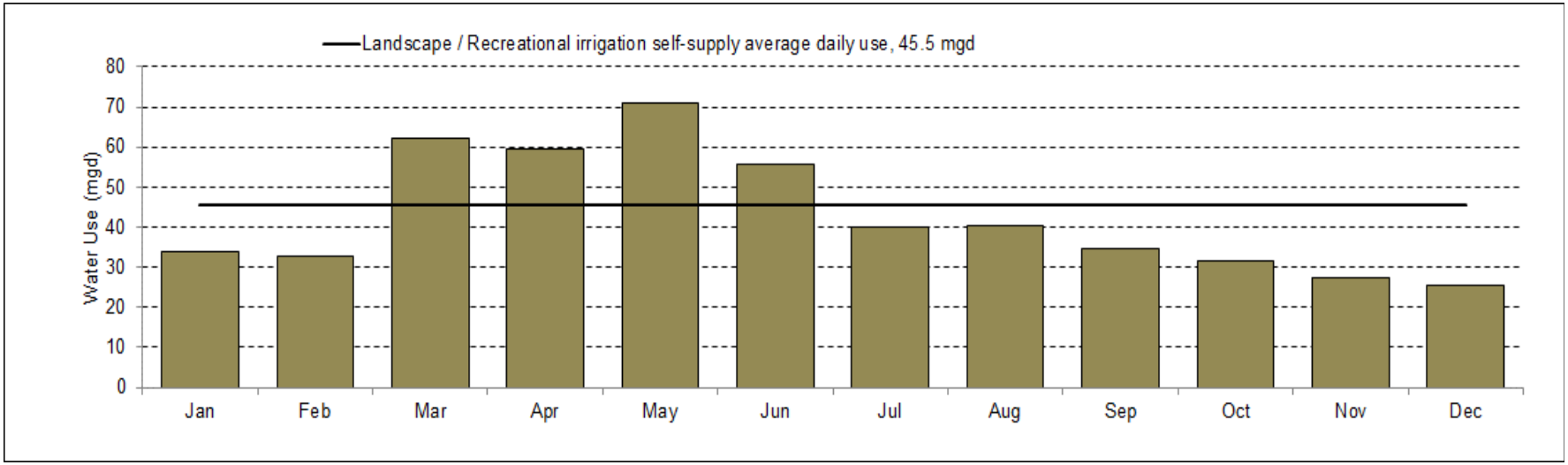

Figure 9. Average daily landscape/recreational irrigation self-supply water use by month, 2020

Note: Water use is in million gallons per day (mgd).
Amounts are based on best available data as of April 2, 2021.

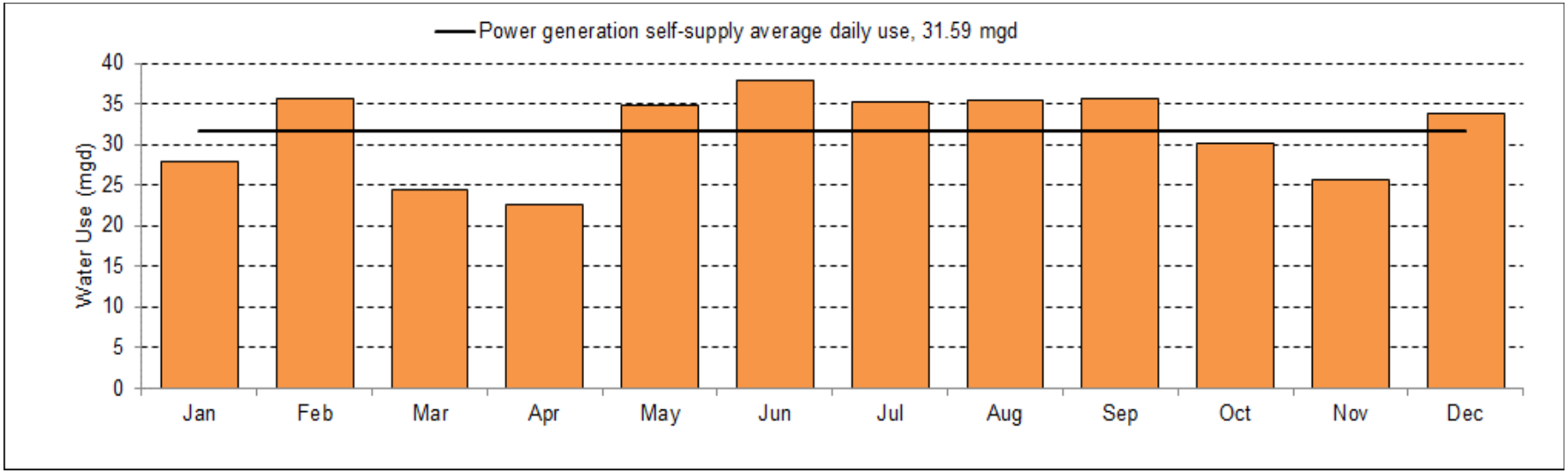

Figure 10. Average daily power generation self-supply water use by month, 2020

Note: Water use is in million gallons per day (mgd).
Amounts of consumptive water use are based on best available data as of April 2, 2021.

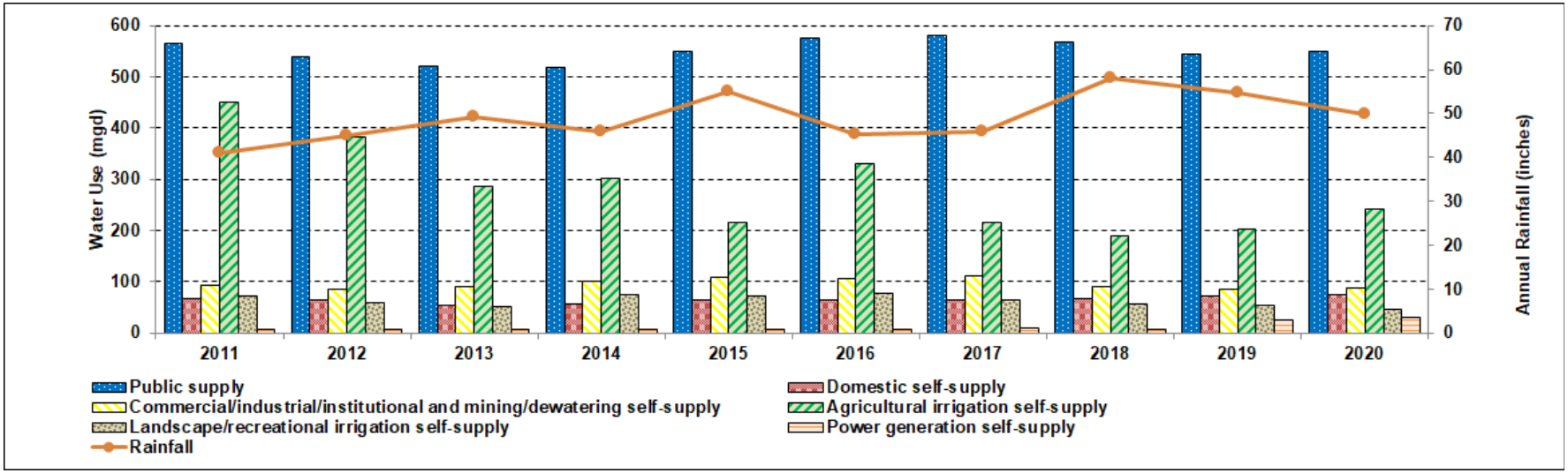

Figure 11. Annual rainfall and water use by category, 2011–2020

Note: Water use is in million gallons per day (mgd); rainfall is measured in inches.
Amounts are based on best available data as of April 2, 2021.
Source of domestic self-supply is assumed to be groundwater.

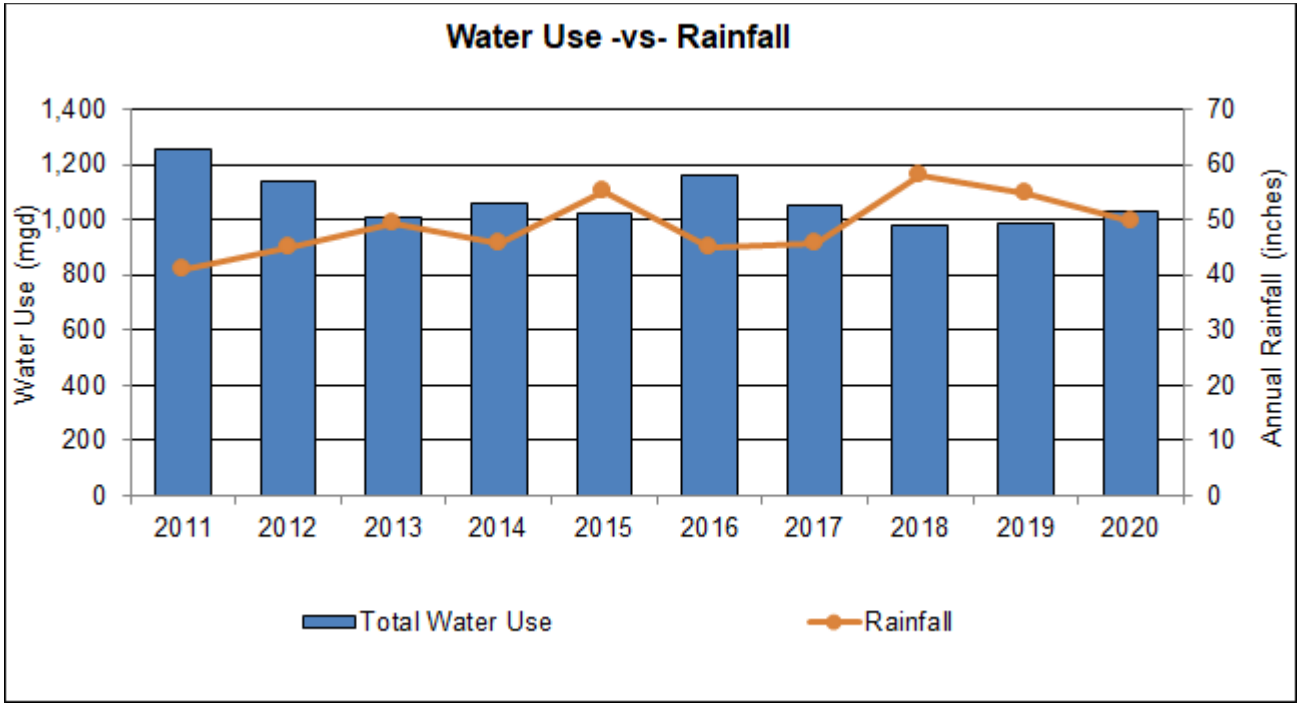

Figure 12. Annual rainfall and total water use, 2011–2020

Note: Water use is in million gallons per day (mgd); rainfall is measured in inches.
Amounts are based on best available data as of April 2, 2021.
Source of domestic self-supply is assumed to be groundwater.

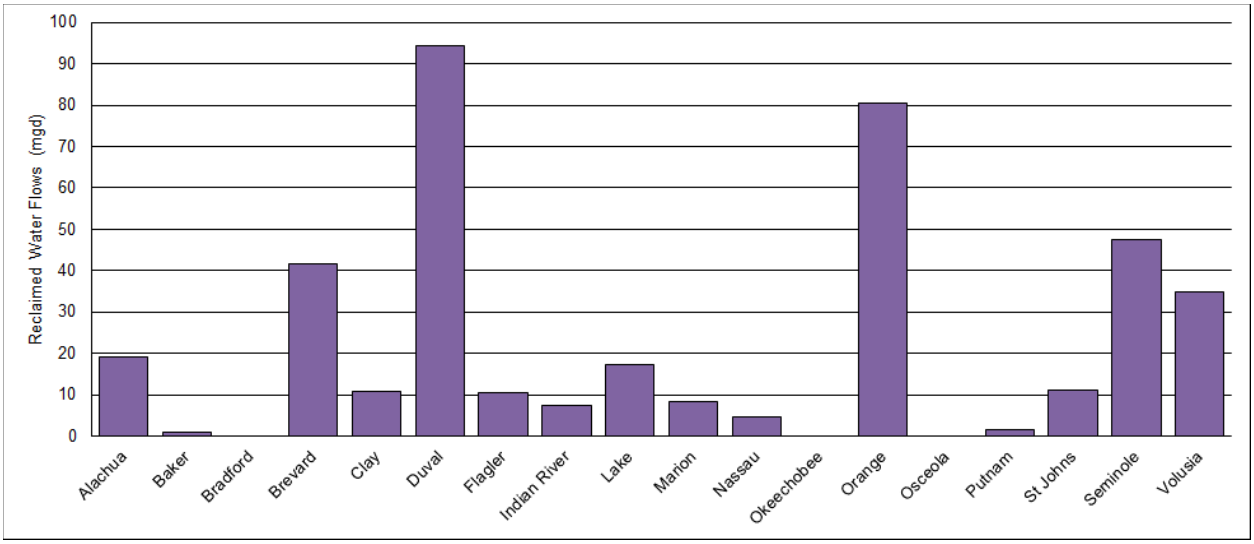

Figure 13. Reclaimed water flows, 2020

Note: Reclaimed water flows in million gallons per day (mgd).
Data obtained from the Draft 2020 DEP Reuse Inventory.

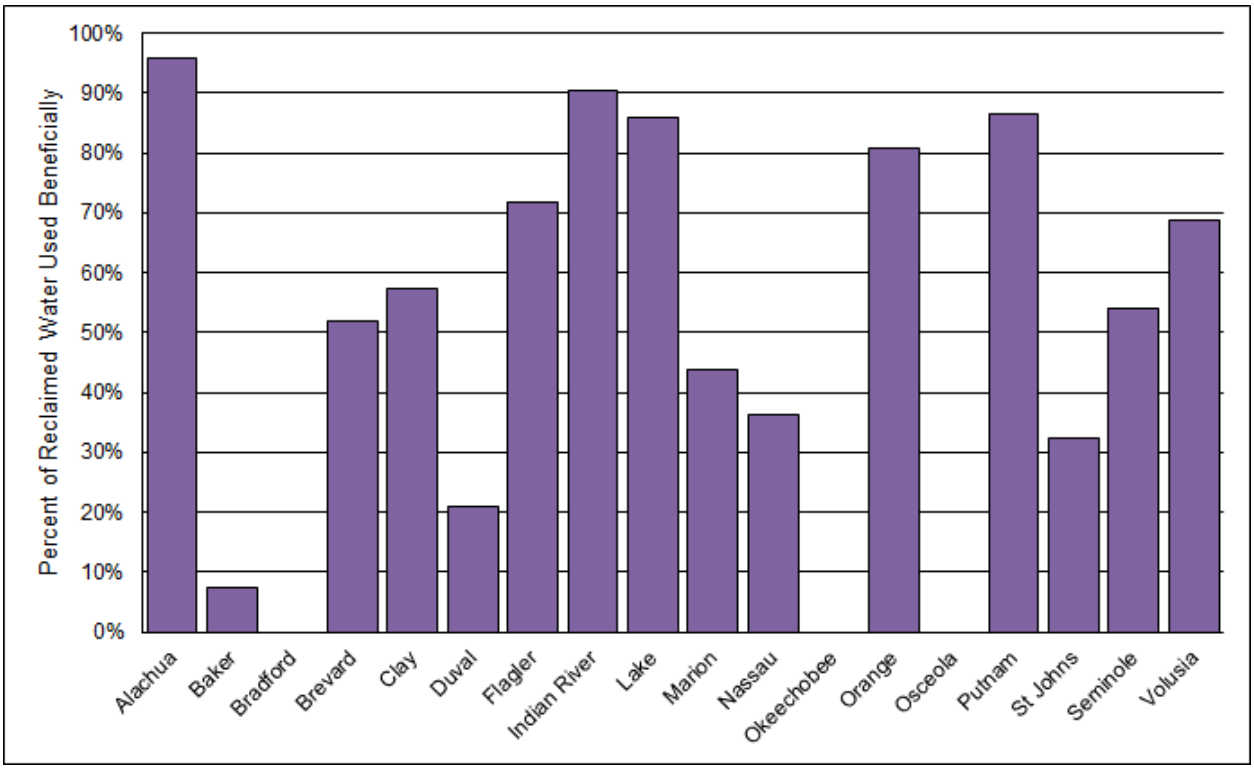

Figure 14. Percent of wastewater flows reused beneficially, 2020

Note: Data obtained from the Draft 2020 DEP Reuse Inventory.

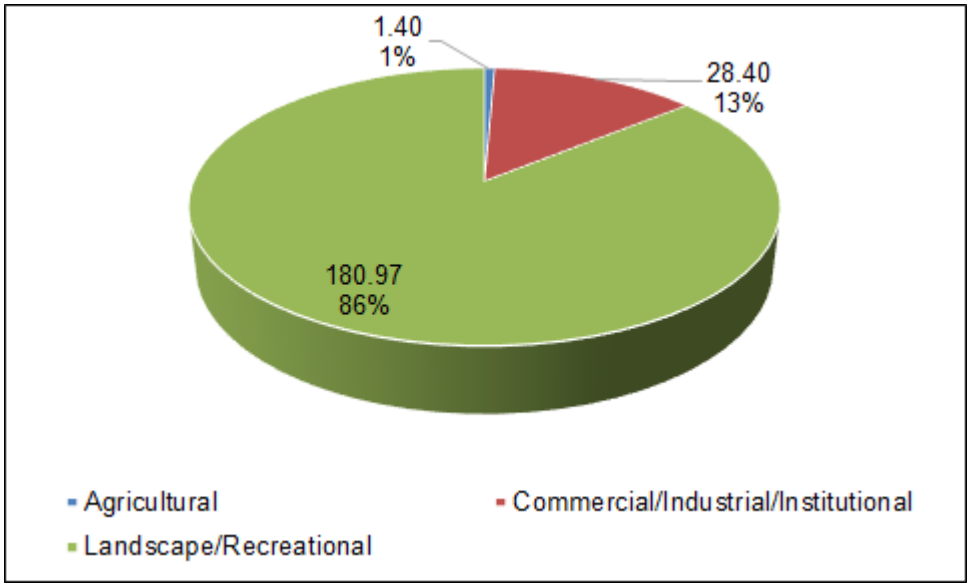

Figure 15. Beneficially used reclaimed water by use type, 2020

Note: Water use is in million gallons per day (mgd).
Data obtained from the Draft 2020 DEP Reuse Inventory.