South Florida Water Management District
2019 Estimated Water Use Report

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This report was produced by the Water Supply Bureau of the South Florida Water Management District. For further information about this document, please contact:

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EXECUTIVE SUMMARY

This report compiles estimated water use information by use category within the South Florida Water Management District for calendar year 2019, based primarily on water pumpage records reported pursuant to water use permitting requirements. Water use is defined as any consumptive use of water that reduces the supply from which it is withdrawn or diverted. This report is not intended to comprehensively account for all water used or conveyed within the District (e.g., for flood control, natural systems, water quality treatment). In 2019, approximately 3,029 million gallons per day (mgd) of surface water and groundwater were used in the following categories (**Figure ES-1**):

- Public Supply (1,383 mgd)
- Domestic Self-Supply (37 mgd)
- Commercial/Industrial/Institutional (141 mgd)
- Agriculture (1,119 mgd)
- Landscape/Recreation (340 mgd)
- Power Generation (9 mgd)

Of the 3,029 mgd, approximately 2,015 mgd were derived from groundwater sources and 1,014 mgd were derived from surface water sources, with 2,800 mgd being fresh water and 229 mgd considered saline water. Additionally, approximately 251 mgd of reclaimed water were used, primarily for landscape irrigation and, to a lesser extent, industrial and power generation uses.

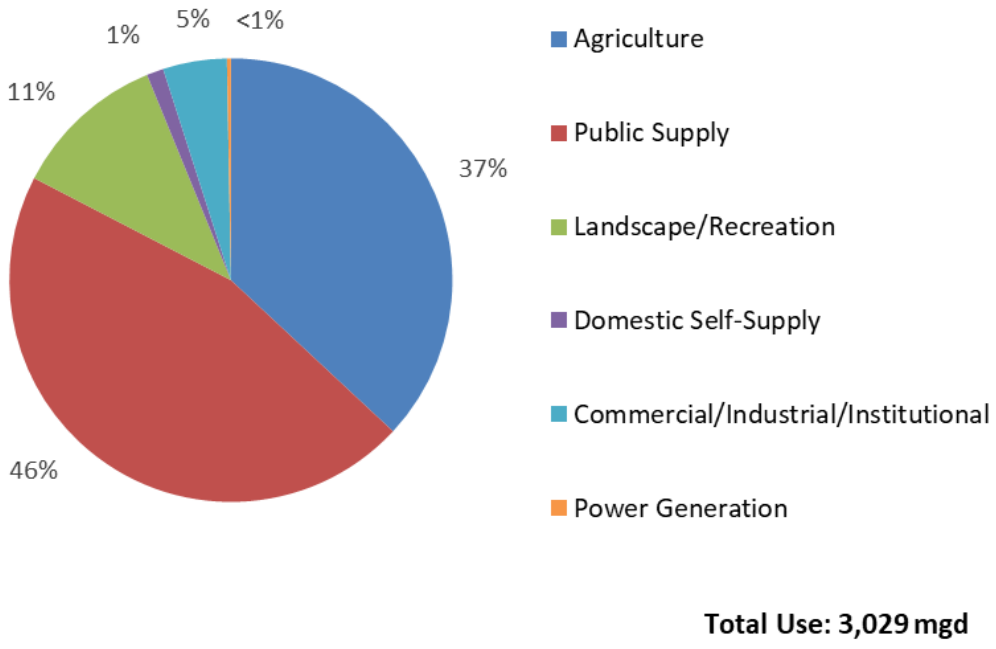

Figure ES-1. Percent Water Use by Category

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ACRONYMS AND ABBREVIATIONS

AG	Agriculture
CII	Commercial/Industrial/Institutional
D&I	Diversion and Impoundment
District	South Florida Water Management District
DSS	Domestic Self-Supply
EAA	Everglades Agricultural Area
FDEP	Florida Department of Environmental Protection
L/R	Landscape/Recreation
mgd	million gallons per day
mg/L	milligrams per liter
PCUR	per capita use rate
PG	Power Generation
PS	Public Supply
SFWMD	South Florida Water Management District

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INTRODUCTION

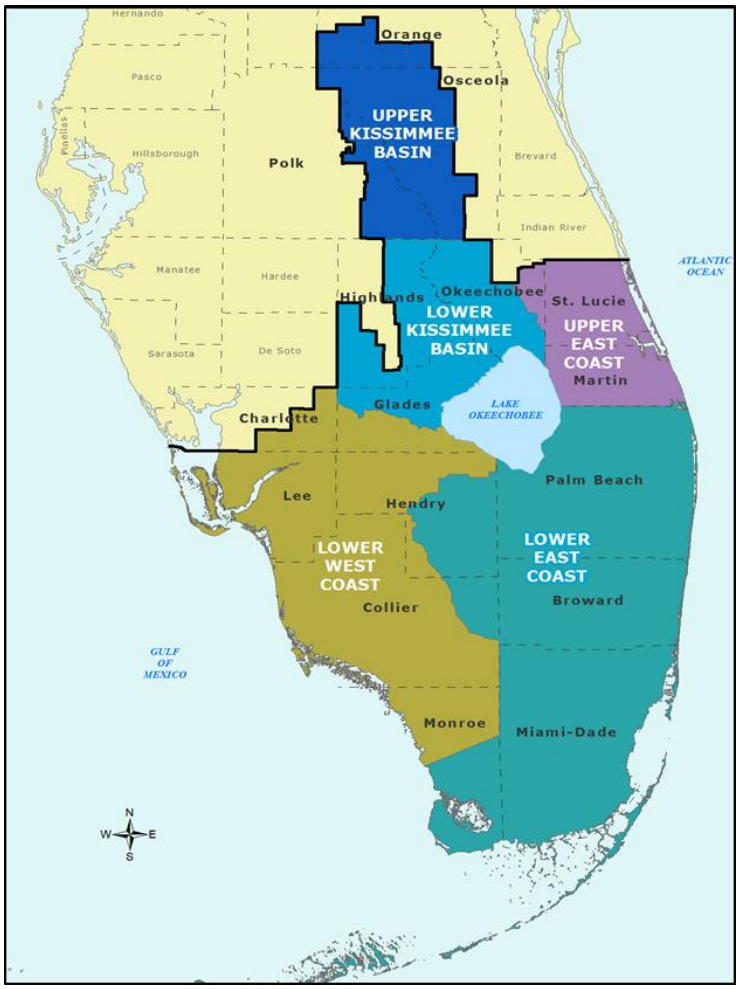
The South Florida Water Management District (SFWMD or District) is a regional government agency responsible for managing and protecting the water resources of South Florida by balancing and improving water quality, flood control, natural systems, and water supply. The District encompasses all or part of 16 counties from Orlando to the Florida Keys and serves a population of approximately 8.8 million residents. Created in 1949, it is the oldest and largest of the state's five water management districts. Among other duties, water management districts are responsible for water use permitting and water supply planning within their jurisdictional areas.

This report compiles estimated water use within the District for calendar year 2019. Water use is defined as any consumptive use of water that reduces the supply from which it is withdrawn or diverted. This report is a complement to the SFWMD's regional water supply plans, which capture current and projected water use, and to periodic water use reports prepared by the United States Geological Survey (Marella 2014, 2015; Marella and Dixon 2018). This report is based primarily on water pumpage records reported pursuant to water use permitting requirements. However, because 21% of the overall volume was estimated, rather than reported, this report is called the *Estimated Water Use Report*. This report is an important source of data and information to support the SFWMD's water resource programs and initiatives, including water supply planning, water use permitting, and water conservation.

This report documents the SFWMD's assessment of total water use. Estimated amounts are based on best available data at the time of publication. The document is not intended to comprehensively account for all water used or conveyed within the District (e.g., for flood control, natural systems, water quality treatment).

GEOGRAPHIC DESCRIPTION

The District encompasses more than 18,000 square miles in all or part of 16 counties of central and southern Florida. To manage water supply and plan for current and future water uses, the District is geographically divided into five planning areas (**Figure 1**). These regions are home to many permanent and seasonal residents in addition to a large tourist industry, a significant agricultural industry, and a growing industrial and commercial sector. Several major natural systems are located within the District, including the Upper Chain of Lakes, Kissimmee River and floodplain, Lake Okeechobee, Caloosahatchee River and Estuary, St. Lucie River and Estuary, Big Cypress National Preserve, Everglades water conservation areas, Everglades National Park/Florida Bay, and Biscayne National Park.



Upper Kissimmee Basin: Portions of Osceola, Orange, and Polk counties

Lower Kissimmee Basin: Portions of Okeechobee, Highlands, and Glades counties

Upper East Coast: Martin and St. Lucie counties and a portion of eastern Okeechobee County

Lower East Coast: Palm Beach, Broward, and Miami-Dade counties and portions of Monroe, Collier, and Hendry counties

Lower West Coast: Lee County, most of Collier County, and portions of Glades, Hendry, Monroe, and Charlotte counties

Figure 1. Water Supply Planning Areas

WATER USE PERMITTING AND REPORTING

Ensuring an adequate supply of water to protect, enhance, and restore natural systems and to meet all other existing and projected needs is a fundamental element of the SFWMD's mission. The District has adopted rules for regulating the use of water as contained in Chapter 40E-2, Florida Administrative Code, including the *Applicant's Handbook for Water Use Permit Applications* (Applicant's Handbook; SFWMD 2015). Uses exempt from permitting include indoor domestic use at a single-family or duplex dwelling, water used for firefighting purposes, the use of seawater, and the use of reclaimed water. The SFWMD issues two types of permits based primarily on the quantity of water required: Individual and General (both by rule and noticed). Individual permits normally are those allocating at least 0.10 million gallons per day (mgd) of water (averaged annually). Regional exceptions exist, such as the South Dade Agricultural Area, where Individual permits are issued for allocations of at least 0.30 mgd, and the Lower West Coast Planning Area, where Individual permits are issued for groundwater allocations of at least 0.01 mgd. General permits by rule include landscape irrigation at a single-family dwelling or duplex, on-site short-term dewatering, and closed-loop systems. Noticed General permits typically are for water users consuming less than 0.10 mgd that meet certain other requirements. Users with General permits (whether by rule or noticed) are not required to account for or report their water use.

Users with Individual permits typically are required to account for their water use and report a monthly volume used to the SFWMD. They are required to have a reliable, repeatable water use accounting system to record water use from all withdrawal facilities. For pumped systems, acceptable water use accounting systems include calibrated flowmeters or clocks that totalize pump operation. For gravity flow systems, acceptable accounting methods include the use of rated water control structures in conjunction with certified structure rating curves. Water use accounting and calibration methods must be submitted as part of the permit application. Prior to using any authorized facility, the approved water use accounting method must be operating and the initial calibration must be submitted to the SFWMD. Recalibration results for the water use accounting method are required every 5 years (from the date of last calibration).

For this report, water use under 20,036 permits was evaluated for calendar year 2019. In addition, there are 1,462 active permits for dewatering and 388 active permits for heating/cooling pools and air conditioning units. These 388 permittees recirculate water in such a way that there is no net consumption (closed-loop system); therefore, these permits were not included in the total use estimates. Another 111 permits for surface water within the boundaries of the Everglades Agricultural Area (EAA) were evaluated holistically and are discussed separately. Finally, 23 permits classified as "other" that cumulatively contribute a negligible volume (less than 0.50 mgd) were disregarded.

WATER USE ESTIMATION METHODOLOGY

The most accurate way to determine the amount of water used each year would be to total the annual water use of every user. However, as noted previously, not all water users are required to account for and report their annual use, and some users had not reported their water use at the time of this report. Recognizing these data deficiencies, this report utilized water use information from water users that reported in 2019 and estimated the amount of water used by those who did not or do not report.

The specific water demands of each permittee are evaluated at the time of permit application, and each permittee has a calculated maximum volume of water allowed for use (i.e., a permit allocation). Water use permits typically are issued for a 20-year duration, and account for projected increases in population or irrigated acreages over that period. The annual permit allocation is determined by calculating the quantity of water to be withdrawn over a 12-month period under 1-in-10 year drought conditions for the associated use category. For agriculture users, it is the amount of water a crop needs to supplement the rainfall received during 1-in-10 year drought conditions. For other use categories, it is the quantity of water required by each component of demand for the particular use, which may include factors such as treatment losses; other sources of water; conservation practices; and water purchased, sold, or transferred. It is important to understand that the allocated permit volume for most categories is the water volume required by those users during 1-in-10 year drought conditions over the duration of the permit. Therefore, during 1-in-10 year drought conditions Districtwide, the total water use for the District should be approximately the sum of all permit allocations (assumes all acreage is planted and projected population is being served). Water use in 2019 was less than the amount allocated in permits.

The ratio of reported use to the permit allocation (referred to herein as the allocation utilization ratio) was used as an analogue to obtain an estimate of use for permittees who did not report or were not required to report. The estimation process used in this 2019 report was the same as the 2018 report process. Each permit's allocation utilization ratio (of those that reported) was calculated. For each water use category, outlier ratios less than the 10th percentile and greater than the 90th percentile were removed, and the remainder were averaged to calculate the allocation utilization ratios for each water use category. Using a combination of reported and estimated water use for each permittee, the total amount of water used for each use category was estimated. Further information on specific methods by use category is provided later in this document.

WATER SOURCES

This report estimates the volume of water withdrawn or diverted from groundwater and surface water sources. Reported pumpage data were ascribed to specific water sources (i.e., groundwater or surface water). All estimated data were assigned a source based on their related facility types. Permittees exclusively using pumps to extract water were assigned as surface water users, and those exclusively using wells were designated as groundwater users. If a permittee has both pumps and wells, the estimated volumes were split proportionally between surface water and groundwater sources using the average ratio of groundwater to surface water reported by permittees with both groundwater and surface water facilities for each use class. If only a small number of permittees with both types of facilities in a particular use class reported, then the average ratio for all reported permits was used. Some permits employ "recharge" facilities (almost exclusively groundwater sources), which provide recharge water to surface water bodies to be repumped, mostly for irrigation use. In those cases, to avoid double counting, the volume from the groundwater source was subtracted from the volume delivered for irrigation to obtain an adjusted volume attributed to the surface water body.

As stated earlier, the use of reclaimed water is not regulated by water management districts. However, reclaimed water use is a key component of water resource management. The beneficial use of reclaimed water for irrigation and other uses has partially reduced the need for surface water and groundwater sources. Reclaimed water data are compiled separately in this report based on inventories produced by the Florida Department of Environmental Protection (FDEP) from data submitted by utilities. Some permits contain supply sources that are used for blending with reclaimed water or as a backup supply should reclaimed water become unavailable. Permittees with these permit types that did not report water withdrawals were assumed to have met all their water demands with reclaimed water and were not estimated individually. When reclaimed water was partially used (reported) by a permittee, only the volume from the groundwater or surface water source was counted (in the estimation report) to avoid double counting the reclaimed water volumes. Additional information on sources is provided under individual use categories later in this report.

WATER QUALITY

Water use estimates contained in this report are divided into fresh water and saline water. For the purposes of this report, the following terms and definitions from the Applicant's Handbook (SFWMD 2015) are used to define different water qualities:

- ***Fresh water*** is water with a chloride concentration ≤250 milligrams per liter (mg/L)
- ***Saline water*** is water with a chloride concentration between 250 and 19,000 mg/L
- ***Seawater*** or ***Saltwater*** is water with a chloride concentration ≥19,000 mg/L

In general, freshwater sources in the District include the Upper Floridan aquifer in the Upper and Lower Kissimmee Basin planning areas; the surficial aquifer system in the Upper East Coast Planning Area; the Biscayne aquifer in the Lower East Coast Planning Area; the Lower Tamiami, Water Table, and Sandstone aquifers in the Lower West Coast Planning Area; and surface water upstream of coastal salinity water control structures. Saline water sources in the District include the Floridan aquifer system in the Upper East Coast, Lower East Coast, and Lower West Coast planning areas, while seawater sources include the Atlantic Ocean and Gulf of Mexico as well as connected tidal water bodies. Saline water and saltwater sources require blending with freshwater sources or desalination treatment prior to use as potable water or for irrigation. Only a small fraction of permits require water quality testing to determine salinity. Therefore, the volumes reported as saline water are mostly for permits known to require treatment or blending from known saline sources, primarily in the Public Supply (PS) category and to a lesser extent the Landscape/Recreation (L/R) and Agriculture (AG) categories. If the salinity of the source water and treatment/blending requirements are unknown, the water quantities are classified as fresh.

WATER USE CATEGORIES

Water use estimates in this report were developed for the following six water use categories established by the FDEP in collaboration with the state's five water management districts for use in water supply planning:

- Public Supply (PS)
- Domestic Self-Supply (DSS)
- Commercial/Industrial/Institutional (CII)
- Agriculture (AG)
- Landscape/Recreation (L/R)
- Power Generation (PG)

PS includes treated potable water provided to some of the other use categories within a utility's service area boundaries. The other categories include users that are separately permitted and do not receive water from a utility but rather have their own water supply withdrawal facilities (e.g., wells, pumps, structures). These water supply categories are not identical to the use classes utilized in permitting. As a result, permitting use classes were combined in some cases to develop the water use estimate for the water supply categories used in this report.

Dewatering activities are not included in this report. Dewatering involves pumping water from an area to produce a dry working condition and includes withdrawals of water for construction activities, some mining operations, and minor uses such as exploratory testing, short-term remedial action plans, and aquifer performance tests. Water from dewatering activities normally is required to be retained on site such that losses are limited to evaporation, which are considered minimal compared to the volumes pumped. Furthermore, permits for dewatering are not given allocations (although General permits must comply with daily and annual withdrawal limits), and permittees generally are not required to report water use to the SFWMD.

Additionally, there are 388 permits classified as industrial that use wells for their geothermal properties and are not included in this report. These "closed-loop" applications include air conditioning and swimming pool temperature regulation, which extract groundwater, pass it through a heat exchange unit, and then reinject the warm or cool water back into the ground. The result of the closed-loop system operation effectively is a zero-balance withdrawal. Recent changes to water use rules have made these type systems a "no notice" permit such that they are no longer issued a permit number or tracked.

Diversion and Impoundment (D&I) permits usually are for large parcels of land that contain smaller users within their boundaries. These permittees divert surface water through pumps or control structures or divert a combination of surface water and groundwater into a conveyance canal network, to provide for the demands of secondary users as well as consumptive and non-consumptive uses. Within the District, there are 60 D&I permits. There are 26 D&I permits outside of the EAA that exclusively serve agriculture, and 2 permits that partially serve agriculture. The estimated volumes for these permits are included in the AG category. In addition, there are 9 D&I permits within the EAA whose water use is accounted for in the EAA estimate described later in this report. Finally, 23 D&I permits primarily for recharging aquifer and canal networks, hydrating wetlands, maintaining salinity barriers along the coast, or providing fire protection were not included in the water use estimates of this report.

2019 WEATHER

During calendar year 2019, the District received 51.71 inches of rainfall. Average historical (1915 to 2019) annual rainfall within the District is 52.15 inches. **Figure 2** presents the annual deviation from average rainfall over the past century. From 2009 to 2019, average annual rainfall within the District varied by 16.6 inches; the driest year was 2018 with 47.08 inches and the wettest year was 2017 with 63.68 inches. However, a Districtwide average number does not tell the whole story as rainfall varies not only by year but also by month and location. The District typically receives two-thirds of its annual rainfall between May and October (**Figure 3**). Remarkably, September 2019 was the driest September ever recorded at 2.41 inches (67% below the September average of 7.32 inches). **Figure 4** presents the rainfall amounts received in each basin within the District during 2019. Note that **Figure 4** uses a 30-year annual rainfall average of 52.52 inches related to percent and inches deviation from "average".

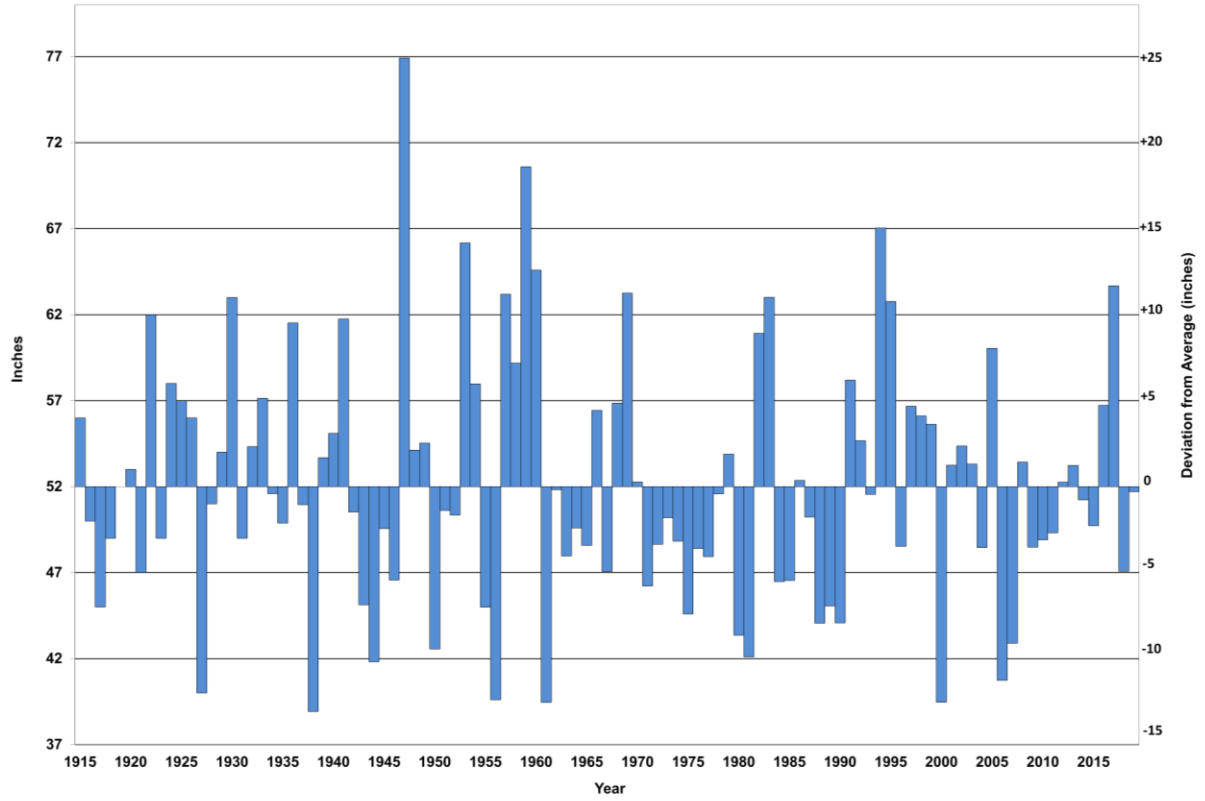


Figure 2. SFWMD Annual Difference from Average Rainfall (1915-2019)

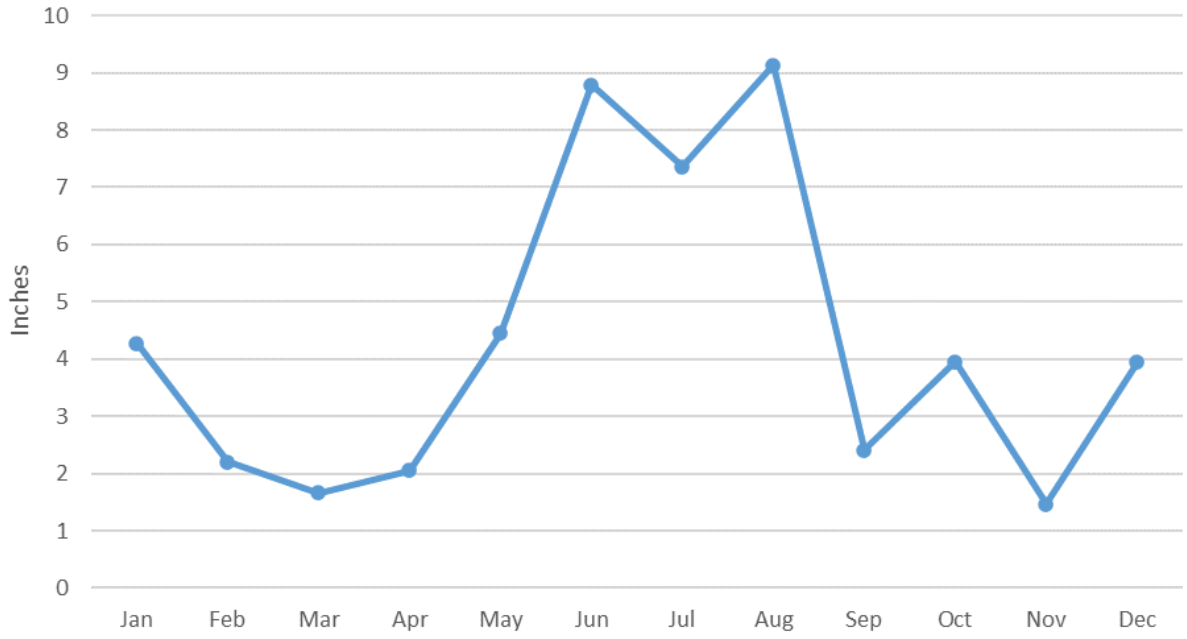


Figure 3. 2019 Average District Monthly Rainfall Distribution

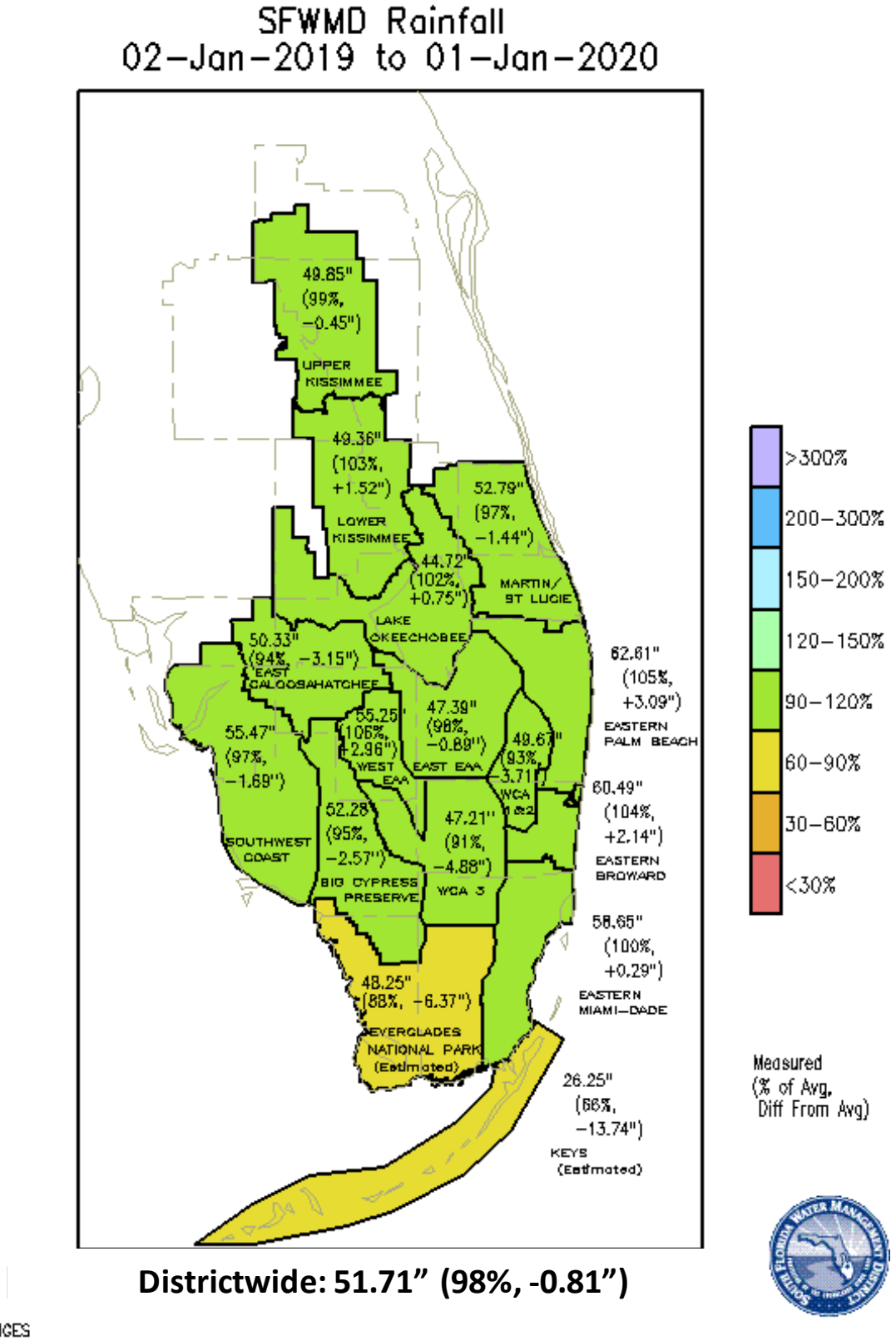


Figure 4. SFWMD 2019 Rainfall Distribution Map Compared to 30-Year Historical Average

DATA SOURCES

The primary sources of data for this report are permittee-reported monthly pumpage volumes recorded in the SFWMD's regulatory database (RegDB). Quarterly or semi-annual reporting of monthly data generally is required for all permittees with permit allocations of 0.10 mgd or greater. Monthly pumpage data are collected using calibrated flowmeters or other approved water use accounting methods as discussed earlier. Water use was estimated for permittees who had not reported based on the assumptions described in the *Water Use Estimation Methodology* section earlier and in the specific use category sections that follow. Rainfall data were provided by the SFWMD's Operations Section.

For this report, data for all use categories were obtained for active permits from January 1, 2019 through December 31, 2019. Analysis of reported water use was performed by specialists within the SFWMD's Water Supply Bureau to compile the best available data. Work on this report typically begins in September, which allows time for the SFWMD's Water Use Bureau to receive semi-annual data (June reporting of December data) and to contact permittees regarding absent and outlier data. For this report, the SFWMD's Water Supply Bureau must do additional manipulation and validation of the data to determine the surface water to groundwater and saline to freshwater source ratios. Water use estimates in this report are based on a final RegDB query performed on December 18, 2020. The SFWMD cannot guarantee the validity of the reported data or that permittees have used consistent measurement techniques or quality control standards in their data collection and reporting. Additionally, data sources used for this report may be updated after publication.

2019 ESTIMATED WATER USE BY CATEGORY

Water use was estimated by category from fresh, saline, and reclaimed water sources and reported as an average (in mgd, unless noted otherwise).

Public Supply

Water withdrawn, treated, and delivered to service areas within the SFWMD by privately and publicly owned water supply utilities (or systems) is defined as Public Supply (PS). This encompasses water supplied by water treatment facilities for potable use (i.e., drinking quality) with projected average pumpage rates of 0.10 mgd or greater. The reported volumes represent gross (raw) water withdrawn before treatment and distribution losses. In 2019, there were 127 active PS permits (0.10 mgd or greater) serving an estimated 8.3 million people (95% of the total District population). PS utilities and individuals using less than 0.10 mgd are included in the DSS category. PS demand often fluctuates during the year in response to seasonal rainfall and variations in temperature as well as seasonal and tourist populations. For 2019, the total water use for PS was 1,383 mgd, with 86% coming from freshwater sources and 14% coming from saline water sources. Groundwater sources contributed 98% of the water, and surface water bodies accounted for the remaining 2%. **Table 1** presents total water use Districtwide and by county for fresh and saline water from groundwater and surface water sources in the PS category.

Table 1. Public Supply (in mgd)[1]

County	Fresh Water	Saline Water	Surface Water	Groundwater	**Total Use**	Number of Permits
Broward	284.76	12.25	0.00	297.01	**297.01**	26
Charlotte	0.15	0.00	0.00	0.15	**0.15**	3
Collier	17.14	39.46	0.00	56.59	**56.59**	9
Glades	0.58	0.00	0.00	0.58	**0.58**	2
Hendry	0.72	3.35	0.00	4.07	**4.07**	3
Highlands	0.32	0.00	0.00	0.32	**0.32**	2
Lee	72.66	49.29	0.00	121.95	**121.95**	13
Martin	25.56	21.86	0.00	47.42	**47.42**	12
Miami-Dade	338.75	13.59	0.00	352.34	**352.34**	7
Monroe[2]	0.00	0.00	0.00	0.00	**0.00**	0
Okeechobee	2.66	0.00	2.53	0.13	**2.66**	2
Orange	33.76	6.61	0.00	40.36	**40.36**	4
Osceola	97.34	0.00	0.00	97.34	**97.34**	8
Palm Beach	300.13	27.44	29.11	298.46	**327.57**	22
Polk	2.82	0.00	0.00	2.82	**2.82**	5
St. Lucie	8.16	23.97	0.00	32.13	**32.13**	9
Total	**1,185.51**	**197.81**	**31.64**	**1,351.68**	**1,383.32**	**127**

[1] Values are only for the portions of the counties located within the SFWMD.

[2] The Florida Keys Aqueduct Authority (FKAA) serves the Florida Keys in Monroe County. Because the FKAA's wellfields are located in Miami-Dade County, the volume delivered to Monroe County (18.32 mgd of groundwater [16.74 mgd fresh and 1.58 mgd saline]) is included in the Miami-Dade County totals.

Domestic Self-Supply

Domestic Self-Supply (DSS) is primarily for individual residences in rural areas without access to a PS system, and often is provided by small, shallow private wells. Domestic consumption at single-family and duplex residences is exempt from water use permitting and reporting. Landscape irrigation at a single-family dwelling or duplex is granted a General permit by rule. For reporting purposes, the DSS category includes small PS utilities and users providing potable water withdrawing less than 0.10 mgd. These typically serve a limited number of households (e.g., a small subdivision or mobile home park). Other small self-supply permits classified as public supply are for domestic indoor use (and possibly landscape irrigation) at a single structure such as a sales trailer, small office, or convenience store. There were 1,075 permits for public supply with an allocation less than 0.10 mgd in 2019.

Because DSS residential users are not required to report their use, estimations for the DSS category are based on county population data and the PS per capita use within each county. The DSS demand estimate was calculated by multiplying the 2019 DSS county populations by the 2019 PS Districtwide uniform residential per capita use rate (PCUR), which was derived from water use reported by utilities to the SFWMD as part of the annual reporting required pursuant to Section 373.709(6), Florida Statutes. **Appendix A** contains further information regarding population, PCURs, and DSS use calculations.

The 2019 total water use for DSS was estimated to be 37.38 mgd, with 100% coming from fresh groundwater sources. **Table 2** presents total water use by county for fresh and saline water from groundwater and surface water sources in the DSS category.

Table 2. Domestic Self-Supply (in mgd)[1]

County	Fresh Water	Saline Water	Surface Water	Groundwater	**Total Use**	Number of Permits[2]
Broward	0.86	0.00	0.00	0.86	**0.86**	27
Charlotte	0.01	0.00	0.00	0.01	**0.01**	10
Collier	4.21	0.00	0.00	4.21	**4.21**	62
Glades	0.42	0.00	0.00	0.42	**0.42**	30
Hendry	1.20	0.00	0.00	1.20	**1.20**	69
Highlands	1.26	0.00	0.00	1.26	**1.26**	25
Lee	12.45	0.00	0.00	12.45	**12.45**	135
Martin	0.64	0.00	0.00	0.64	**0.64**	106
Miami-Dade	1.78	0.00	0.00	1.78	**1.78**	103
Monroe	0.00	0.00	0.00	0.00	**0.00**	0
Okeechobee	1.31	0.00	0.00	1.31	**1.31**	95
Orange	4.08	0.00	0.00	4.08	**4.08**	86
Osceola	0.47	0.00	0.00	0.47	**0.47**	17
Palm Beach	5.71	0.00	0.00	5.71	**5.71**	150
Polk	0.67	0.00	0.00	0.67	**0.67**	23
St. Lucie	2.32	0.00	0.00	2.32	**2.32**	137
Total	**37.38**	**0.00**	**0.00**	**37.38**	**37.38**	**1,075**

[1] Values are only for the portions of the counties located within the SFWMD.
[2] Public supply permits less than 0.10 mgd.

Commercial/Industrial/Institutional

The Commercial/Industrial/Institutional (CII) category consists of self-supplied water consumed by business operations. Industrial uses include processing and manufacturing, dust control, maintenance, cleaning, and washing. Groundwater remediation projects also are classified as an industrial use. However, remediation projects that reinject treated water back into the same aquifer are not included in this report. Commercial facilities under the CII category include office complexes, hotels, restaurants, gas stations, car washes, laundromats, theme parks, and zoos, among others. Some larger institutions such as schools, hospitals, and prisons also are included in the CII category primarily for heating, ventilation, and cooling (HVAC) system operations. Water use for CII facilities receiving water from PS utilities (i.e., not self-supplied) are included in the PS category. CII does not include water used for power generation.

Mining is included in the CII use category. The mining uses reported herein include dust suppression, non-recycled water use as part of on-site mining processes, water entrained within commercial products, and minor volumes for potable/sanitary use by on-site employees. The volumes reported do not include recycled surface water or dewatering volumes, which are separately permitted under the dewatering use class and not included in this report.

The average allocation utilization ratio of reporting CII permits was 30% after removing permits below the 10th percentile and above the 90th percentile. Water use for CII permits that did not report in 2019 was estimated by multiplying the average allocation utilization ratio of 30% by the permit allocations.

The CII category includes 22 mining and 62 industrial permits that have an allocation of 0.10 mgd or greater, and 562 permits with an allocation less than 0.10 mgd. The total 2019 water use for CII was 141.21 mgd, with fresh groundwater contributing 54% and fresh surface water contributing 46%. Industrial use accounted for 48.38 mgd (34%) and mining use accounted for 92.83 mgd (66%) of the total CII use. **Table 3** presents total water use Districtwide and by county from groundwater and surface water sources for fresh and saline water in the CII category. Further detail is provided in **Appendix B**.

Table 3. Commercial/Industrial/Institutional (in mgd)[1]

County	Fresh Water	Saline Water	Surface Water	Groundwater	**Total Use**	Number of Permits
Broward	2.71	0.00	0.07	2.65	**2.71**	89
Charlotte	0.08	0.00	0.01	0.07	**0.08**	9
Collier	7.17	0.00	6.53	0.65	**7.17**	62
Glades	18.91	0.00	18.64	0.27	**18.91**	11
Hendry	4.87	0.00	0.22	4.65	**4.87**	48
Highlands	1.44	0.00	0.01	1.44	**1.44**	15
Lee	11.03	0.00	10.63	0.40	**11.03**	84
Martin	3.46	0.00	0.21	3.25	**3.46**	39
Miami-Dade	73.97	0.00	21.62	52.35	**73.97**	78
Monroe	0.00	0.00	0.00	0.00	**0.00**	1
Okeechobee	3.00	0.00	2.81	0.18	**3.00**	22
Orange	2.02	0.00	0.00	2.02	**2.02**	14
Osceola	0.08	0.00	0.00	0.08	**0.08**	23
Palm Beach	11.54	0.00	3.97	7.57	**11.54**	118
Polk	0.00	0.00	0.00	0.00	**0.00**	1
St. Lucie	0.92	0.00	0.77	0.15	**0.92**	32
Total	**141.21**	**0.00**	**65.49**	**75.72**	**141.21**	**646**

[1] Values are only for the portions of the counties located within the SFWMD.

Agriculture

The Agriculture (AG) category includes water used for commercial crop irrigation, nurseries, livestock watering, pasture, and aquaculture. AG estimates were based on the methodology described in the *Water Use Estimation Methodology* section earlier in this report, with the following exceptions:

- For the agriculture permitting use class, 730 users in all 5 planning areas of the SFWMD reported. The reported water use to permitted allocation ratios were determined by water supply planning area to take regional weather effects into account. Statistical analysis (the Mann-Whitney *U* test) supported using unique allocation utilization ratios for each planning area rather than a single ratio for the entire use category. The AG allocation utilization ratios for each planning area are as follows:
    - Upper Kissimmee Basin – 11.7%
    - Lower Kissimmee Basin – 14.8%
    - Upper East Coast – 13.6%
    - Lower West Coast – 19.7%
    - Lower East Coast – 21.7%

- For the aquaculture permitting use class, 5 out of 80 users in 2 of the 5 planning areas reported. Permittees that did not report were estimated using an allocation utilization ratio of 14.5% based on the permittees that did report.
- For the nursery permitting use class, 43 out of 910 users in all 5 planning areas reported. Permittees that did not report were estimated using an allocation utilization ratio of 46.8% based on the permittees that did report.
- For the livestock permitting use class, 9 out of 599 users in 2 of the 5 planning areas reported. Permittees that did not report were estimated using an allocation utilization ratio of 63.7% based on the permittees that did report.

The AG category is made up of 4,002 permits, including 2,384 for agriculture, 910 for nursery, 599 for livestock, 80 for aquaculture, 28 D&I permits that serve agricultural operations, and the EAA represented by 1 "permit" (which includes 111 permitted AG and other users).

Everglades Agricultural Area (EAA)

The EAA is located south of Lake Okeechobee and was created from drainage of the northern Everglades. The EAA is composed primarily of highly productive agricultural land and land used by the SFWMD for water storage and treatment (e.g., stormwater treatment areas). The agricultural land is mostly sugarcane interspersed with winter vegetables, sod, and rice. The EAA extends south from Lake Okeechobee to the northern levee/boundary of Water Conservation Area 3A, from its eastern boundary at the L-8 Canal to the western boundary along the L-1, L-2, and L-3 levees. Four major canals (West Palm Beach, Hillsboro, North New River, and Miami) pass through the EAA and supply agricultural irrigation water, mainly through gravity release from Lake Okeechobee. The primary irrigation method in the EAA is seepage irrigation. Farmers use secondary and tertiary canals to distribute surface water from gated culverts and pumps to their respective fields. Daily records of the water volumes from Lake Okeechobee into and out through primary canals are kept such that a surface water demand volume for the area can be estimated using a water balance method. The SFWMD's Everglades Technical Support Bureau produces flow volume data sets for this area (to be used in the EAA Regulatory Model as part of the annual total phosphorus load compliance assessment required by Chapter 40E-63, Florida Administrative Code), from which the irrigation water volume can be calculated. In calendar year 2019, 376 mgd of water were used by 473,776 acres of the EAA. This acreage excludes lands that were part of the historical EAA acreage and are currently used by the District for water storage and treatment (**Figure 5**). For more information regarding the regulatory model, please refer to Chapter 4, Appendix 4-1 of the South Florida Environmental Report, which is published annually and available on the SFWMD's website.

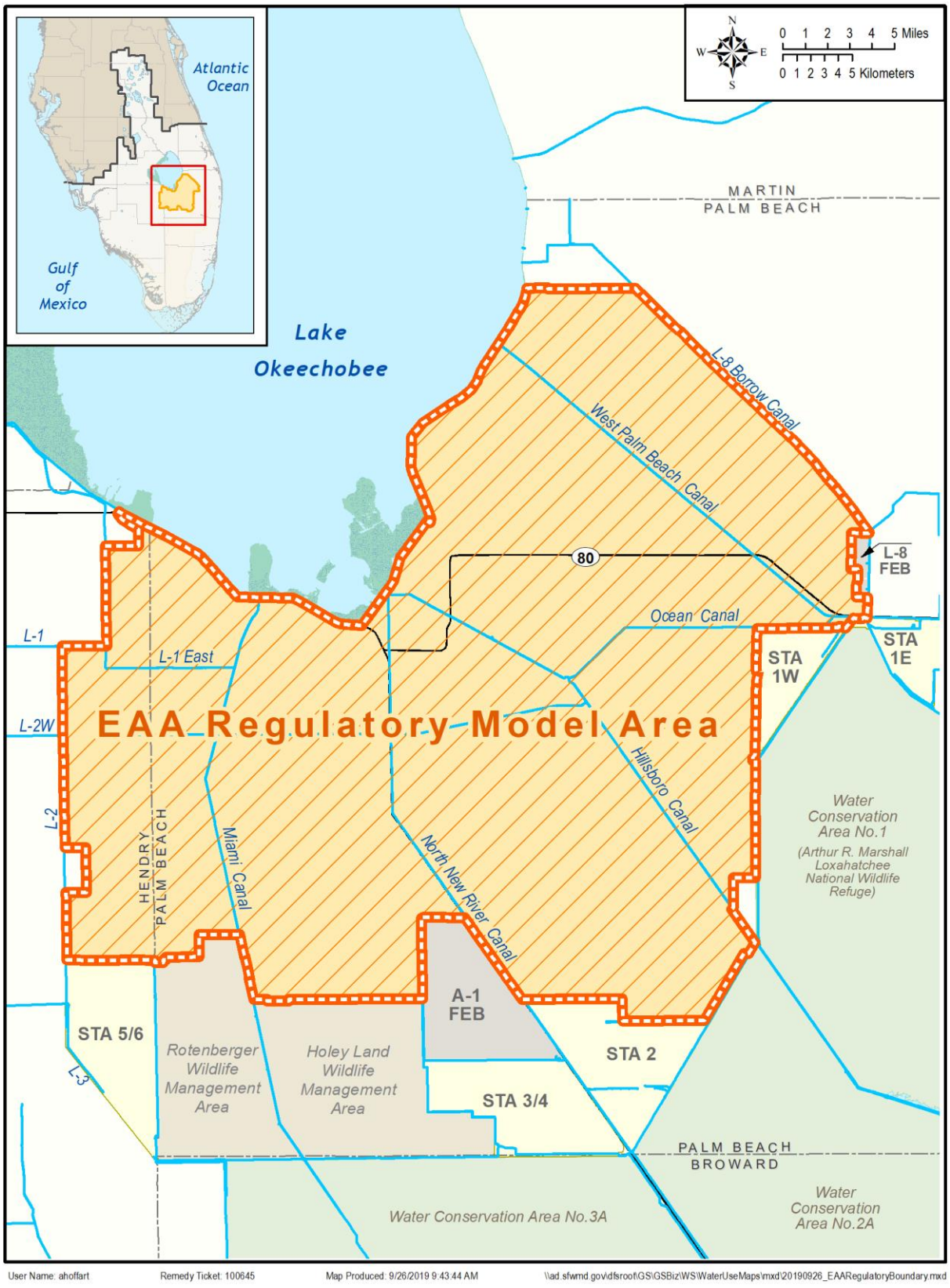


Figure 5. Map of the Everglades Agricultural Area Regulatory Model Area

Within the EAA regulatory model area, there are 3 agricultural permits in Hendry County and 87 permits in Palm Beach County using surface water sources. There is 1 D&I permit in Hendry County and 8 D&I permits in Palm Beach County. The D&I permits are primarily for agricultural land, but three also include residential and commercial areas (e.g., the towns of Canal Point, Pahokee, Belle Glade, and South Bay). Also included in this surface water delivery volume are 13 permits for industrial operations and 8 permits for landscaped areas. Agricultural permits within the EAA that only draw from groundwater sources are not included in this estimated volume but are included in the overall AG water use estimates. For simplification, the irrigation water volume for permittees located within the EAA Regulatory Model area are reported as being in Palm Beach County.

The total 2019 water use for AG, including the EAA, was 1,119 mgd. Of this total volume, agriculture (crop irrigation) outside the EAA accounted for 528.03 mgd (47.2%); agriculture within the EAA was 376.00 mgd (33.6%); agriculture within D&I areas was 184.10 mgd (16.5%); and aquaculture, livestock, and nursery combined were 30.39 mgd (2.7%). Water was derived from 71% surface water and 29% groundwater sources and from 98.7% freshwater and 1.3% saline water sources. **Table 4** presents total water use Districtwide and by county from groundwater and surface water sources for fresh and saline water in the AG category. Further detail is provided in **Appendix B**.

Table 4. Agriculture (in mgd)[1]

County	Fresh Water	Saline Water	Surface Water	Groundwater	**Total Use**	Number of Permits
Broward	1.68	0.00	1.13	0.56	**1.68**	117
Charlotte	4.06	0.41	2.63	1.84	**4.47**	22
Collier	84.66	0.00	2.11	82.55	**84.66**	178
Glades	66.99	3.62	58.40	12.21	**70.61**	158
Hendry	315.64	0.00	206.78	108.86	**315.64**	301
Highlands	60.82	0.00	21.87	38.95	**60.82**	207
Lee	20.01	0.00	3.84	16.17	**20.01**	336
Martin	59.97	0.15	55.84	4.28	**60.12**	234
Miami-Dade	23.20	0.17	0.77	22.60	**23.37**	1,139
Monroe	0.00	0.00	0.00	0.00	**0.00**	1
Okeechobee	13.82	0.00	2.86	10.97	**13.82**	272
Orange	0.13	0.00	0.02	0.11	**0.13**	24
Osceola	11.39	0.00	3.15	8.24	**11.39**	143
Palm Beach	398.79	0.00	394.19	4.61	**398.79**	469
Polk	1.97	0.00	0.93	1.04	**1.97**	32
St. Lucie	40.61	10.42	37.70	13.33	**51.03**	369
Total	**1,103.76**	**14.77**	**792.22**	**326.31**	**1,118.53**	**4,002**

[1] Values are only for the portions of the counties located within the SFWMD.

Landscape/Recreation

Landscape/Recreation (L/R) is water used for irrigation of golf courses, parks, cemeteries, large common areas (such as homeowners' associations and commercial developments), and other self-supplied irrigation uses with demands of 0.10 mgd or greater. The total volume reflects volumes of permittees who reported plus an estimated volume for permittees who did not report. The average allocation utilization ratios (after removing permits below the 10th percentile and above the 90th percentile) of reporting L/R permits were 55.7% for landscape and 57.7% for golf. Water use for L/R permits that did not report in 2019 was estimated by multiplying the average allocation utilization ratios by the permit allocations.

There were 13,842 permits for landscape irrigation and 377 permits for golf courses in 2019. An additional 10 permits, classified as PS, were used for augmentation of reclaimed water (or other water sources) for landscape irrigation use and are included in the L/R category. Total water use for L/R was 339.53 mgd in 2019. Of this, landscape irrigation accounted for 223.09 mgd (65.7%), golf course irrigation was 105.34 mgd (31%), and reclaimed water supplementation for irrigation was 11.1 mgd (3.3%). Surface water was used for 37% of the total water use and groundwater accounted for the remaining 63%. There were 18 golf and 26 landscape permits, using a total of 9.33 mgd of saline water. **Table 5** presents total water use Districtwide and by county from groundwater and surface water sources for fresh and saline water in the L/R category. Further detail is provided in **Appendix B**.

Table 5. Landscape/Recreation (in mgd)[1]

County	Fresh Water	Saline Water	Surface Water	Groundwater	**Total Use**	Number of Permits
Broward	39.29	0.33	25.38	14.24	**39.62**	2,923
Charlotte	0.57	0.00	0.00	0.57	**0.57**	9
Collier	57.57	0.58	22.73	35.42	**58.15**	955
Glades	0.19	0.00	0.07	0.12	**0.19**	15
Hendry	0.69	0.00	0.19	0.50	**0.69**	114
Highlands	0.37	0.00	0.10	0.27	**0.37**	13
Lee	82.23	3.63	16.37	69.49	**85.86**	2,667
Martin	10.96	0.93	2.64	9.25	**11.89**	755
Miami-Dade	15.93	0.00	4.27	11.66	**15.93**	1,201
Monroe	0.83	1.64	0.24	2.23	**2.47**	3
Okeechobee	0.93	0.00	0.15	0.78	**0.93**	209
Orange	12.34	0.00	1.96	10.38	**12.34**	219
Osceola	10.96	0.00	4.73	6.23	**10.96**	196
Palm Beach	83.85	2.13	42.68	43.30	**85.97**	3,998
Polk	1.07	0.00	0.00	1.07	**1.07**	18
St. Lucie	12.41	0.10	2.66	9.84	**12.51**	934
Total	**330.20**	**9.33**	**124.17**	**215.36**	**339.53**	**14,229**

[1] Values are only for the portions of the counties located within the SFWMD.

Power Generation

Power Generation (PG) is water consumed by power plants for use in the production of electricity. The volume reported is for a variety of on-site uses and does not include once-through cooling water. It can include both fresh and saline water but excludes the use of seawater and reclaimed water sources. The total 2019 water use for PG was 8.68 mgd, with 24% coming from freshwater sources and 76% coming from saline water sources. Groundwater sources contributed nearly all the water, while surface water contributions were negligible. **Table 6** presents total water use Districtwide and by county from groundwater and surface water sources for fresh and saline water in the PG category.

Table 6. Power Generation (in mgd)[1]

County	Fresh Water	Saline Water	Surface Water	Groundwater	**Total Use**	Number of Permits[2]
Lee	0.42	0.00	0.00	0.42	**0.42**	2
Martin	0.02	0.00	0.00	0.02	**0.02**	2
Miami-Dade	0.00	6.59	0.00	6.59	**6.59**	1
Osceola	0.13	0.00	0.00	0.13	**0.13**	1
Palm Beach	0.07	0.00	0.00	0.07	**0.07**	2
St. Lucie	1.45	0.00	0.00	1.45	**1.45**	1
Total	**2.09**	**6.59**	**0.00**	**8.68**	**8.68**	**9**

[1] Values are only for the portions of the counties located within the SFWMD.
[2] Power generation facilities are permitted by the FDEP under the Power Plant Siting Act, Sections 403.501-.518, Florida Statutes.

A substantial volume of saline/ocean water is used for once-through cooling at power plants, primarily in coastal areas of the District. The once-through cooling volumes are considered non-consumptive and are provided herein for informational purposes only. The total 2019 water use reported to the SFWMD for once-through cooling in PG was 3,178 mgd. Of this volume, 3,157 mgd were saline water and 21 mgd were fresh water. Only 16 mgd of the total water were derived from groundwater, while 3,162 mgd were from surface water sources. The FDEP reported 25.49 mgd of reclaimed water were delivered to "other facilities" (see below), presumed to be power plants.

Reclaimed Water

Reclaimed water is water flowing out of a domestic wastewater treatment facility that has received at least secondary treatment as well as basic disinfection and is reused for some beneficial purpose. The SFWMD requires all applicants for water use permits proposing to irrigate with more than 0.10 mgd of water and applicants within a municipal mandatory reuse zone to use reclaimed water if feasible. However, reclaimed water is not a regulated source for consumptive use. Annual wastewater and reclaimed water volumes are compiled by the FDEP and are reported here for informational purposes. In 2019, 301.63 mgd of reclaimed water were used in the District. Of this, 250.92 mgd were reused for four of the six water supply categories, and 50.71 mgd were reused for groundwater recharge and other non-consumptive water use purposes. **Tables 7** to **9** as well as **Figures 6** and **7** present reclaimed water use by county and use category.

Table 7. Reclaimed Water Use (in mgd) by County and Use Type (From: FDEP 2020)

County	Reclaimed Water Flow[1]	Commercial/ Industrial/ Institutional[2]	Agriculture[3]	Landscape/ Recreation[4]	Power Generation[5]
Broward	**16.50**	8.04	0.00	8.46	0.00
Charlotte[6]	**0.15**	0.15	0.00	0.00	0.00
Collier	**24.05**	0.00	0.00	24.05	0.00
Glades	**0.00**	0.00	0.00	0.00	0.00
Hendry	**1.47**	0.00	1.47	0.00	0.00
Highlands[6]	**0.03**	0.00	0.03	0.00	0.00
Lee	**54.01**	0.27	0.00	52.73	1.01
Martin	**4.03**	0.22	0.11	3.67	0.03
Miami-Dade	**16.45**	16.45	0.00	0.00	0.00
Monroe	**0.31**	0.03	0.00	0.28	0.00
Okeechobee	**0.59**	0.00	0.59	0.00	0.00
Orange[6]	**45.75**	2.32	1.17	42.23	0.03
Osceola	**19.40**	0.00	0.51	14.46	4.43
Palm Beach	**63.81**	3.31	0.00	40.51	19.99
Polk[6]	**0.09**	0.00	0.09	0.00	0.00
St. Lucie	**4.28**	0.36	0.00	3.92	0.00
Total	**250.92**	**31.15**	**3.97**	**190.31**	**25.49**

Note: Reclaimed water was not used for Public Supply or Domestic Self-Supply.

[1] Annual average reclaimed water flows as reported in the FDEP 2019 Reuse Inventory from October 1, 2018 through September 30, 2019, not including 50.71 mgd for groundwater recharge and other non-water-use purposes.

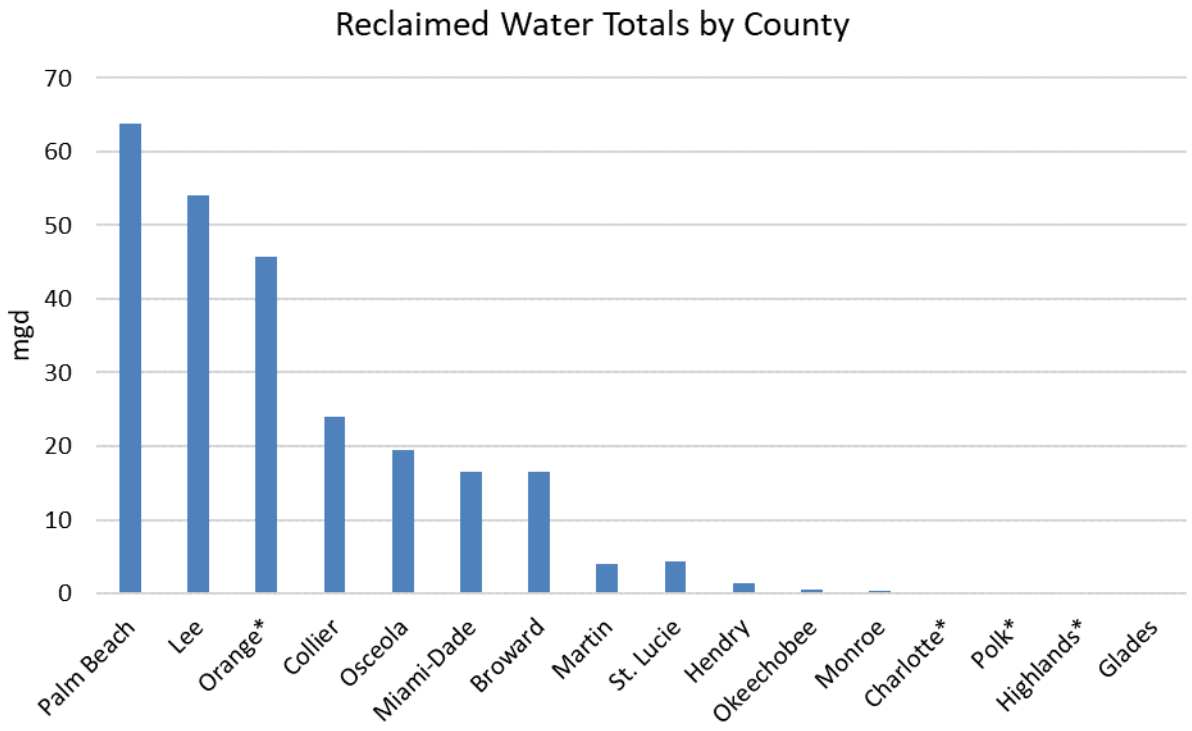
[2] Industrial reuse (excluding power generation).

[3] Edible and other crops.

[4] All public access areas and landscape irrigation.

[5] Reclaimed water flow to power generation facilities based on "at other facility" use type in the FDEP 2019 Reuse Inventory.

[6] Includes only facilities within the SFWMD.



*Only the portion of the county located within the SFWMD.

Figure 6. Reclaimed Water Use by County

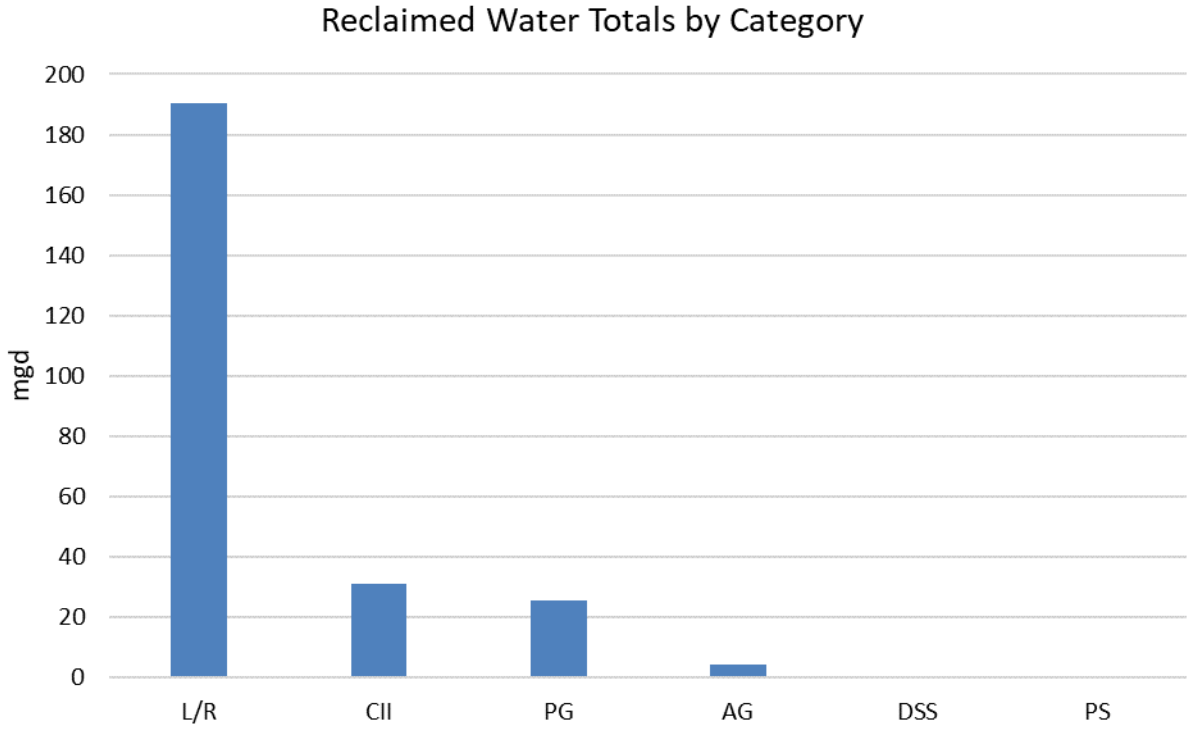


Figure 7. Reclaimed Water Use by Category

SUMMARY OF 2019 ESTIMATED WATER USE

The total amount of water withdrawn from groundwater and surface water resources in 2019 within the District was approximately 3,029 mgd (**Table 8**). The two largest water use categories were AG and PS, using 1,119 mgd and 1,383 mgd, respectively. These two categories constitute 83% of the total water use. Additionally, of the total water use, 1,014 mgd (33%) came from surface water bodies and 2,016 mgd (67%) came from groundwater sources. Approximately 2,800 mgd (92%) were withdrawn from fresh water sources and 229 mgd (8%) were derived from saline water sources. Reclaimed water use totaled 251 mgd in 2019. Of the total 3,029 mgd, 21% (624 mgd) was estimated and 79% (2,405 mgd) was derived from reported pumpage (**Appendix C**). PS is the largest use category in Miami-Dade County, while Palm Beach County has the largest estimated AG volume. Palm Beach County also has the greatest use of reclaimed water by volume. A summary of the data presented by water supply planning area is contained in **Appendix D**.

Figure 8 depicts the distribution of total water use (including reclaimed water) by source and category. **Figure 9** depicts the distribution of total water use by category (excluding reclaimed water). **Table 9** presents the breakdown of water use by county and source. **Figure 10** depicts fresh water versus saline water use by county. **Figure 11** depicts surface water versus groundwater use by county. **Table 10** presents water use by county and by use category (excluding reclaimed water).

Table 8. Total Water Use by Category and Source, Including Reclaimed Water (in mgd)

Water Use Category	Fresh Water	Saline Water	Surface Water	Groundwater	**Total Use**	Reclaimed Water	**Total Use with Reclaimed Water**
Agriculture	1,103.76	14.77	792.22	326.31	**1,118.53**	3.97	**1,122.50**
Public Supply	1,185.51	197.81	31.64	1,351.68	**1,383.32**	0.00	**1,383.32**
Landscape/Recreation	330.20	9.33	124.17	215.36	**339.53**	190.31	**529.84**
Commercial/Industrial/Institutional	141.21	0.00	65.49	75.72	**141.21**	31.15	**172.36**
Power Generation	2.09	6.59	0.00	8.68	**8.68**	25.49	**34.17**
Domestic Self-Supply	37.38	0.00	0.00	37.38	**37.38**	0.00	**37.38**
Total	**2,800.15**	**228.50**	**1,013.52**	**2,015.13**	**3,028.65**	**250.92**	**3,279.57**

Note: Minor discrepancies in table totals are due to rounding.

Figure 8. Water Use by Source and Category

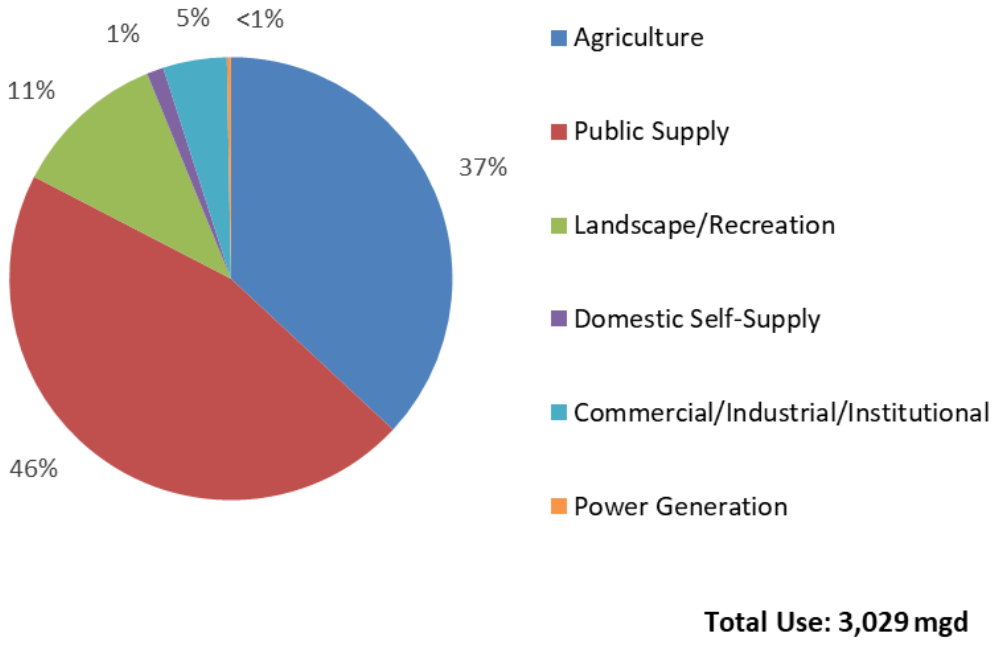
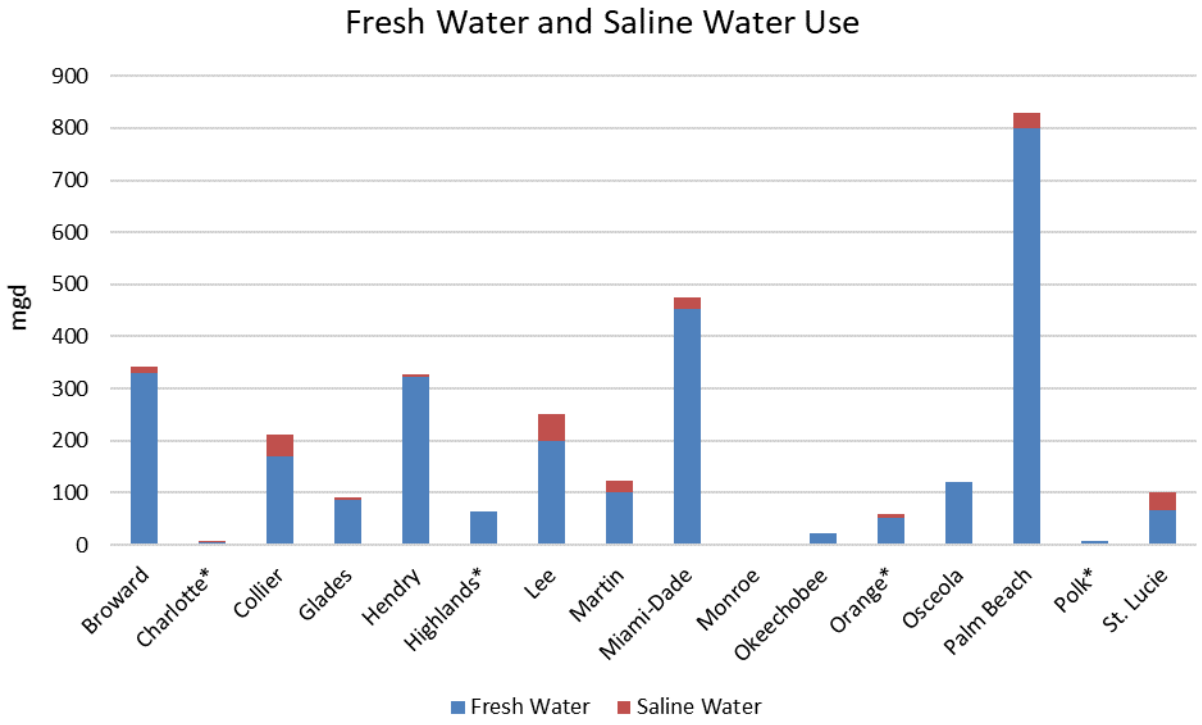


Figure 9. Percent Water Use by Category (Excluding Reclaimed)

Table 9. Total Water Use by County and Source (in mgd)[1]

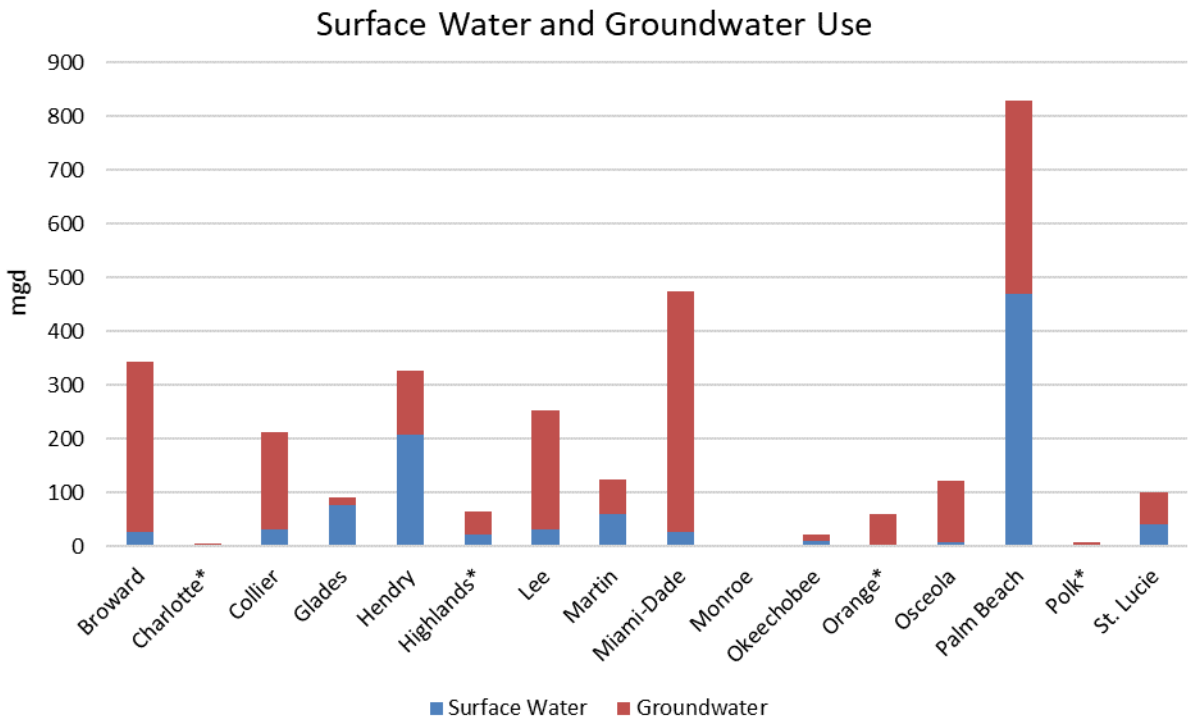
County	Fresh Water	Saline Water	Surface Water	Groundwater	**Total Use**	Reclaimed Water	**Total Use with Reclaimed Water**
Broward	329.30	12.58	26.57	315.31	**341.88**	16.5	**358.38**
Charlotte	4.88	0.41	2.65	2.64	**5.29**	0.15	**5.44**
Collier	170.75	40.03	31.36	179.42	**210.78**	24.05	**234.83**
Glades	87.09	3.62	77.12	13.59	**90.71**	0.00	**90.71**
Hendry	323.12	3.35	207.19	119.28	**326.47**	1.47	**327.94**
Highlands	64.22	0.00	21.97	42.24	**64.22**	0.03	**64.25**
Lee	198.81	52.91	30.84	220.88	**251.72**	54.01	**305.73**
Martin	100.61	22.95	58.70	64.86	**123.56**	4.03	**127.59**
Miami-Dade	453.64	20.35	26.66	447.32	**473.98**	16.45	**490.43**
Monroe	0.84	1.64	0.24	2.23	**2.48**	0.31	**2.79**
Okeechobee	21.72	0.00	8.36	13.36	**21.72**	0.59	**22.31**
Orange	52.33	6.61	1.98	56.95	**58.93**	45.75	**104.68**
Osceola	120.37	0.00	7.88	112.48	**120.37**	19.40	**139.77**
Palm Beach	800.08	29.57	469.94	359.71	**829.65**	63.81	**893.46**
Polk	6.53	0.00	0.93	5.61	**6.53**	0.09	**6.62**
St. Lucie	65.87	34.49	41.13	59.23	**100.36**	4.28	**104.64**
Total	**2,800.15**	**228.50**	**1,013.52**	**2,015.13**	**3,028.65**	**250.92**	**3,279.57**

Note: Minor discrepancies in table totals are due to rounding.
[1] Values are only for the portions of the counties located within the SFWMD.



*Only the portion of the county located within the SFWMD.

Figure 10. Fresh Water and Saline Water Use by County for All Use Categories



*Only the portion of the county located within the SFWMD.

Figure 11. Surface Water and Groundwater Use by County for All Use Categories

Table 10. Total Water Use by County and Category, Excluding Reclaimed Water (in mgd)[1]

County	Agriculture	Commercial/ Industrial/ Institutional	Domestic Self-Supply	Landscape/ Recreation	Power Generation	Public Supply	**Total**
Broward	1.68	2.71	0.86	39.62	0.00	297.01	**341.88**
Charlotte	4.47	0.08	0.01	0.57	0.00	0.15	**5.29**
Collier	84.66	7.17	4.21	58.15	0.00	56.59	**210.78**
Glades	70.61	18.91	0.42	0.19	0.00	0.58	**90.71**
Hendry	315.64	4.87	1.20	0.69	0.00	4.07	**326.47**
Highlands	60.82	1.44	1.26	0.37	0.00	0.32	**64.22**
Lee	20.01	11.03	12.45	85.86	0.42	121.95	**251.72**
Martin	60.12	3.46	0.64	11.89	0.02	47.42	**123.56**
Miami-Dade	23.37	73.97	1.78	15.93	6.59	352.34	**473.98**
Monroe	0.00	0.00	0.00	2.47	0.00	0.00	**2.48**
Okeechobee	13.82	3.00	1.31	0.93	0.00	2.66	**21.72**
Orange	0.13	2.02	4.08	12.34	0.00	40.36	**58.93**
Osceola	11.39	0.08	0.47	10.96	0.13	97.34	**120.37**
Palm Beach	398.79	11.54	5.71	85.97	0.07	327.57	**829.65**
Polk	1.97	0.00	0.67	1.07	0.00	2.82	**6.53**
St. Lucie	51.03	0.92	2.32	12.51	1.45	32.13	**100.36**
Total	**1,118.53**	**141.21**	**37.38**	**339.53**	**8.68**	**1,383.32**	**3,028.65**

Note: Minor discrepancies in table totals are due to rounding.
[1] Values are only for the portions of the counties located within the SFWMD.

DISCUSSION OF RESULTS

This is the sixth year that the SFWMD has compiled an estimated water use report. Caution should be exercised when comparing water use estimates between this report and its predecessors as adjustments have been made to the water use estimation method from year to year. There were no significant changes to the overall methodology since the last (2018) report except for the groundwater to surface water split described in the *Water Use Estimation Methodology* section. Refinements in the methodology could occur for future reports to improve the accuracy of water use estimates.

When considering water use estimates and changes between years, it is important to recognize that the quantity and quality of reported water use data can vary over time and between water use categories. The PS and PG use categories are unique in that nearly 100% of permittees submit water use reports; estimates for other categories are calculated based on a much smaller proportion of permittees. Relying on a small and potentially non-representative portion of users inhibits the ability to make some conclusions with a high degree of confidence. This is particularly notable for the aquaculture, livestock, and nursery portions of the AG use category. The impacts of non-universal reporting are further complicated by inconsistent reporting from year to year. Errors in data, inaccurate measurements, and the complexity of some permitted water systems introduce inaccuracies and biases that often are undetected (or extremely difficult to measure), hindering better analysis.

Water use within the District increased 8% (from 2,765 to 3.029 mgd) between 2018 and 2019. A comparison of changes in water use between 2018 and 2019 is provided in **Figure 12**. More detailed analyses of inter-year changes for use categories, water sources, and/or geographical areas are not provided due to the reasons listed above. The District received approximately 4.6 inches more rain in 2019 than in 2018. The 2019 dry season (specifically January to March) received 5.5 inches more rainfall than 2018 for the same period.

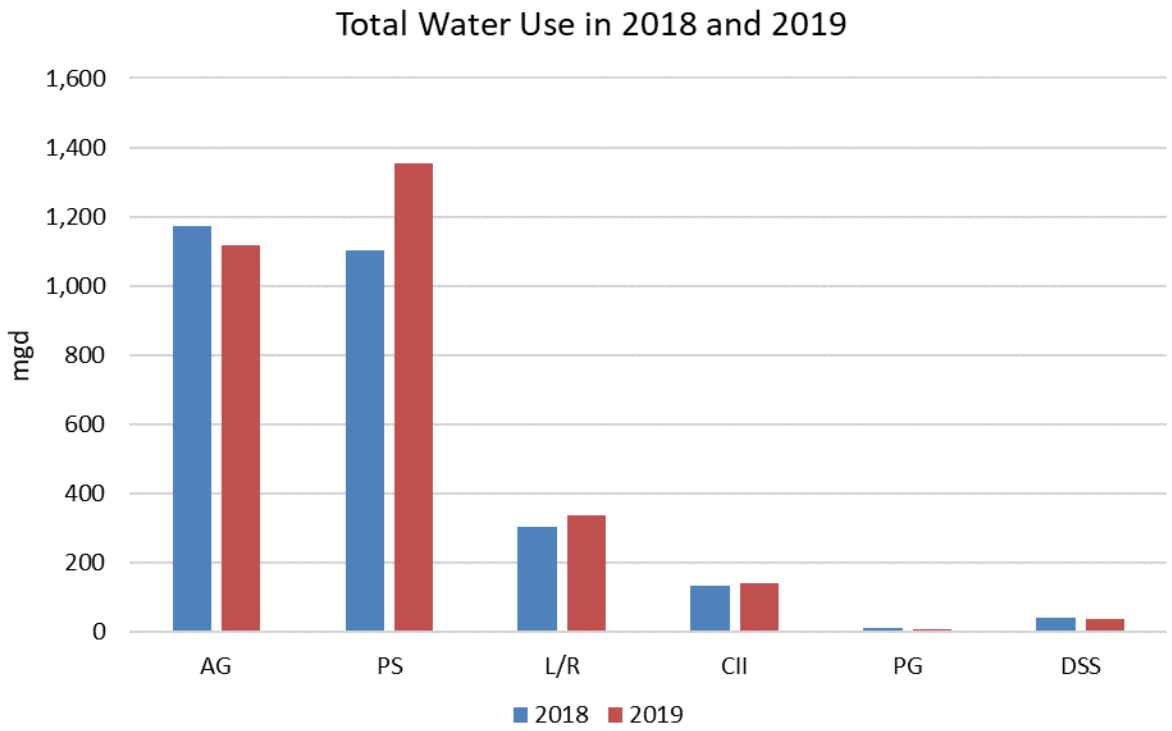


Figure 12. Comparison of 2018 to 2019 Total Estimated Water Use by Use Category

CONCLUSIONS

For 2019, 3,029 mgd of water were estimated to have been used throughout the District, distributed among the six water use categories. Approximately 2,015 mgd were derived from groundwater sources and 1,014 mgd were derived from surface water sources, with 2,800 mgd being fresh water and 229 mgd considered saline water. This is 263 mgd more than was used in 2018.

REFERENCES

Florida Department of Environmental Protection. 2020. 2019 Reuse Inventory. Florida Department of Environmental Protection, Water Reuse Program, Tallahassee. FL. https://floridadep.gov/water/domestic-wastewater/content/water-reuse-program.

Marella, R.L. 2014. Water Withdrawals, Use, and Trends in Florida, 2010. U.S. Geological Survey Scientific Investigations Report 2014-5088. 59 pp. https://pubs.usgs.gov/sir/2014/5088/.

Marella, R.L. 2015. Water withdrawals in Florida, 2012. U.S. Geological Survey Open-File Report 2015-1156. 10 pp. https://pubs.er.usgs.gov/publication/ofr20151156.

Marella, R.L. and J.F. Dixon. 2018. Data tables summarizing the source-specific estimated water withdrawals in Florida by water source, category, county, and water management district, 2015: U.S. Geological Survey data release. https://www.sciencebase.gov/catalog/item/5a4cdec8e4b0d05ee8c4cabf.

South Florida Water Management District. 2015. Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District. South Florida Water Management District, West Palm Beach, FL.

APPENDIX A: DSS POPULATION AND DEMAND METHODOLOGY

Population

Population estimates are intended for planning purposes only. The 2019 county population estimates of permanent residents are from the Bureau of Economic and Business Research (BEBR; Rayer and Wang 2020). A South Florida Water Management District (SFWMD or District) demographer was not available to assist with estimating 2019 population data as was the case for previous reports. Therefore, assumptions had to be made based on the most recent regional water supply plan updates. For counties located within more than one water management district, the proportion of a county's residents within the District was calculated using the population reported in the applicable water supply plan update and the full county population published in the corresponding year's BEBR report. Three counties are split across SFWMD planning areas, necessitating an extrapolation of the population in the earlier plan to that of the later plan. Those extrapolations were based on the historical average rate of growth reported in Table 3 of the 2017 BEBR (BEBR; Rayer and Wang 2018). The percentage of population within the District for the water supply plans was then multiplied by the 2019 BEBR county population to get an estimate of the 2019 District population for that county. The Domestic Self-Supply (DSS) population was estimated by multiplying the county population by the percentage of the population self-supplied (from the latest regional water supply plan updates). The reader is advised against utilizing the populations estimated in this report for other purposes as they likely will not be consistent with populations reported elsewhere or obtained by other estimation methods.

Demand Estimates

The DSS water use estimates were calculated by multiplying the 2019 DSS population by the 2019 Public Supply (PS) Districtwide uniform residential per capita use rate (PCUR), which was derived from uniform residential PCURs (treated water) voluntarily reported by utilities to the SFWMD as part of their annual reporting, required pursuant to Section 373.709(6), Florida Statutes. Based on the reported values, the SFWMD calculated a 2019 Districtwide, population-weighted residential PCUR of 79.95 gallons per day (treated water). Minimal treatment and distribution losses are anticipated in DSS and smaller scale utility systems such that the uniform residential PCUR and DSS PCUR are comparable. **Table A-1** provides the PS and DSS populations and demand estimates.

Table A-1. Public Supply and Domestic Self-Supply Population and Demand by County

County	PS Total Population	DSS Total Population	**Total Population**	% DSS/ Total	2018 County Total Population BEBR[1]	PS Population for Report	DSS Population for Report (% × County BEBR)	DSS[2] (mgd)
Broward	1,844,174	10,340	**1,854,514**	1%	1,919,644	1,908,941	10,703	0.86
Charlotte[1]	1,968	72	**2,040**	4%	181,770	2,104	77	0.01
Collier	289,738	47,045	**336,783**	14%	376,706	324,084	52,622	4.21
Glades[2]	7,765	5,220	**12,985**	40%	13,121	7,846	5,275	0.42
Hendry[3]	23,813	14,202	**38,015**	37%	40,120	25,132	14,988	1.20
Highlands[1]	24,046	15,543	**39,589**	39%	103,434	24,376	15,756	1.26
Lee	512,504	137,797	**650,301**	21%	735,148	579,372	155,776	12.45
Martin	143,122	7,588	**150,710**	5%	158,598	150,613	7,985	0.64
Miami Dade	2,679,429	21,365	**2,700,794**	1%	2,812,130	2,789,884	22,246	1.78
Monroe	76,047	-	**76,047**	0%	76,212	76,212	-	-
Okeechobee[1,4]	24,046	16,094	**40,140**	40%	41,808	24,419	16,344	1.31
Orange[1]	318,050	45,936	**363,986**	13%	1,386,080	353,657	51,079	4.08
Osceola[1]	305,735	4,904	**310,639**	2%	370,552	362,879	5,821	0.47
Palm Beach	1,323,103	68,636	**1,391,739**	5%	1,447,857	1,376,453	71,404	5.71
Polk[1]	27,317	7,754	**35,071**	22%	690,606	29,585	8,398	0.67
St. Lucie	256,196	26,566	**282,762**	9%	309,359	280,294	29,065	2.32
Total	**7,857,053**	**429,062**	**8,286,115**	**5%**	**10,663,145**	**8,315,852**	**467,537**	**37.38**

BEBR = Bureau of Economic and Business Research; DSS = Domestic Self-Supply; mgd = million gallons per day; PS = Public Supply.
[1] Percentage of county population in base year used for multiplier of 2019 BEBR population for report population.
[2] Lower West Coast (2014): 4,252 PS and 4,610 DSS, adjusted to (2017): 4,281 PS and 4,642 DSS; Lower Kissimmee Basin (2017): 3,484 PS and 578 DSS.
[3] Lower West Coast (2014): 23,297 PS and 10,641 DSS, adjusted to (2016): 23,284 PS and 10,635 DSS; Lower East Coast (2016): 529 PS and 3,567 DSS.
[4] Upper East Coast (2013): 0 PS and 543 DSS, adjusted to (2017): 0 PS and 552 DSS; Lower Kissimmee Basin (2017): 24,046 PS and 15,542 DSS.
[5] Medium BEBR 2019 county totals published in January 2020.
[6] The 2019 Districtwide, population-weighted uniform residential per capita use rate = 79.95 gallons per day.

References

Rayer, S. and Y. Wang. 2018. Projections of Florida Population by County, 2020–2045, with Estimates for 2017. Florida Population Studies 51(180). January 2018. University of Florida, Bureau of Economic and Business Research, Gainesville, FL.

Rayer, S. and Y. Wang. 2020. Projections of Florida Population by County, 2020–2045, with Estimates for 2019. Florida Population Studies Bulletin 186, January 2020. University of Florida, Bureau of Economic and Business Research, Gainesville, FL.

APPENDIX B: WATER USE CATEGORY BREAKDOWN BY PERMIT USE CLASS

Table B-1. Agriculture by Use Class Quantity (in mgd)

County	Agriculture		Aquaculture		Livestock		Nursery		Agriculture D&I		Agriculture-EAA		**Total**
	SW	GW	SW	GW	SW	GW	SW	GW	SW	GW	SW	GW	
Broward	0.85	0.12	0.00	0.02	0.00	0.07	0.28	0.34	0.00	0.00	0.00	0.00	**1.68**
Charlotte	2.63	1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**4.47**
Collier	1.95	81.97	0.00	0.01	0.00	0.02	0.16	0.54	0.00	0.00	0.00	0.00	**84.66**
Glades	56.43	5.33	0.00	0.00	0.00	0.55	0.00	0.02	1.98	6.30	0.00	0.00	**70.61**
Hendry	71.31	108.07	0.00	0.23	0.00	0.32	0.03	0.24	135.44	0.00	0.00	0.00	**315.64**
Highlands	21.79	36.56	0.01	0.05	0.01	0.79	0.06	1.56	0.00	0.00	0.00	0.00	**60.82**
Lee	0.44	15.48	0.00	0.03	0.00	0.10	0.82	0.55	2.58	0.00	0.00	0.00	**20.01**
Martin	36.42	3.16	0.00	0.01	0.00	0.20	0.31	0.85	19.12	0.06	0.00	0.00	**60.12**
Miami-Dade	0.65	9.15	0.00	0.78	0.00	0.01	0.12	12.67	0.00	0.00	0.00	0.00	**23.37**
Monroe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Okeechobee	2.86	7.82	0.00	0.02	0.00	2.77	0.00	0.35	0.00	0.00	0.00	0.00	**13.82**
Orange	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	**0.13**
Osceola	3.15	7.77	0.00	0.02	0.00	0.18	0.00	0.28	0.00	0.00	0.00	0.00	**11.39**
Palm Beach	3.82	1.59	0.00	0.02	0.00	0.03	1.09	2.97	13.28	0.00	376.00	0.00	**398.79**
Polk	0.93	0.98	0.00	0.00	0.00	0.04	0.00	0.02	0.00	0.00	0.00	0.00	**1.97**
St. Lucie	32.27	12.58	0.00	0.01	0.00	0.34	0.09	0.40	5.35	0.00	0.00	0.00	**51.03**
Total	**235.51**	**292.52**	**0.01**	**1.20**	**0.01**	**5.43**	**2.95**	**20.80**	**177.74**	**6.36**	**376.00**	**0.00**	**1,118.53**
% of Total	**21.1%**	**26.2%**	**0.0%**	**0.1%**	**0.0%**	**0.5%**	**0.3%**	**1.9%**	**15.9%**	**0.6%**	**33.6%**	**0.0%**	**100%**

D&I = Diversion and Impoundment; EAA = Everglades Agricultural Area; GW = groundwater; mgd = million gallons per day; SW = surface water.

Table B-2. Agriculture by Use Class Quality (in mgd)

County	Agriculture		Aquaculture		Livestock		Nursery		Agriculture D&I		Agriculture-EAA		**Total**
	Fresh	Saline	Fresh	Saline	Fresh	Saline	Fresh	Saline	Fresh	Saline	Fresh	Saline	
Broward	0.97	0.00	0.02	0.00	0.07	0.00	0.62	0.00	0.00	0.00	0.00	0.00	**1.68**
Charlotte	4.06	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**4.47**
Collier	83.92	0.00	0.01	0.00	0.02	0.00	0.70	0.00	0.00	0.00	0.00	0.00	**84.66**
Glades	58.13	3.62	0.00	0.00	0.55	0.00	0.02	0.00	8.28	0.00	0.00	0.00	**70.61**
Hendry	179.38	0.00	0.23	0.00	0.32	0.00	0.26	0.00	135.44	0.00	0.00	0.00	**315.64**
Highlands	58.35	0.00	0.06	0.00	0.80	0.00	1.62	0.00	0.00	0.00	0.00	0.00	**60.82**
Lee	15.92	0.00	0.03	0.00	0.10	0.00	1.38	0.00	2.58	0.00	0.00	0.00	**20.01**
Martin	39.42	0.15	0.01	0.00	0.20	0.00	1.16	0.00	19.18	0.00	0.00	0.00	**60.12**
Miami-Dade	9.80	0.00	0.61	0.17	0.01	0.00	12.79	0.00	0.00	0.00	0.00	0.00	**23.37**
Monroe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Okeechobee	10.68	0.00	0.02	0.00	2.77	0.00	0.35	0.00	0.00	0.00	0.00	0.00	**13.82**
Orange	0.12	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	**0.13**
Osceola	10.92	0.00	0.02	0.00	0.18	0.00	0.28	0.00	0.00	0.00	0.00	0.00	**11.39**
Palm Beach	5.42	0.00	0.02	0.00	0.03	0.00	4.05	0.00	13.28	0.00	376.00	0.00	**398.79**
Polk	1.91	0.00	0.00	0.00	0.04	0.00	0.02	0.00	0.00	0.00	0.00	0.00	**1.97**
St. Lucie	34.43	10.42	0.01	0.00	0.34	0.00	0.48	0.00	5.35	0.00	0.00	0.00	**51.03**
Total	**513.43**	**14.60**	**1.04**	**0.17**	**5.44**	**0.00**	**23.74**	**0.00**	**184.10**	**0.00**	**376.00**	**0.00**	**1,118.53**
% of Total	**45.9%**	**1.3%**	**0.1%**	**0.0%**	**0.5%**	**0.0%**	**2.1%**	**0.0%**	**16.5%**	**0.0%**	**33.6%**	**0.0%**	**100%**

D&I = Diversion and Impoundment; EAA = Everglades Agricultural Area; mgd = million gallons per day.

Table B-3. Commercial/Industrial/Institutional by Use Class Quantity (in mgd)

County	Industrial		Mining		**Total**
	Surface Water	Groundwater	Surface Water	Groundwater	
Broward	0.07	2.65	0.00	0.00	**2.71**
Charlotte	0.00	0.07	0.01	0.00	**0.08**
Collier	3.92	0.65	2.61	0.00	**7.17**
Glades	0.03	0.05	18.61	0.21	**18.91**
Hendry	0.22	4.65	0.00	0.00	**4.87**
Highlands	0.01	1.44	0.00	0.00	**1.44**
Lee	0.08	0.40	10.55	0.00	**11.03**
Martin	0.10	3.25	0.12	0.00	**3.46**
Miami-Dade	0.02	20.65	21.60	31.71	**73.97**
Monroe	0.00	0.00	0.00	0.00	**0.00**
Okeechobee	0.00	0.18	2.81	0.00	**3.00**
Orange	0.00	2.02	0.00	0.00	**2.02**
Osceola	0.00	0.08	0.00	0.00	**0.08**
Palm Beach	2.90	4.04	1.06	3.53	**11.54**
Polk	0.00	0.00	0.00	0.00	**0.00**
St. Lucie	0.77	0.15	0.00	0.00	**0.92**
Total	**8.11**	**40.28**	**57.38**	**35.45**	**141.21**
% of Total	**6%**	**29%**	**41%**	**25%**	**100%**

mgd = million gallons per day.

Table B-4. Commercial/Industrial/Institutional by Use Class Quality (in mgd)

County	Industrial		Mining		**Total**
	Fresh	Saline	Fresh	Saline	
Broward	2.71	0.00	0.00	0.00	**2.71**
Charlotte	0.07	0.00	0.01	0.00	**0.08**
Collier	4.57	0.00	2.61	0.00	**7.17**
Glades	0.09	0.00	18.82	0.00	**18.91**
Hendry	4.87	0.00	0.00	0.00	**4.87**
Highlands	1.44	0.00	0.00	0.00	**1.44**
Lee	0.47	0.00	10.56	0.00	**11.03**
Martin	3.34	0.00	0.12	0.00	**3.46**
Miami-Dade	20.66	0.00	53.31	0.00	**73.97**
Monroe	0.00	0.00	0.00	0.00	**0.00**
Okeechobee	0.19	0.00	2.81	0.00	**3.00**
Orange	2.02	0.00	0.00	0.00	**2.02**
Osceola	0.08	0.00	0.00	0.00	**0.08**
Palm Beach	6.94	0.00	4.59	0.00	**11.54**
Polk	0.00	0.00	0.00	0.00	**0.00**
St. Lucie	0.92	0.00	0.00	0.00	**0.92**
Total	**48.38**	**0.00**	**92.83**	**0.00**	**141.21**
% of Total	**34%**	**0%**	**66%**	**0%**	**100%**

mgd = million gallons per day.

Table B-5. Landscape/Recreation by Use Class Quantity (in mgd)

County	Golf Course		Landscape		PS-Irrigation Supplement		**Total**
	Surface Water	Groundwater	Surface Water	Groundwater	Surface Water	Groundwater	
Broward	4.32	3.99	21.05	10.26	0.00	0.00	**39.62**
Charlotte	0.00	0.00	0.00	0.57	0.00	0.00	**0.57**
Collier	8.57	18.84	13.58	15.39	0.58	1.19	**58.15**
Glades	0.02	0.04	0.06	0.08	0.00	0.00	**0.19**
Hendry	0.00	0.00	0.19	0.50	0.00	0.00	**0.69**
Highlands	0.10	0.21	0.00	0.06	0.00	0.00	**0.37**
Lee	3.20	15.34	13.17	54.09	0.00	0.06	**85.86**
Martin	0.93	3.58	1.71	5.67	0.00	0.00	**11.89**
Miami-Dade	1.66	2.70	2.61	8.97	0.00	0.00	**15.93**
Monroe	0.24	2.22	0.00	0.01	0.00	0.00	**2.47**
Okeechobee	0.02	0.04	0.14	0.74	0.00	0.00	**0.93**
Orange	1.23	4.28	0.73	1.73	0.00	4.37	**12.34**
Osceola	0.34	3.73	0.34	1.98	4.05	0.52	**10.96**
Palm Beach	9.35	16.15	33.29	26.85	0.04	0.29	**85.97**
Polk	0.00	0.91	0.00	0.16	0.00	0.00	**1.07**
St. Lucie	0.36	2.99	2.31	6.85	0.00	0.00	**12.51**
Total	**30.33**	**75.01**	**89.17**	**133.92**	**4.68**	**6.43**	**339.53**
% of Total	**8.9%**	**22.1%**	**26.3%**	**39.4%**	**1.4%**	**1.9%**	**100%**

mgd = million gallons per day; PS = Public Supply.

Table B-6. Landscape/Recreation by Use Class Quality (in mgd)

County	Golf Course		Landscape		PS-Irrigation Supplement		**Total**
	Fresh	Saline	Fresh	Saline	Fresh	Saline	
Broward	8.31	0.00	30.98	0.33	0.00	0.00	**39.62**
Charlotte	0.00	0.00	0.57	0.00	0.00	0.00	**0.57**
Collier	27.00	0.41	28.80	0.17	1.77	0.00	**58.15**
Glades	0.05	0.00	0.14	0.00	0.00	0.00	**0.19**
Hendry	0.00	0.00	0.69	0.00	0.00	0.00	**0.69**
Highlands	0.31	0.00	0.06	0.00	0.00	0.00	**0.37**
Lee	17.18	1.36	65.00	2.26	0.06	0.00	**85.86**
Martin	3.69	0.82	7.28	0.11	0.00	0.00	**11.89**
Miami-Dade	4.36	0.00	11.58	0.00	0.00	0.00	**15.93**
Monroe	0.82	1.64	0.01	0.00	0.00	0.00	**2.47**
Okeechobee	0.06	0.00	0.88	0.00	0.00	0.00	**0.93**
Orange	5.52	0.00	2.45	0.00	4.37	0.00	**12.34**
Osceola	4.07	0.00	2.32	0.00	4.57	0.00	**10.96**
Palm Beach	24.66	0.85	58.86	1.28	0.33	0.00	**85.97**
Polk	0.91	0.00	0.16	0.00	0.00	0.00	**1.07**
St. Lucie	3.35	0.00	9.06	0.10	0.00	0.00	**12.51**
Total	**100.26**	**5.08**	**218.84**	**4.25**	**11.10**	**0.00**	**339.53**
% of Total	**29.5%**	**1.5%**	**64.5%**	**1.3%**	**3.3%**	**0.0%**	**100.0%**

Note: Minor discrepancies in or between table totals are due to rounding.
mgd = million gallons per day; PS = Public Supply.

APPENDIX C: METADATA TABLES

Table C-1. Reported Versus Estimated Use (in mgd) by County

County	Reported	Estimated	% Estimated	**Total**
Broward	313.92	27.95	8%	**341.88**
Charlotte	4.75	0.54	10%	**5.29**
Collier	192.25	18.54	9%	**210.78**
Glades	89.18	1.53	2%	**90.71**
Hendry	312.88	13.59	4%	**326.47**
Highlands	59.96	4.26	7%	**64.22**
Lee	222.09	29.63	12%	**251.72**
Martin	100.89	22.67	18%	**123.56**
Miami-Dade	437.67	36.31	8%	**473.98**
Monroe	1.64	0.84	34%	**2.48**
Okeechobee	13.62	8.10	37%	**21.72**
Orange	51.98	6.95	12%	**58.93**
Osceola	107.21	13.15	11%	**120.37**
Palm Beach*	404.12	425.53	51%	**829.65**
Polk	5.50	1.03	16%	**6.53**
St. Lucie	87.39	12.97	13%	**100.36**
Total	**2,405.06**	**623.59**	**21%**	**3,028.65**

mgd = million gallons per day.
* 376 mgd is estimated EAA volume.

Table C-2. Reported Versus Estimated Use (in mgd) by Water Use Category

Water Use Category	Reported	Estimated	% Estimated	**Total**
Agriculture	686.91	431.62	39%	**1,118.53**
Commercial/Industrial/Institutional	122.58	18.63	13%	**141.21**
Domestic Self-Supply	0.00	37.38	100%	**37.38**
Power Generation	8.68	0.00	0%	**8.68**
Public Supply	1,359.73	23.59	2%	**1,383.32**
Landscape/Recreation	227.17	112.36	33%	**339.53**
Total	**2,405.06**	**623.59**	**21%**	**3,028.65**

mgd = million gallons per day.

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APPENDIX D: TOTAL WATER USE BY PLANNING REGION

Table D-1. Total Water Use by Category and Source (in mgd)

Water Use Category	Surface Water	Groundwater	Fresh Water	Saline Water	**Total**	Number of Permits
Lower East Coast						
Agriculture	414.09	113.78	527.70	0.17	**527.87**	1,793
Domestic Self-Supply	0.00	8.39	8.39	0.00	**8.39**	276
Commercial/Industrial/Institutional	25.87	62.58	88.44	0.00	**88.44**	291
Landscape/Recreation	72.56	71.43	139.90	4.09	**144.00**	8,126
Power Generation	0.00	6.66	0.07	6.59	**6.66**	2
Public Supply	29.11	947.80	923.63	53.28	**976.91**	55
Lower East Coast Total	**541.63**	**1,210.64**	**1,688.14**	**64.13**	**1,752.27**	**10,543**
Lower Kissimmee Basin						
Agriculture	50.90	52.64	99.98	3.57	**103.54**	483
Domestic Self-Supply	0.00	2.68	2.68	0.00	**2.68**	1
Commercial/Industrial/Institutional	8.22	1.78	10.01	0.00	**10.01**	39
Landscape/Recreation	0.24	0.85	1.09	0.00	**1.09**	164
Power Generation	0.00	0.00	0.00	0.00	**0.00**	0
Public Supply	2.53	0.32	2.85	0.00	**2.85**	3
Lower Kissimmee Basin Total	**61.90**	**58.27**	**116.61**	**3.57**	**120.17**	**690**
Lower West Coast						
Agriculture	228.76	131.78	360.08	0.47	**360.54**	890
Domestic Self-Supply	0.00	18.11	18.11	0.00	**18.11**	391
Commercial/Industrial/Institutional	30.41	5.82	36.24	0.00	**36.24**	205
Landscape/Recreation	39.36	106.27	141.43	4.20	**145.63**	3,812
Power Generation	0.00	0.42	0.42	0.00	**0.42**	1
Public Supply	0.00	183.35	91.26	92.09	**183.35**	30
Lower West Coast Total	**298.53**	**445.76**	**647.53**	**96.76**	**744.29**	**5,329**
Upper East Coast						
Agriculture	94.37	18.71	102.51	10.57	**113.08**	637
Domestic Self-Supply	0.00	2.98	2.98	0.00	**2.98**	236
Commercial/Industrial/Institutional	0.98	3.44	4.43	0.00	**4.43**	73
Landscape/Recreation	5.31	19.13	23.41	1.03	**24.45**	1,694
Power Generation	0.00	1.47	1.47	0.00	**1.47**	2
Public Supply	0.00	79.68	33.84	45.83	**79.68**	22
Upper East Coast Total	**100.67**	**125.41**	**168.64**	**57.44**	**226.08**	**2,664**
Upper Kissimmee Basin						
Agriculture	4.10	9.39	13.49	0.00	**13.49**	199
Domestic Self-Supply	0.00	5.22	5.22	0.00	**5.22**	122
Commercial/Industrial/Institutional	0.00	2.10	2.10	0.00	**2.10**	38
Landscape/Recreation	6.69	17.67	24.37	0.00	**24.37**	433
Power Generation	0.00	0.13	0.13	0.00	**0.13**	1
Public Supply	0.00	140.52	133.92	6.61	**140.52**	17
Upper Kissimmee Basin Total	**10.79**	**175.04**	**179.23**	**6.61**	**185.83**	**810**
Districtwide Total	**1,013.52**	**2,015.13**	**2,800.15**	**228.50**	**3,028.65**	**20,036**

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