

# Hydrologic Conditions

for the month of

## April 2017

Prepared by the  
**Hydrologic Data Section**  
**Data Collection Bureau**



May 23, 2017

<http://www.watermatters.org>

## **ACKNOWLEDGMENTS**

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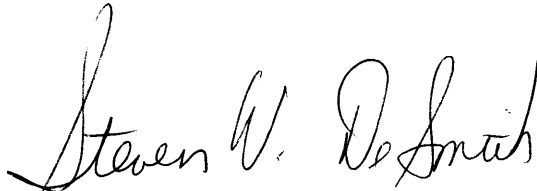
## INTRODUCTION

The Hydrologic Conditions Report is generated monthly by the Hydrologic Data Section, Data Collection Bureau, of the Southwest Florida Water Management District. This report provides an end-of-month analytical summary of regional and temporal variations in the hydrologic conditions across the District's 16-county area for planning and regulatory purposes. In addition, it provides an excellent historical record for long-term local and regional hydrologic analysis.

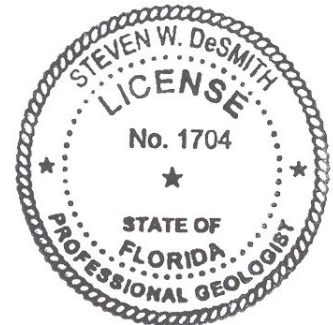
The Hydrologic Data Section is responsible for the implementation and maintenance of a network of observation and monitoring stations used to track changes in various hydrologic parameters over time. Data collected are used by the regulatory, technical, and analytical sections of the District. Data recently collected and maintained by the section include: station and basin rainfall totals, stream and spring discharge measurements, and surface and ground water levels. Frequency of data collection ranges from hourly to monthly readings. All data collected are processed and analyzed, then uploaded into the Water Management Data Base for general access by the District. The Water Management Data Base is also periodically augmented from the United States Geological Survey's hydrologic data network.

The data presented in this report are monthly rainfall totals, streamflow, springflow, surface and ground water levels, reservoir levels and the Aquifer Resource Index. Associated maps of station locations are at the end of the report in the Appendices. Also reported herein are levels of public supply surface water reservoirs supplemented by various regional utilities. The data contained in this report was collected and analyzed in accordance with generally accepted procedures consistent with applicable scientific and technical standards of practice. The data presented are considered to be the best available at the time of publication and are subject to revision. Any questions about the significance, accuracy, or interpretation of these data should be referred to Granville Kinsman, Manager of the Hydrologic Data Section at (352) 796-7211 or (800) 423-1476, extension 4284.

The data evaluation, analyses and interpretation contained within this report have been prepared or approved by a certified Professional Geologist in accordance with Chapter 492, Florida Statutes.



Registration #PG-1704



### Americans with Disabilities Act (ADA)

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## **EXECUTIVE SUMMARY**

### **Provisional Hydrologic Conditions as of May 18, 2017**

Provisional rainfall totals are provided for the period of May 1, 2017 through May 17, 2017. The northern region has received an average of 1.91 inches, while the historic mean for the northern region for the month of May is 3.57 inches. The central region has received an average of 1.05 inches, while the historic mean for the central region for May is 3.49 inches. The southern region has received an average of 0.95 inch, while the historic mean for the southern region for May is 3.55 inches. District-wide, rainfall has averaged 1.26 inches, while the historic mean for the District for May is 3.54 inches.

Provisional lake level data indicate that during the first 17 days of May, regional lake levels have remained unchanged in the Northern region of the District, while levels have decreased in the Tampa Bay, Polk Uplands and Lake Wales ridge region. Average lake levels in the Northern region remained unchanged and were 2.13 feet below the base of the annual normal range. Average lake levels in the Tampa Bay region decreased 0.44 foot and were 1.10 feet below the base of the annual normal range. Lake levels in the Polk Uplands region decreased 0.42 foot and were 0.01 foot above the base of the annual normal range. The Lake Wales Ridge region posted an average decrease of 0.46 foot and were 1.56 feet below the base of the annual normal range.

As of May 15, 2017, provisional streamflow data indicates, based on three regional index rivers, that average streamflow decreased in all three regions of the District, compared to last month's data. Normal streamflow is flow that falls on or between the 25<sup>th</sup> and 75<sup>th</sup> percentiles. The average streamflow for the Withlacoochee River near Holder in the northern region was critically below-normal at the 5<sup>th</sup> percentile. The average streamflow for the Hillsborough River near Zephyrhills in the central region was severely below-normal at the 12<sup>th</sup> percentile, while flow in the Peace River at Arcadia in the southern region was critically below-normal at the 3<sup>rd</sup> percentile.

Provisional groundwater data, as of May 15, 2017, indicate that levels in the intermediate and Floridan aquifers increased slightly in the northern region, while levels decreased in the central and southern regions, compared to last month's data. Normal aquifer levels are considered levels that fall on or between the 25<sup>th</sup> and 75<sup>th</sup> percentiles. Aquifer levels for the northern region were at the base of the normal range at the 25<sup>th</sup> percentile. Aquifer levels in the central region were within the normal range at the 37<sup>th</sup> percentile, while levels in the southern region were severely below-normal at the 19<sup>th</sup> percentile.

## EXECUTIVE SUMMARY

### Hydrologic Conditions for April 2017

In April, average rainfall totals were within the normal range in the northern region of the District, while rainfall totals were severely below-normal in the central region and extremely below-normal in the southern region. The normal range for rainfall is defined by totals that fall on or between the 25<sup>th</sup> to 75<sup>th</sup> percentiles of the historical monthly accumulation for each region and where the 50<sup>th</sup> percentile represents the historical mean. The northern region received an average of 1.69 inches of rainfall, equivalent to the 31<sup>st</sup> percentile of the historical April record. The central region received an average of 0.82 inch of rainfall, equivalent to the 16<sup>th</sup> percentile, while the southern region received an average of 0.42 inch of rainfall, equivalent to the 9<sup>th</sup> percentile of the historical April record. The District-wide rainfall average of 0.92 inch was equivalent to the 16<sup>th</sup> percentile of the historical April record.

During the 12-month period from May 1, 2016 through April 31, 2017, the average rainfall totals in the northern region was classified as “drier than normal,” while rainfall totals in the central and southern regions were classified as “normal.” The northern region received an average of 43.41 inches of rainfall, equivalent to the 12<sup>th</sup> percentile of the historical annual record. The central region received an average of 47.10 inches of rainfall, equivalent to the 28<sup>th</sup> percentile, while the southern region received an average of 48.00 inches of rainfall, equivalent to the 34<sup>th</sup> percentile. The District-wide rainfall average of 46.37 inches was equivalent to the 24<sup>th</sup> percentile of the historical annual record.

Average lake levels in April were below the annual normal range in the Northern, Tampa Bay and Lake Wales Ridge regions of the District, while levels were within the annual normal range in the Polk Uplands region. Normal lake levels are defined as levels that fall between the minimum low management level and the minimum flood level. Lake levels in the Northern region decreased by an average of 0.50 foot and were 2.13 feet below the base of the annual normal range. Lake levels in the Tampa Bay region decreased an average of 0.59 foot and were 0.66 foot below the base of the annual normal range. Lake levels in the Polk Uplands region decreased by 0.51 foot and were 0.43 foot above the base of the annual normal range. Average lake levels in the Lake Wales Ridge region decreased by 0.59 foot and ended the month 1.10 feet below the base of the annual normal range.

Total streamflow in April, based on regional index streams, was below-normal in all three regions of the District. Normal streamflow is defined as the flow that falls on or between the 25<sup>th</sup> and 75<sup>th</sup> percentiles. Streamflow measured at the Withlacoochee River near Holder station in the northern region was critically below-normal at the 3<sup>rd</sup> percentile. Streamflow in the Hillsborough River near Zephyrhills station in the central region was critically below-normal at the 5<sup>th</sup> percentile, while total streamflow measured at the Peace River at Arcadia station in the southern region was extremely below-normal at the 8<sup>th</sup> percentile during April.

In April, groundwater data showed that levels in the intermediate and Floridan aquifers were moderately below-normal in the northern region, while levels were at the lower-end of the normal range in the central region and severely below-normal in the southern region. The normal range is defined as the level that falls on or between the 25<sup>th</sup> and 75<sup>th</sup> percentiles. The groundwater level in the northern, central and southern regions were in the 22<sup>nd</sup>, 36<sup>th</sup> and 16<sup>th</sup> percentiles, respectively.

## REGIONAL OVERVIEW OF HYDROLOGIC CONDITIONS

**APRIL 2017**

### **Northern Region**

In April, the northern region received an average of 1.69 inches of rainfall, equivalent to the 31<sup>st</sup> percentile of the historical April readings, which is considered "normal". Average lake levels decreased in the northern region and ended the month an average of 2.13 feet below the base of the annual normal range. Total streamflow measured in the Withlacoochee River near Holder station decreased and was critically below-normal at the 3<sup>rd</sup> percentile. Regional groundwater levels indicated average surficial aquifer water levels decreased and were severely below-normal at the 18<sup>th</sup> percentile, while levels in the intermediate and Floridan aquifer decreased and were moderately below-normal at the 22<sup>nd</sup> percentile.

### **Central Region**

In April, the central region received an average of 0.82 inch of rainfall, equivalent to the 16<sup>th</sup> percentile of historical April readings, which is considered "drier than normal". Average lake levels decreased in the Tampa Bay region, ending the month 0.66 foot below the annual normal range, while levels declined in the Polk Uplands region, ending the month 0.43 foot above the base of the annual normal range. Total streamflow measured at the Hillsborough River near Zephyrhills station decreased and was critically below-normal at the 5<sup>th</sup> percentile. Regional groundwater levels indicated average surficial aquifer water levels decreased and were at the lower-end of the normal range at the 26<sup>th</sup> percentile, while levels in the intermediate and Floridan aquifer decreased and were within the normal range at the 36<sup>th</sup> percentile.

### **Southern Region**

In April, the southern region received an average of 0.42 inch of rainfall, equivalent to the 9<sup>th</sup> percentile of historical April readings, which is considered "very dry." Average lake levels decreased in the Lake Wales Ridge region and ended the month 1.10 feet below the base of the annual normal range. Total streamflow measured at the Peace River at Arcadia station decreased and was extremely below-normal at the 8<sup>th</sup> percentile. Regional groundwater levels indicated average surficial aquifer water levels decreased and were severely below-normal at the 11<sup>th</sup> percentile, while levels in the intermediate and Floridan aquifer decreased and were severely below-normal at the 16<sup>th</sup> percentile.

## RAINFALL

The rainfall data used for all tabulations in this report are provided to the District under contract with an external vendor. These data are created by enhancing contractor-developed NEXRAD radar rainfall imagery with hourly rainfall data collected from the District's network of real-time gauges. This process results in highly accurate cell-based rainfall data representative of conditions over the entire District, including those portions where rainfall data collection would otherwise be limited due to gaps in the gauging network.

As defined by the United States Geological Survey (USGS), a percentile is a value on a scale of one hundred that indicates the percent of a distribution that is equal to or below it. For example, a rainfall total equivalent to the 90<sup>th</sup> percentile is equal to or greater than 90 percent of the rainfall totals recorded for this month during all years that totals have been recorded.

Percentiles for rainfall were calculated from the historical record by region, and by specific interval. The "wet season" total is the sum of the rainfall from June through September. The "dry season" total is the sum of the rainfall from October through May. The annual total characterization was calculated from a dataset of moving 12-month rainfall sum for the same period (1915 through the most recent completed year). The moving 12-month rainfall sum was used for annual statistics because it provided a much larger dataset, and therefore a better estimate of the true percentiles. The historical 12-month cumulative average is updated monthly.

Characterization ranges were established for each region, and for the whole District, with breaks at the 10<sup>th</sup> (P10), the 25<sup>th</sup> (P25), the 75<sup>th</sup> (P75) and the 90<sup>th</sup> (P90) percentiles. The rainfall in inches for each percentile break, by rainfall interval and by region and the characterization ranges are summarized in the Appendix.

In April, rainfall totals were within the normal range in the northern region of the District, while they were below-normal in the central and southern regions. The normal range for rainfall is defined by totals that fall on or between the 25<sup>th</sup> to 75<sup>th</sup> percentiles of the historical monthly average for each region and where the 50<sup>th</sup> percentile represents the historical mean. The northern region received an average of 1.69 inches of rainfall, equivalent to the 31<sup>st</sup> percentile of the historical April record. The central region received an average of 0.82 inch, equivalent to the 16<sup>th</sup> percentile, while the southern region received an average of 0.42 inch, equivalent to the 9<sup>th</sup> percentile. District-wide, rainfall averaged 0.92 inch, which is equivalent to the 16<sup>th</sup> percentile of the historical April record.

During the 12-month period from May 1, 2016 through April 31, 2017, the average rainfall totals in the northern region was classified as "drier than normal," while rainfall totals in the central and southern regions were classified as "normal." The northern region received an average of 43.41 inches of rainfall, equivalent to the 12<sup>th</sup> percentile of the historical record. The central region received an average of 47.10 inches of rainfall, equivalent to the 28<sup>th</sup> percentile. The southern region received an average of 48.00 inches of rainfall, equivalent to the 34<sup>th</sup> percentile. The District-wide rainfall average was 46.37 inches, which is equivalent to the 24<sup>th</sup> percentile of the historical annual record.

## **Tampa Monthly Climate Summary for April 2017**

According to the National Weather Service, the monthly average temperature (°F) for Tampa was 77.1 degrees, which was 5.1 degrees above normal. The highest temperature recorded during the month was 96.0 degrees, while the lowest temperature recorded during the month was 55.0 degrees. The monthly high temperature of 96.0 degrees set a record high temperature for the month of April, breaking the old record of 93.0 degrees set in 1975 and 1958. The April 2017 monthly average temperature of 77.1 degrees ranks as the 2<sup>nd</sup> warmest April since records began in 1890. The warmest April had an average temperature of 78.0 degrees, which occurred in 2015.

## **Temperature and Precipitation Outlook**

The Climate Prediction Center's (CPC) three-month weather forecast, as of May 18, 2017, indicates equal chances for normal or above/below-normal rainfall throughout the District during the composite 3-month period from June through August 2017. The temperature forecast for this same time-period indicates above-normal temperatures in all three regions of the District.

For more information log on to the CPC's website at:

[http://www.cpc.ncep.noaa.gov/products/OUTLOOKS\\_index.html](http://www.cpc.ncep.noaa.gov/products/OUTLOOKS_index.html)

## RELATIONSHIP OF APRIL 2017 RAINFALL TO HISTORICAL RAINFALL AVERAGES

### Regional Summary:

<i>Region</i>	<i>APR 2017 Average Rainfall</i>	<i>Historical Average for APR</i>	<i>Departure from Historical Average</i>	<i>Calendar Year 2017 Cumulative Rainfall JAN-APR</i>	<i>Calendar Year Historical Cumulative Rainfall JAN-APR</i>	<i>Departure from Historical Cumulative APR 2017</i>	<i>Cumulative 12-month Rainfall MAY 2016- APR 2017</i>	<i>Historical 12-month Cumulative Rainfall</i>	<i>Departure from Historical 12-month Cumulative</i>
Northern Counties	1.69	2.71	-1.02	7.53	12.35	-4.82	43.41	53.50	-10.09
Central Counties	0.82	2.44	-1.62	5.07	11.27	-6.20	47.10	52.36	-5.26
Southern Counties	0.42	2.47	-2.05	4.26	10.27	-6.01	48.00	52.37	-4.37
District All Counties	0.92	2.52	-1.60	5.46	11.22	-5.76	46.37	52.68	-6.31

### Regional Counties Summary:

<i>NORTHERN COUNTIES</i>	<i>APR 2017 Average Rainfall</i>	<i>Historical Average for APR</i>	<i>Departure from Historical Average</i>	<i>Calendar Year 2017 Cumulative Rainfall JAN-APR</i>	<i>Calendar Year Historical Cumulative Rainfall JAN-APR</i>	<i>Departure from Historical Cumulative APR 2017</i>	<i>Cumulative 12-month Rainfall MAY 2016- APR 2017</i>	<i>Historical 12-month Cumulative Rainfall</i>	<i>Departure from Historical 12-month Cumulative</i>
Levy County	3.05	2.93	0.12	8.05	13.31	-5.26	46.71	53.83	-7.12
Marion County	2.11	2.92	-0.81	8.48	12.92	-4.44	42.44	54.21	-11.77
Citrus County	1.75	2.63	-0.88	8.48	12.35	-3.87	45.65	54.01	-8.36
Sumter County	1.55	2.67	-1.12	7.19	12.06	-4.87	38.68	51.89	-13.21
Hernando County	0.63	2.72	-2.09	5.80	12.30	-6.50	44.72	54.98	-10.26
<i>CENTRAL COUNTIES</i>									
Pasco County	0.28	2.57	-2.29	4.74	11.95	-7.21	45.07	54.02	-8.95
Pinellas County	0.94	2.37	-1.43	4.58	11.15	-6.57	52.36	51.74	0.62
Hillsborough County	0.94	2.44	-1.50	5.15	11.09	-5.94	48.20	52.60	-4.40
Polk County	0.98	2.62	-1.64	5.25	10.97	-5.72	46.39	51.98	-5.59
<i>SOUTHERN COUNTIES</i>									
Manatee County	0.20	2.42	-2.22	4.40	10.58	-6.18	49.71	53.45	-3.74
Hardee County	0.35	2.62	-2.27	4.27	10.20	-5.93	44.98	52.09	-7.11
Highlands County	0.82	2.60	-1.78	4.22	9.94	-5.72	49.10	52.02	-2.92
Sarasota County	0.51	2.39	-1.88	5.03	10.20	-5.17	50.31	52.63	-2.32
DeSoto County	0.24	2.43	-2.19	3.79	9.69	-5.90	44.92	51.82	-6.90
Charlotte County	0.70	2.24	-1.54	3.74	9.27	-5.53	49.97	52.47	-2.50

## APRIL 2017 RAINFALL CHARACTERIZATION

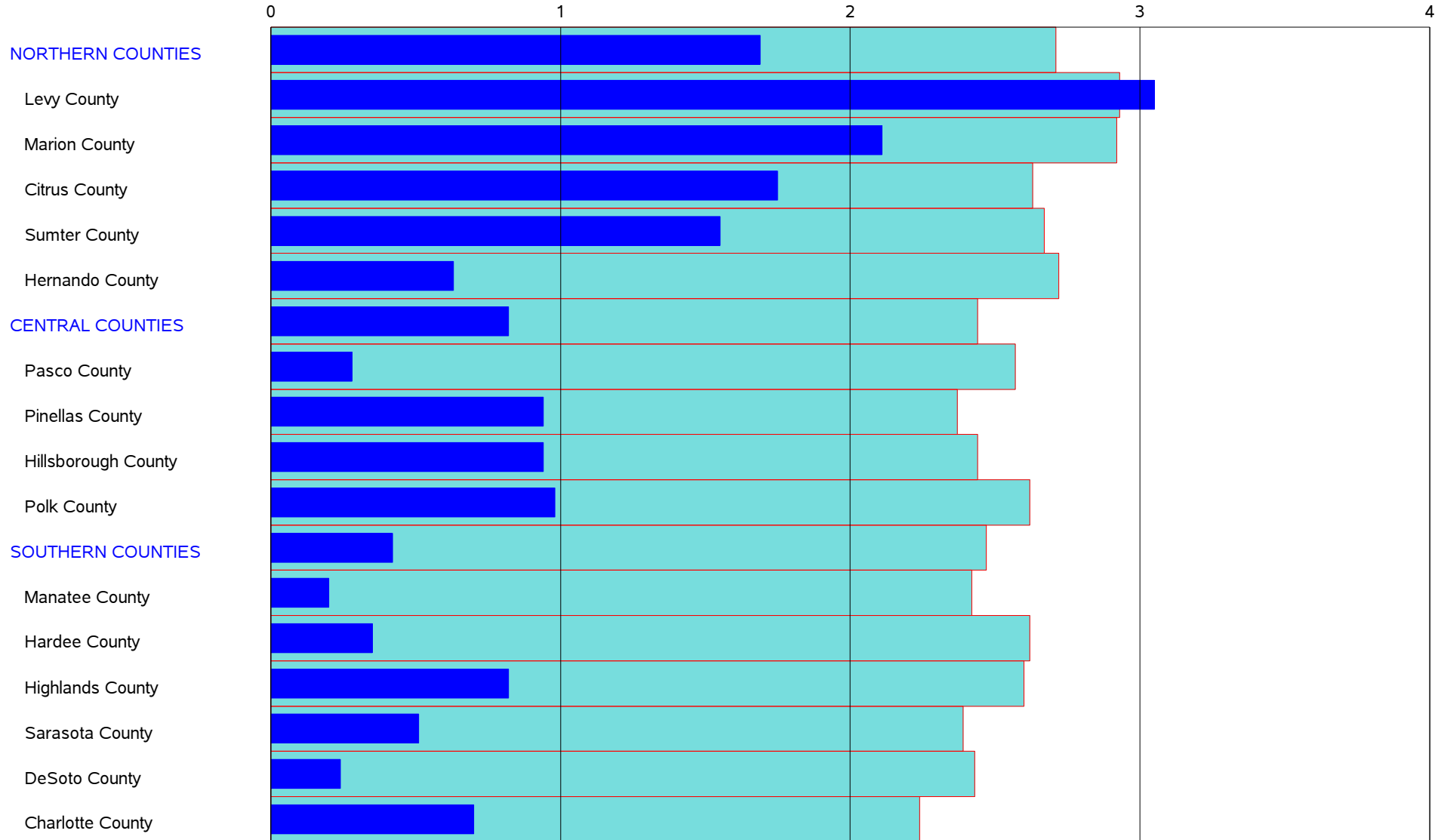
### Regional Characterization:

<i>Region</i>	<i>APR 2017 Average Rainfall</i>	<i>Historical APR Percentile</i>	<i>APR Rainfall Characterization</i>	<i>Cumulative 12-month Rainfall MAY 2016- APR 2017</i>	<i>Historical 12-month Cumulative Percentile</i>	<i>12-month Cumulative Rainfall Characterization</i>
Northern Counties	1.69	31	Normal	43.41	12	Drier than normal
Central Counties	0.82	16	Drier than normal	47.10	28	Normal
Southern Counties	0.42	9	Very dry	48.00	34	Normal
District Counties	0.92	16	Drier than normal	46.37	24	Drier than normal

### Regional Counties Characterization:

<i>NORTHERN COUNTIES</i>	<i>APR 2017 Average Rainfall</i>	<i>Historical APR Percentile</i>	<i>APR Rainfall Characterization</i>	<i>Cumulative 12-month Rainfall MAY 2016- APR 2017</i>	<i>Historical 12-month Cumulative Percentile</i>	<i>12-month Cumulative Rainfall Characterization</i>
Levy County	3.05	60	Normal	46.71	23	Drier than normal
Marion County	2.11	47	Normal	42.44	9	Very dry
Citrus County	1.75	37	Normal	45.65	20	Drier than normal
Sumter County	1.55	29	Normal	38.68	7	Very dry
Hernando County	0.63	12	Drier than normal	44.72	14	Drier than normal
<i>CENTRAL COUNTIES</i>						
Pasco County	0.28	6	Very dry	45.07	18	Drier than normal
Pinellas County	0.94	26	Normal	52.36	57	Normal
Hillsborough County	0.94	22	Drier than normal	48.20	33	Normal
Polk County	0.98	16	Drier than normal	46.39	28	Normal
<i>SOUTHERN COUNTIES</i>						
Manatee County	0.20	7	Very dry	49.71	37	Normal
Hardee County	0.35	11	Drier than normal	44.98	23	Drier than normal
Highlands County	0.82	14	Drier than normal	49.10	39	Normal
Sarasota County	0.51	17	Drier than normal	50.31	44	Normal
DeSoto County	0.24	8	Very dry	44.92	25	Normal
Charlotte County	0.70	26	Normal	49.97	44	Normal

## APRIL 2017 RAINFALL HISTORIC AVERAGE VS HISTORICAL APRIL AVERAGE (INCHES)

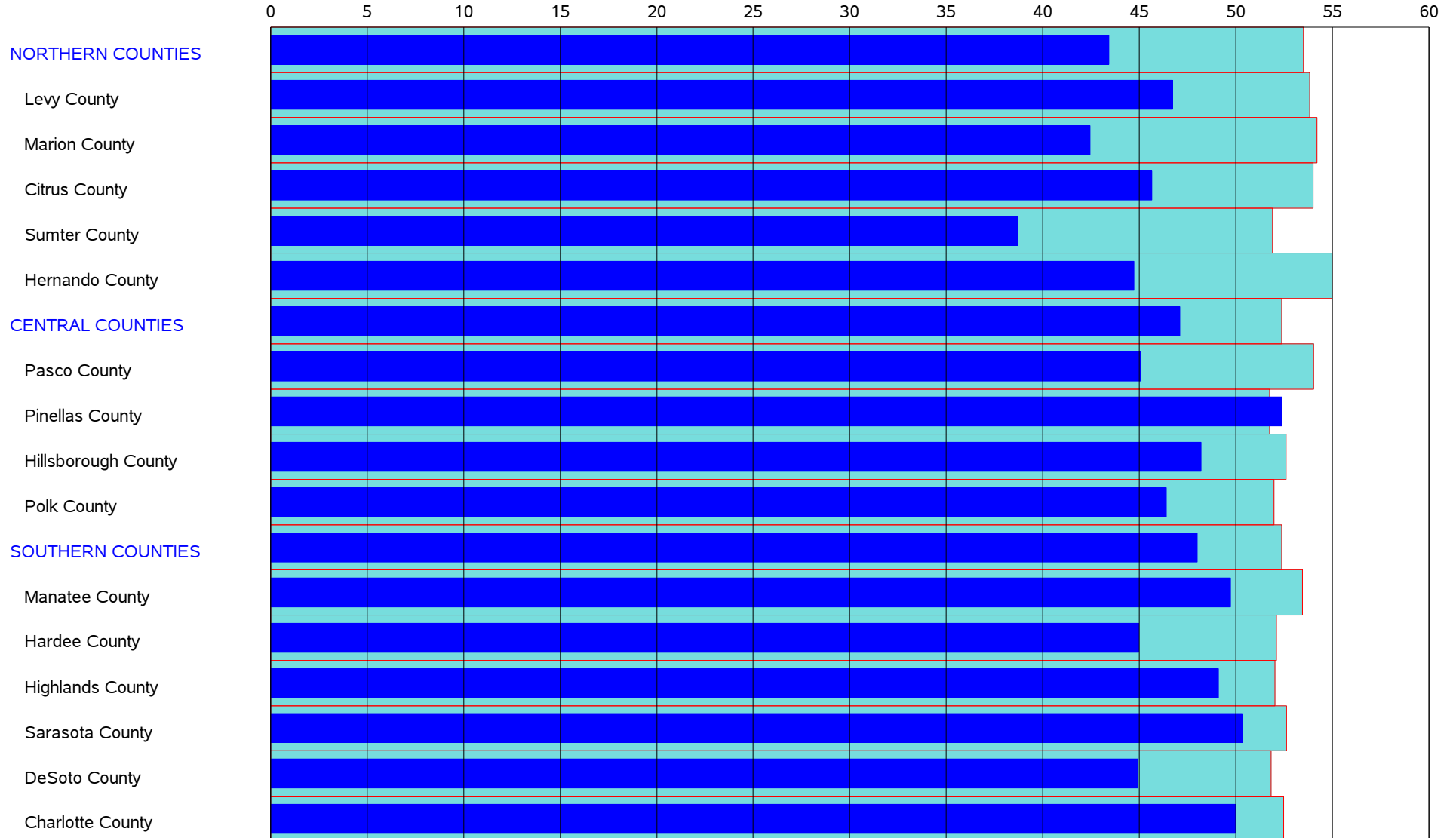


April 2017 Rainfall



Historical April Average Rainfall

## APRIL 2017 12-MONTH CUMULATIVE RAINFALL VS AVERAGE ANNUAL CUMULATIVE (INCHES)



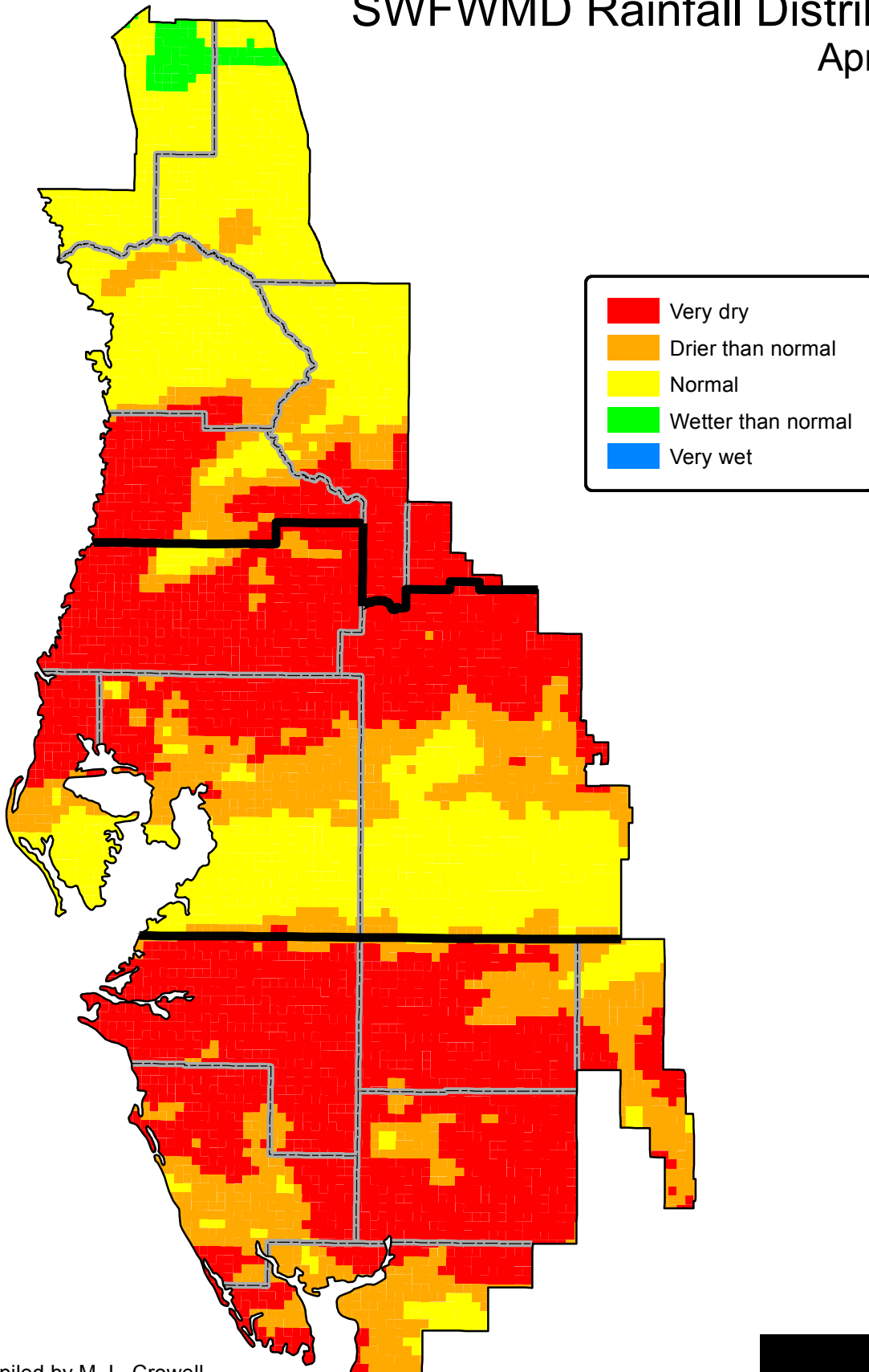
12-month Cumulative Rainfall



Average 12-month Cumulative

# SWFWMD Rainfall Distribution

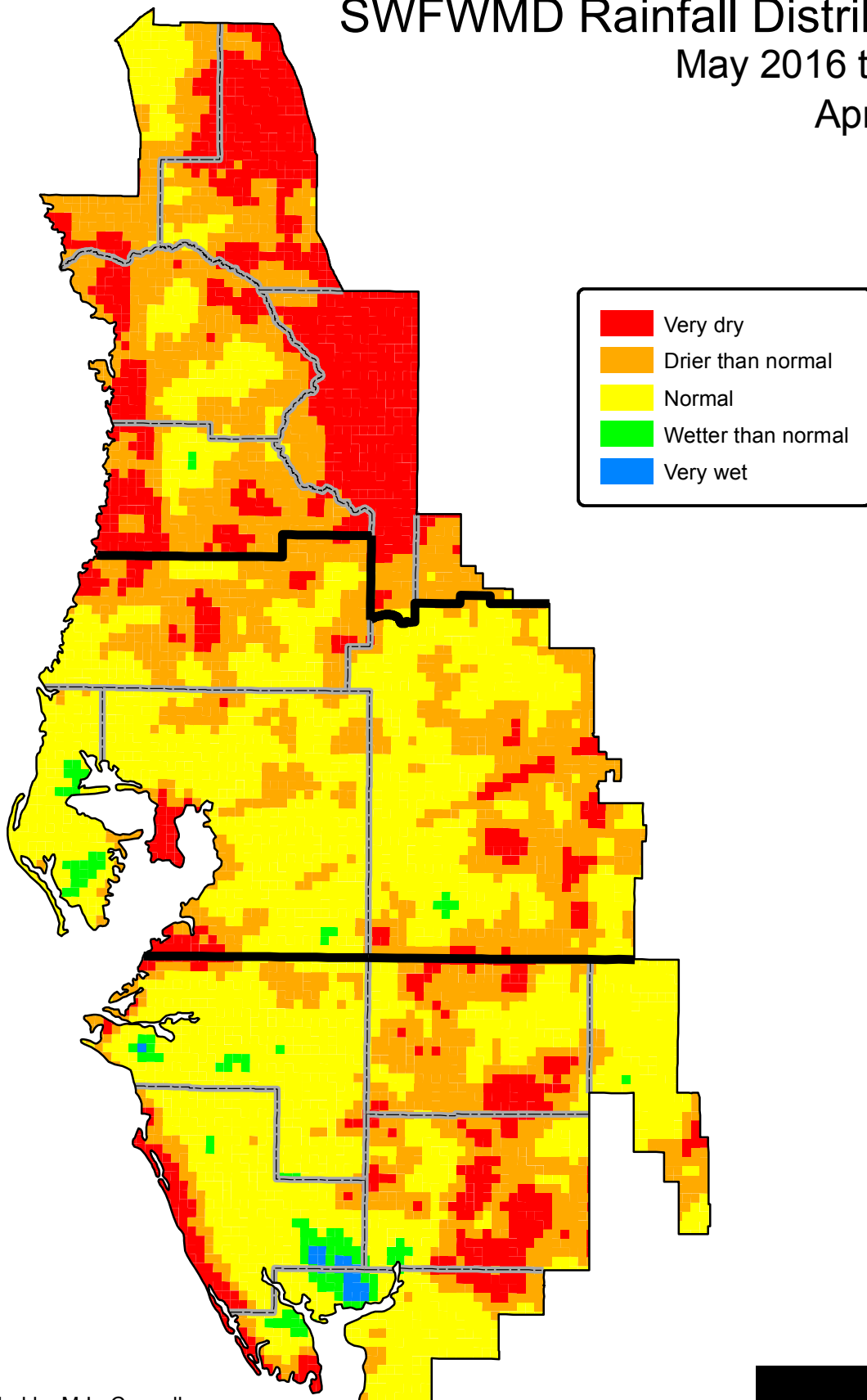
April 2017



Compiled by M. L. Crowell  
Data source: Vieux, Inc.

# SWFWMD Rainfall Distribution

May 2016 through  
April 2017



Compiled by M.L. Crowell  
Data source: Vieux, Inc.

## SURFACE WATER

### Lakes

Across the District, 76 lakes have been selected as excellent indicators of current surface water conditions (see index map in Appendix). Water levels of these lakes are read monthly. In general, these lakes are concentrated in four regions, the northern region of Citrus, Hernando, and Sumter Counties, the Tampa Bay region of Hillsborough and Pasco Counties, the Polk Uplands region of northern Polk County, and the Lake Wales Ridge region of Polk and Highlands Counties. In this report, current monthly lake levels are tabulated and compared with previous records as well as District-established management levels. In addition, lake-level data representative of the four regions are presented in hydrographs showing a 15-year history of water levels, as a general indicator of surface-water conditions in that region.

The District's Governing Board (the Board) has established lake management levels for approximately 410 lakes within District boundaries, which are specified in Chapter 40D-8, Florida Administrative Code (F.A.C.). Management levels help protect the water resources of the District and the ecology of the lake or water-body for which it was established. In this report, the following three management levels are used to indicate normal and low lake levels: the Minimum Flood (MF) level, the Minimum Low Management (MLM) level, and the Minimum Extreme Low Management (MELM) level. In general, the MF level corresponds to the normal high level, the MLM to the normal low level, and the MELM to a drought-year low. These levels were derived from various sources, including technical publications, topographic maps, Water Resource Data Reports of the USGS, and other studies. Field investigations are also used to determine past surface levels from water marks, wetland vegetation, dry land vegetation, and to establish the elevation of septic tanks, docks, sea walls, roads and floor slabs.

During a normal year, each of the indicator lakes should reach both the designated normal high (MF) and the normal low (MLM) levels. In addition, it is generally beneficial for lakes to reach the adopted drought year low (MELM) level every four to six years for a short period of time for the biological health of the lake. In this report, hydrographs of representative lakes compare current and recent water levels against “**normal ranges**” defined by the adopted MF and MLM levels.

Of the 76 lakes presented in this report, 17 have water-control structures. These structures are used for water conservation and do not generally influence the water levels with regard to meteorologically wet or dry conditions. During periods of extreme high water, the structures may be operated to minimize flooding.

During April 74 of the 76 lakes monitored for this report recorded water level decreases, while one was unchanged, compared to last month. Data was unavailable for Lake Alice in the Tampa Bay region. Water levels decreased in the Northern, Tampa Bay, Polk Uplands and Lake Wales Ridge regions by 0.50, 0.59, 0.51 and 0.59 foot, respectively. District-wide, average water levels decreased by 0.55 foot, compared to last month.

In April 74 of the 76 lakes monitored for this report recorded water level decreases, while one recorded an increase, compared to last year's levels. Data was unavailable for Lake Alice in the Tampa Bay region. In the Northern, Tampa Bay, Polk Uplands and Lake Wales Ridge regions, average lake levels were lower by 1.57, 1.66, 1.21 and 1.29 feet, respectively. District-wide, average lake levels were lower by 1.48 feet, compared to last year's levels.

Water levels in 50 of the 76 lakes were below the base of the annual normal range. Data was unavailable for Lake Alice in the Tampa Bay region. Lake levels in the Northern, Tampa Bay and Lake Wales Ridge regions averaged 2.13 feet, 0.66 foot and 1.10 feet, respectively, below the base of the annual normal range. Lake levels in the Polk Uplands region averaged 0.43 foot, above the base of the normal range. District-wide, lake levels averaged 0.73 foot below the base of the annual normal range. Water levels in 64 of the 76 lakes were above the drought-year levels.

## SUMMARY OF LAKE ELEVATIONS OF REGIONAL LAKES (feet)

NORTHERN LAKES															
Lake Name	County	Beginning of Record	MAR 2017	APR 2017	APR 2016	Change from MAR 2017	Change from APR 2016	Diff from MELM	(MELM) Drought Year Low	(MLM) Normal Year Low	(MF) Normal Year High	Period of Record Low	Record Low Date	Period of Record High	Record High Date
Big Fish Lake	Pasco	1980	72.73	72.73	74.13	0.00	-1.40	0.98	71.75	73.05	76.05	65.45	JUN 1997	77.40	SEP 2004
Crews Lake	Pasco	1986	49.84	49.10	50.70	-0.74	-1.60	-0.90	50.00	52.00	55.00	42.63	APR 2001	54.92	MAR 1998
Hancock Lake	Pasco	1978	99.42	98.70	100.82	-0.72	-2.12	-3.30	102.00	104.00	106.50	90.00	MAR 2009	108.90	MAR 1998
Hunters Lake	Hernando	1965	15.83	15.03	17.67	-0.80	-2.64	-0.97	16.00	17.50	20.50	11.70	JUN 2001	20.50	MAR 1970
Lake Iola	Pasco	1965	139.03	138.53	139.48	-0.50	-0.95	-3.97	142.50	145.00	147.50	128.96	MAY 2012	148.70	JAN 1989
Lake Lindsey	Hernando	1982	63.48	62.94	63.97	-0.54	-1.03	-1.56	64.50	66.00	69.00	59.27	MAY 2012	69.36	MAR 1998
Little Lake (Consu	Citrus	1985	38.38	37.88	39.43	-0.50	-1.55	0.63	37.25	39.00	41.50	31.10	MAY 2001	42.84	SEP 2004
Lake Miona	Sumter	1978	49.84	49.73	52.21	-0.11	-2.48	-1.27	51.00	53.00	55.00	47.88	AUG 1992	56.60	OCT 1982
Moon Lake	Pasco	1990	38.01	37.45	39.44	-0.56	-1.99	1.95	35.50	37.50	40.50	32.98	APR 2009	41.26	SEP 2004
Lake Panasoffkee	Sumter	1955	38.22	38.00	39.23	-0.22	-1.23	-0.50	38.50	39.50	42.50	36.92	JUN 2007	44.28	APR 1960
Lake Pasadena	Pasco	1984	90.83	90.19	91.06	-0.64	-0.87	0.19	90.00	91.50	94.50	81.56	MAY 2001	94.86	OCT 2004
Spring Lake	Hernando	1965	179.75	179.29	180.63	-0.46	-1.34	1.04	178.25	181.25	184.25	174.85	JUN 1965	183.57	OCT 1984
Floral City Pool	Citrus	1957	39.11	38.38	40.22	-0.73	-1.84	0.13	38.25	40.25	42.50	30.35	JUN 2001	44.22	MAR 1960
Inverness Pool	Citrus	1958	38.27	37.81	39.07	-0.46	-1.26	1.56	36.25	38.25	40.50	31.46	MAY 2001	42.94	APR 1960
Hernando Pool	Citrus	1958	37.26	36.79	38.06	-0.47	-1.27	2.04	34.75	36.75	39.00	31.09	JUL 2001	41.74	APR 1960

TAMPA BAY LAKES															
Lake Name	County	Beginning of Record	MAR 2017	APR 2017	APR 2016	Change from MAR 2017	Change from APR 2016	Diff from MELM	(MELM) Drought Year Low	(MLM) Normal Year Low	(MF) Normal Year High	Period of Record Low	Record Low Date	Period of Record High	Record High Date
Lake Alice	Hillsborough	1971	M	M	40.21	M	M	M	37.50	40.25	42.25	33.24	MAY 2002	42.42	SEP 2004
Lake Ann-Parker	Pasco	1969	46.26	45.67	47.11	-0.59	-1.44	0.67	45.00	45.75	48.75	43.28	JUN 2002	49.29	SEP 1979
Bay Lake	Hillsborough	1982	44.57	43.96	45.25	-0.61	-1.29	1.46	42.50	44.00	46.75	41.86	APR 1985	46.46	DEC 1997
Lake Brant	Hillsborough	1971	56.37	55.76	57.66	-0.61	-1.90	1.26	54.50	56.50	58.75	51.65	JUN 1994	60.04	AUG 1979
Brooker Lake	Hillsborough	1977	61.75	61.17	62.42	-0.58	-1.25	2.17	59.00	61.00	64.25	56.49	MAY 2002	64.08	DEC 1997
Calm Lake	Hillsborough	1965	48.72	48.14	49.38	-0.58	-1.24	3.14	45.00	47.50	50.50	41.88	JUN 2002	51.04	JUL 2015
Camp Lake	Pasco	1968	60.55	59.69	62.23	-0.86	-2.54	0.69	59.00	61.75	64.00	50.82	MAY 2002	64.05	JUL 2015
Carlton Lake	Hillsborough	1976	91.01	90.33	93.58	-0.68	-3.25	2.33	88.00	90.50	93.50	86.82	MAY 2001	94.60	FEB 1998
Lake Carroll	Hillsborough	1985	34.93	34.51	35.64	-0.42	-1.13	2.01	32.50	34.50	37.00	30.87	MAY 2002	38.06	DEC 1997
Church Lake	Hillsborough	1931	33.99	33.39	35.13	-0.60	-1.74	1.89	31.50	34.00	36.25	27.94	MAY 2002	38.60	FEB 1936
Lake Cooper	Hillsborough	1946	58.99	58.54	59.50	-0.45	-0.96	1.54	57.00	59.75	61.75	55.60	JUN 2001	62.54	SEP 1947
Crescent Lake	Hillsborough	1981	40.67	40.07	41.68	-0.60	-1.61	1.57	38.50	40.00	42.50	35.34	JUN 2001	42.63	JUL 2015
Deer Lake	Hillsborough	1977	64.70	64.16	65.84	-0.54	-1.68	1.66	62.50	64.50	67.25	60.72	MAY 2002	67.42	DEC 1997
Egypt Lake	Hillsborough	1978	35.43	34.96	36.04	-0.47	-1.08	2.46	32.50	35.00	37.50	33.06	MAY 2000	38.15	SEP 1985
Gornto Lake	Hillsborough	1979	34.77	34.14	36.67	-0.63	-2.53	0.14	34.00	36.00	38.50	29.86	MAR 1979	39.48	FEB 1998
Lake Harvey	Hillsborough	1970	59.79	59.19	61.00	-0.60	-1.81	1.19	58.00	60.25	62.50	53.94	MAY 2002	63.90	DEC 1997
Lake Hiawatha	Hillsborough	1981	48.87	48.37	49.64	-0.50	-1.27	3.37	45.00	48.00	50.50	46.14	JUN 2000	51.12	APR 2010
Horse Lake	Hillsborough	1930	44.59	43.83	45.61	-0.76	-1.78	1.83	42.00	44.00	46.50	36.33	JUN 2002	50.00	AUG 1959
Lake Keene	Hillsborough	1948	60.46	59.96	61.99	-0.50	-2.03	0.96	59.00	60.50	63.00	56.92	MAY 1994	63.30	SEP 1953
Keystone Lake	Hillsborough	1984	40.36	39.75	41.31	-0.61	-1.56	0.75	39.00	39.75	42.00	37.89	JUN 1994	43.64	AUG 2015
King Lake	Pasco	1983	101.13	100.60	102.04	-0.53	-1.44	0.60	100.00	102.50	105.25	94.20	APR 2009	104.80	MAR 1987
Lake Leclare	Hillsborough	1977	50.05	49.49	50.78	-0.56	-1.29	2.49	47.00	49.50	52.00	44.95	JUN 2001	52.99	JUL 2015
Lake Linda	Pasco	1969	64.01	63.41	65.15	-0.60	-1.74	1.41	62.00	64.00	66.75	60.07	MAY 2001	67.13	AUG 1979
Little Lake	Hillsborough	1931	44.37	43.83	45.09	-0.54	-1.26	1.83	42.00	43.50	46.50	38.06	JUN 1994	48.65	AUG 1960
Long Pond	Hillsborough	1978	43.66	43.05	45.83	-0.61	-2.78	1.05	42.00	44.00	46.50	36.33	MAY 1979	48.27	SEP 1998
Mud (Walden) Lake	Hillsborough	1978	112.48	111.99	112.75	-0.49	-0.76	1.49	110.50	112.50	115.00	111.68	MAY 2012	114.42	MAR 1978
Lake Padgett	Pasco	1965	68.08	67.55	68.94	-0.53	-1.39	0.05	67.50	69.00	71.25	66.27	JUN 2001	71.90	SEP 1988
Platt Lake	Hillsborough	1946	47.89	47.34	48.86	-0.55	-1.52	1.34	46.00	47.75	50.50	42.53	JUN 2001	51.88	SEP 1979
Rainbow Lake	Hillsborough	1971	37.62	36.94	38.68	-0.68	-1.74	1.94	35.00	37.50	40.50	29.82	JUN 2002	40.95	JUL 2015
Lake Stemper	Hillsborough	1946	59.18	58.61	60.03	-0.57	-1.42	0.61	58.00	59.50	62.00	53.36	JUN 2001	62.30	MAR 1960
Lake Thomas	Hillsborough	1971	61.15	60.55	62.59	-0.60	-2.04	1.30	59.25	61.25	63.50	56.48	JUN 2002	64.48	SEP 1979
Turkey Ford Lake	Hillsborough	1970	49.55	49.05	50.32	-0.47	-1.24	-0.92	50.00	51.50	54.00	48.07	JUN 1985	55.28	SEP 1988
Lake Wimauma	Hillsborough	1985	80.32	79.45	81.74	-0.87	-2.29	-1.55	81.00	83.00	86.75	70.12	MAY 2001	84.38	MAR 1998

NOTE: M='no data' or 'not determined'

All elevations are referenced to NGVD 1929 datum. Report compiled by Patrick Casey

## SUMMARY OF LAKE ELEVATIONS OF REGIONAL LAKES (feet)

POLK UPLANDS LAKES		Beginning of Record	MAR 2017	APR 2017	APR 2016	Change from MAR 2017	Change from APR 2016	Diff from MELM	(MELM) Drought Year Low	(MLM) Normal Year Low	(MF) Normal Year High	Period of Record Low	Record Low Date	Period of Record High	Record High Date
Lake Name	County														
Lake Alfred	Polk	1961	129.55	129.05	130.10	-0.50	-1.05	2.80	126.25	128.25	130.75	122.40	MAY 1977	132.76	MAR 1998
Lake Ariana	Polk	1945	135.80	135.42	136.60	-0.38	-1.18	2.92	132.50	134.50	137.00	131.28	MAY 1976	137.90	AUG 1946
Lake Arietta	Polk	1970	140.96	140.51	141.97	-0.45	-1.46	2.51	138.00	141.00	144.00	136.50	MAY 1977	144.12	SEP 2004
Blue Lake South	Polk	1986	114.08	113.51	115.79	-0.57	-2.28	1.01	112.50	114.00	117.00	103.38	FEB 1991	119.19	DEC 2005
Lake Bonny	Polk	1954	129.23	128.67	130.18	-0.56	-1.51	2.67	126.00	128.00	130.50	122.34	MAY 2009	133.08	SEP 2004
Lake Buffum	Polk	1972	130.29	129.90	131.02	-0.39	-1.12	3.15	126.75	129.25	132.25	123.90	JUN 1991	133.00	JUN 2005
Clearwater Lake	Polk	1979	142.92	142.32	143.74	-0.60	-1.42	3.32	139.00	141.00	143.50	137.93	MAY 2001	146.06	AUG 1984
Lake Conine	Polk	1989	128.21	127.70	128.36	-0.51	-0.66	3.20	124.50	126.50	128.75	123.83	NOV 2009	129.95	SEP 2004
Eagle Lake	Polk	1965	128.65	128.15	129.69	-0.50	-1.54	1.65	126.50	128.50	130.75	118.76	MAY 1976	131.50	SEP 1996
Lake Fannie	Polk	1967	124.78	124.24	125.21	-0.54	-0.97	4.24	120.00	123.50	125.75	118.67	MAY 1977	127.51	SEP 2004
Lake Garfield	Polk	1969	100.68	100.14	101.77	-0.54	-1.63	0.14	100.00	101.00	104.75	97.38	JUN 2001	105.91	SEP 1979
Lake Hamilton	Polk	1945	119.76	119.29	120.75	-0.47	-1.46	2.04	117.25	119.00	121.50	116.61	JUN 2001	124.34	OCT 1948
Lake Helene	Polk	1961	143.05	142.47	141.91	-0.58	0.56	3.47	139.00	141.00	144.00	134.06	JUN 2008	146.48	MAR 1998
Lake Howard	Polk	1987	130.61	130.10	131.59	-0.51	-1.49	3.10	127.00	129.50	132.00	127.69	MAY 2001	133.08	SEP 2004
Lake Juliana	Polk	1961	131.90	131.44	132.40	-0.46	-0.96	3.94	127.50	130.00	132.50	126.20	MAY 1976	134.10	MAR 1998
Lake Mcleod	Polk	1965	129.07	128.53	129.30	-0.54	-0.77	0.53	128.00	129.50	132.00	115.11	MAY 1976	131.98	SEP 1998
Lake Otis	Polk	1954	126.16	125.48	127.46	-0.68	-1.98	2.48	123.00	125.00	128.00	119.58	MAY 1976	129.12	SEP 1960
Lake Ruby	Polk	1971	124.07	123.63	124.75	-0.44	-1.12	2.63	121.00	123.00	125.25	117.41	MAY 1976	125.98	SEP 2004
Lake Gibson	Polk	1969	142.25	141.70	142.72	-0.55	-1.02	0.20	141.50	141.50	143.50	140.21	MAY 2009	145.40	SEP 1988

LK WALES RIDGE LAKES		Beginning of Record	MAR 2017	APR 2017	APR 2016	Change from MAR 2017	Change from APR 2016	Diff from MELM	(MELM) Drought Year Low	(MLM) Normal Year Low	(MF) Normal Year High	Period of Record Low	Record Low Date	Period of Record High	Record High Date
Lake Name	County														
Lake Annie	Polk	1970	114.62	114.18	114.27	-0.44	-0.09	0.18	114.00	116.00	119.00	108.36	JUN 1990	117.56	OCT 2005
Lake Clay	Highlands	1983	76.98	76.56	77.66	-0.42	-1.10	1.56	75.00	76.00	78.75	74.34	MAY 2001	78.82	JUN 2013
Crooked Lake	Polk	1945	117.02	116.66	118.10	-0.36	-1.44	-0.34	117.00	118.50	122.00	106.10	MAY 1991	123.98	OCT 1948
Lake Jackson	Highlands	1945	101.32	100.86	102.23	-0.46	-1.37	2.86	98.00	100.00	103.00	96.47	JUN 2008	103.76	SEP 1947
Lake Letta	Highlands	1951	97.60	96.99	98.92	-0.61	-1.93	1.99	95.00	97.00	100.00	90.27	JUN 2008	101.38	OCT 1953
Lake Lotela	Highlands	1950	105.75	105.24	106.98	-0.51	-1.74	1.24	104.00	105.00	108.50	96.63	JUN 2008	109.38	JUL 1954
Lake Placid	Highlands	1984	91.72	91.21	93.00	-0.51	-1.79	1.21	90.00	91.50	94.50	88.08	JUN 2008	94.24	SEP 2003
Starr Lake	Polk	1983	105.48	104.85	106.10	-0.63	-1.25	-3.15	108.00	110.00	113.00	96.23	JUL 2001	109.80	DEC 2005
Trout Lake	Highlands	1981	96.93	95.54	96.45	-1.39	-0.91	0.54	95.00	98.00	101.00	87.15	MAY 2001	99.89	SEP 2016

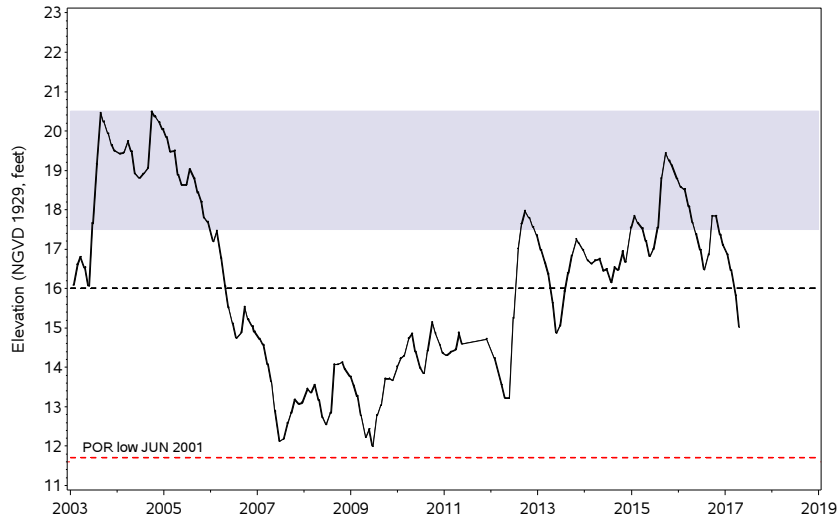
NOTE: M='no data' or 'not determined'

All elevations are referenced to NGVD 1929 datum. Report compiled by Patrick Casey

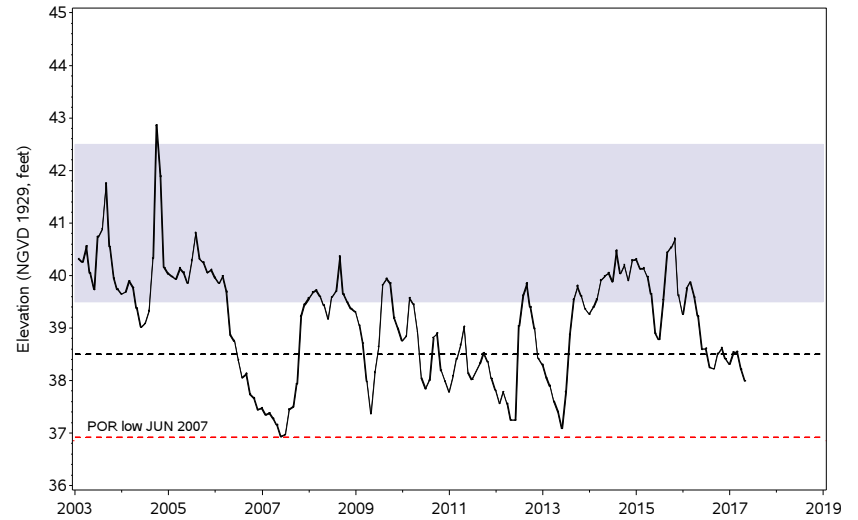
# HYDROGRAPHS OF REGIONAL LAKES

## 15-yr Period of Record

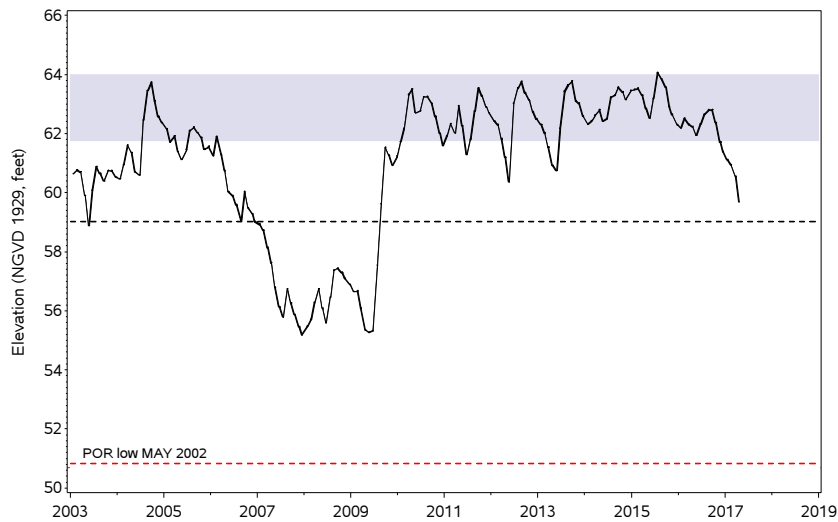
Hunters Lake  
Northern Lakes



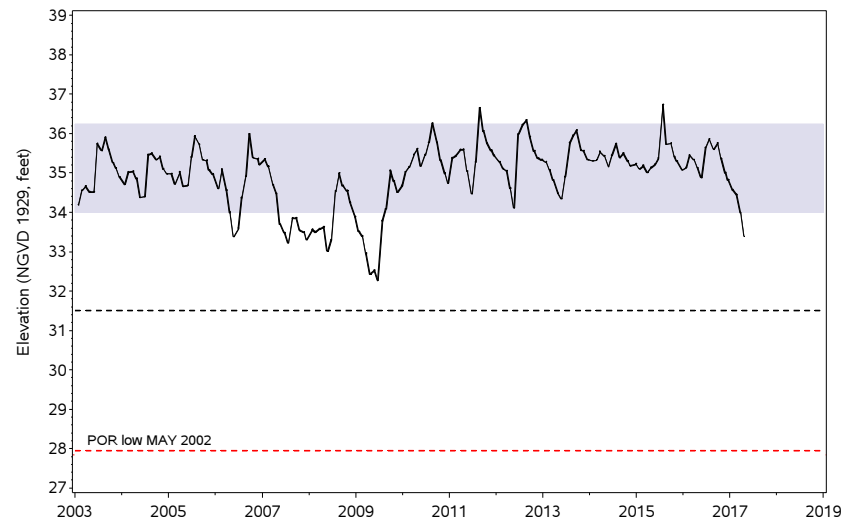
Lake Panasoffkee  
Northern Lakes



Camp Lake  
Tampa Bay Lakes



Church Lake  
Tampa Bay Lakes

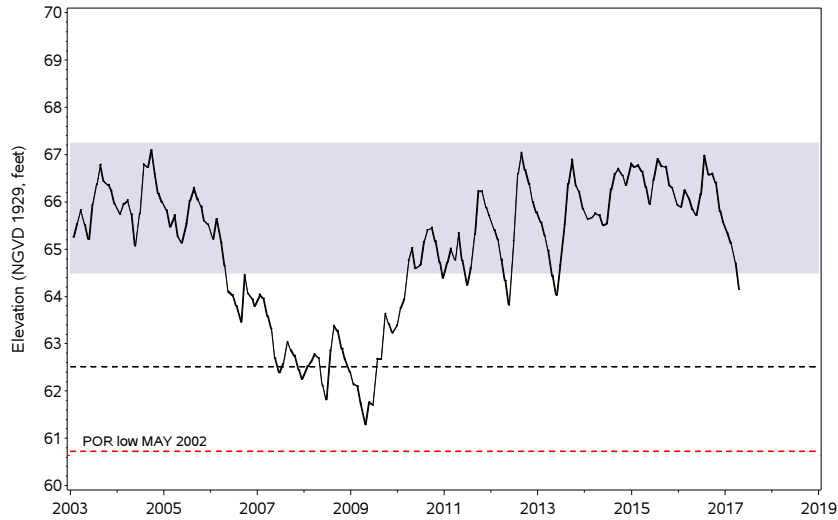


— Monthly Mean Elevation    - - - Drought Year Low    Normal Range

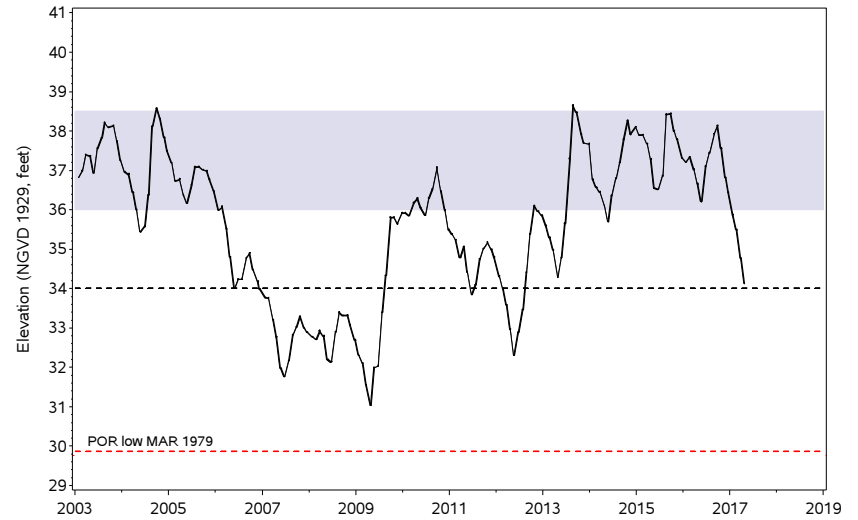
# HYDROGRAPHS OF REGIONAL LAKES

## 15-yr Period of Record

Deer Lake  
Tampa Bay Lakes



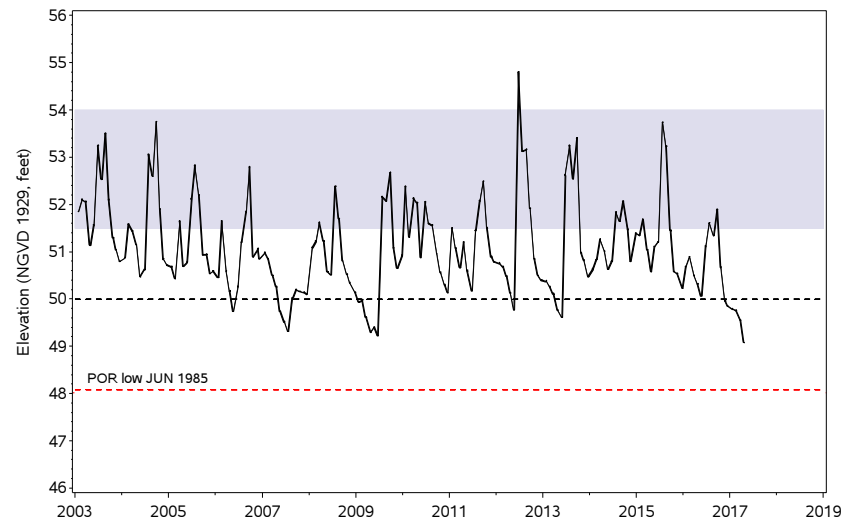
Gornto Lake  
Tampa Bay Lakes



King Lake  
Tampa Bay Lakes



Turkey Ford Lake  
Tampa Bay Lakes

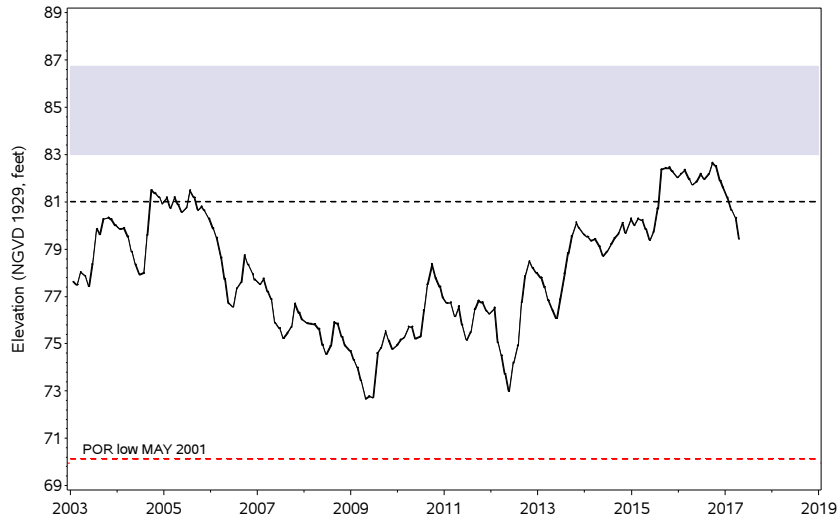


— Monthly Mean Elevation    - - - Drought Year Low    Normal Range

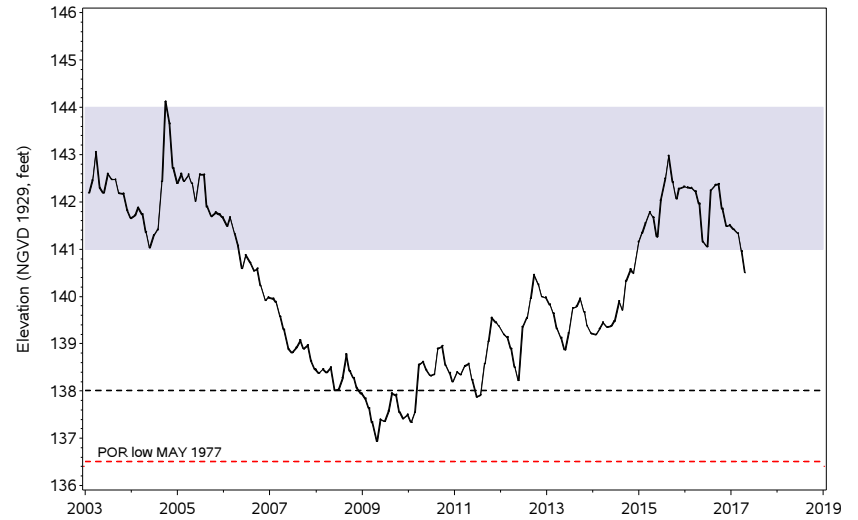
# HYDROGRAPHS OF REGIONAL LAKES

## 15-yr Period of Record

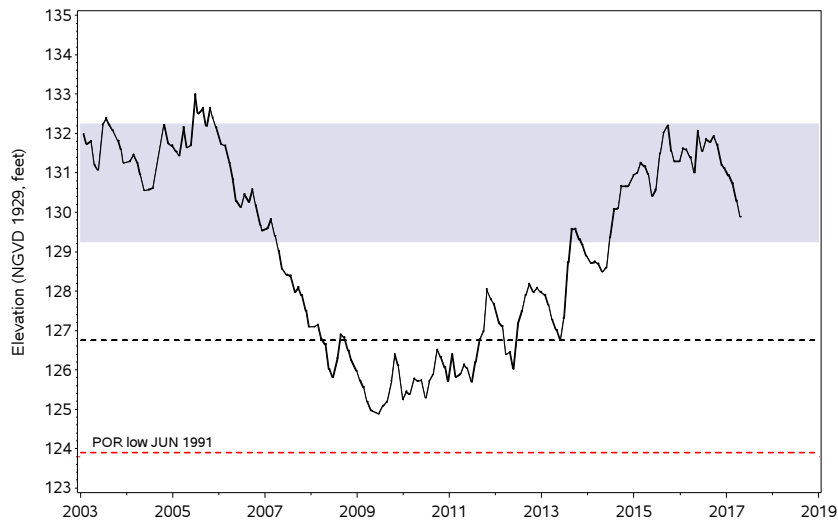
Lake Wimauma  
Tampa Bay Lakes



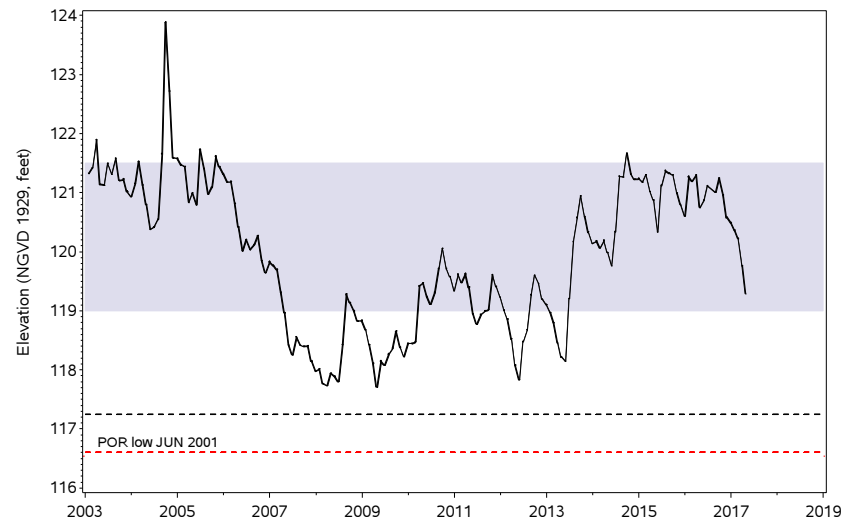
Lake Arietta  
Polk Uplands Lakes



Lake Buffum  
Polk Uplands Lakes



Lake Hamilton  
Polk Uplands Lakes

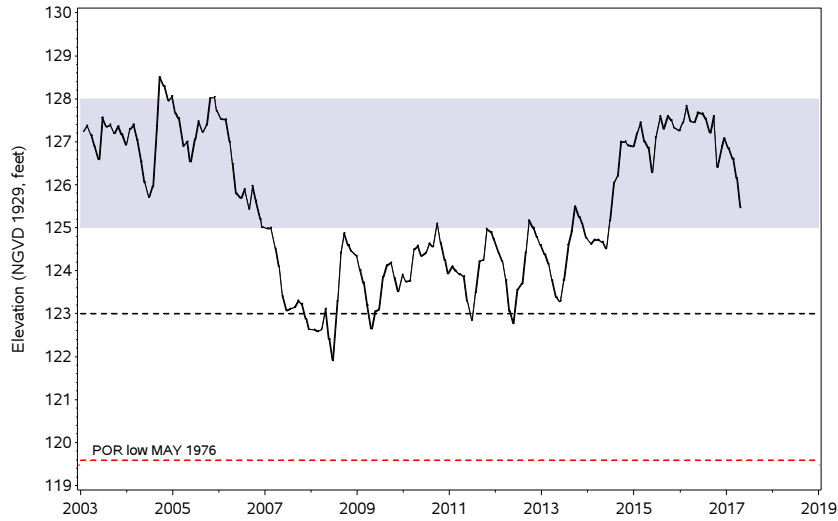


— Monthly Mean Elevation    - - - Drought Year Low    Normal Range

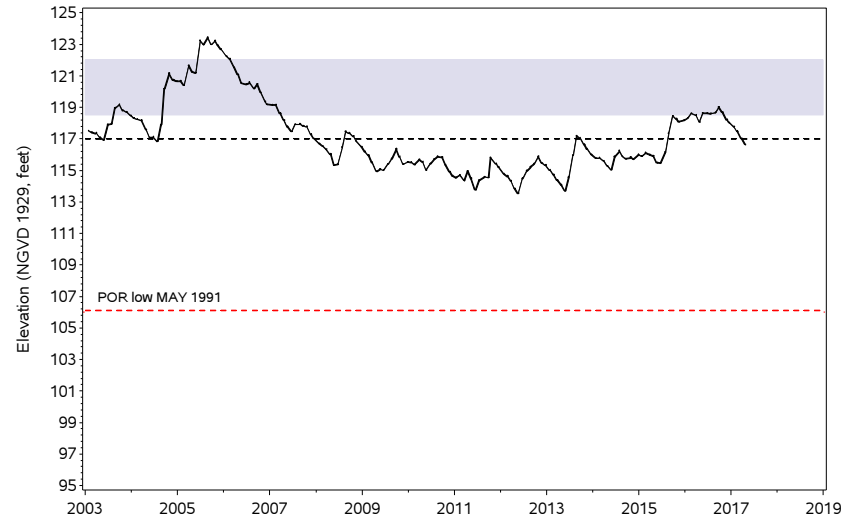
# HYDROGRAPHS OF REGIONAL LAKES

## 15-yr Period of Record

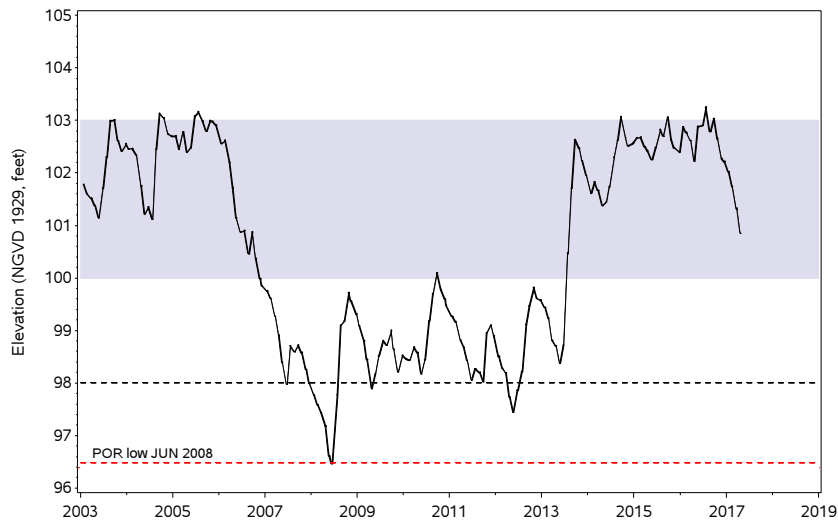
Lake Otis  
Polk Uplands Lakes



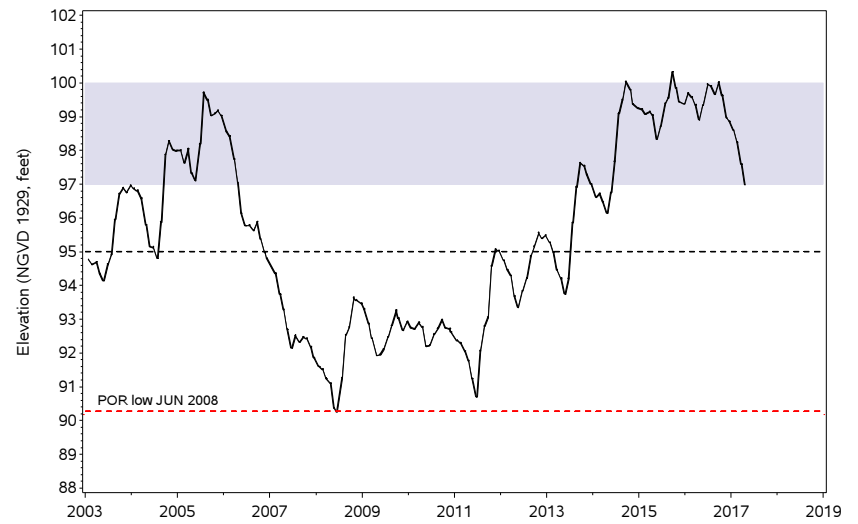
Crooked Lake  
Lake Wales Ridge Lakes



Lake Jackson  
Lake Wales Ridge Lakes



Lake Letta  
Lake Wales Ridge Lakes



— Monthly Mean Elevation    - - - Drought Year Low    Normal Range

## **Streams**

The District processes streamflow data collected by the U.S. Geological Survey (USGS) under a cooperatively funded program between the District and the USGS. Streamflow is recorded daily as water elevations at 12 gauging stations in three regions of the District (see index map in the Appendix). The USGS uses rating curves developed from water level elevations to calculate streamflow discharge in units of cubic feet per second (cfs). For this report, the reported streamflow values are the means of the daily discharge volumes for the current month. The period-of-record high and low values correspond to monthly means and not to peak events. Percentile values are calculated from the monthly means for the period of record, for each station. The percentile is the monthly mean statistically ranked on a scale of zero to 100 that indicates the percent of the period-of-record monthly means that are at or above the present monthly mean. The current year's data are provisional, and are subject to revision. Revised data are used for all calculations, as they become available.

Hydrographs are produced for each of the stream stations. Current monthly means for each station are compared to respective 25<sup>th</sup> and 75<sup>th</sup> percentiles of the period-of-record monthly means.

During April, eleven of the twelve stations monitored for this report had decreased streamflow, compared to last month. Total streamflow decreased in the northern, central and southern regions of the District by 58.4 cfs (37.7 mgd), 24.6 cfs (15.9 mgd) and 53.7 cfs (34.7 mgd), respectively. District-wide, total streamflow decreased by an average of 136.7 cfs (88.3 mgd).

In April, all twelve stations recorded lower streamflow than in April 2016. Streamflow was lower in the northern, central and southern regions by 432.5 cfs (279.4 mgd), 454.7 cfs (293.7 mgd) and 512.4 cfs (331.0 mgd), respectively. District-wide, total streamflow was lower, on average, by 1399.6 cfs (904.1 mgd), than the April 2016 average.

Compared to historical April discharge values, Withlacoochee River streamflow, measured at the Trilby station and the Holder station averaged in the 15<sup>th</sup> and 3<sup>rd</sup> percentiles, respectively. Streamflow measured at the stations on the Anclote, Pithlachascotee and Hillsborough Rivers averaged in the 4<sup>th</sup>, 10<sup>th</sup> and 5<sup>th</sup> percentiles of respective historical April readings. Streamflow measured at the Alafia River, Little Manatee River and Peace River at Bartow stations averaged in the 8<sup>th</sup>, 19<sup>th</sup> and 49<sup>th</sup> percentiles of respective historical April readings. Additionally, streamflow measured at the Josephine Creek, Manatee River, Myakka River and Peace River at Arcadia stations averaged in the 24<sup>th</sup>, 28<sup>th</sup>, 27<sup>th</sup> and 8<sup>th</sup> percentiles of respective historical April readings.

### **Record Low Level**

In April 2017, a record low streamflow volume was set at the Anclote River near Elfers station, located in the central region.

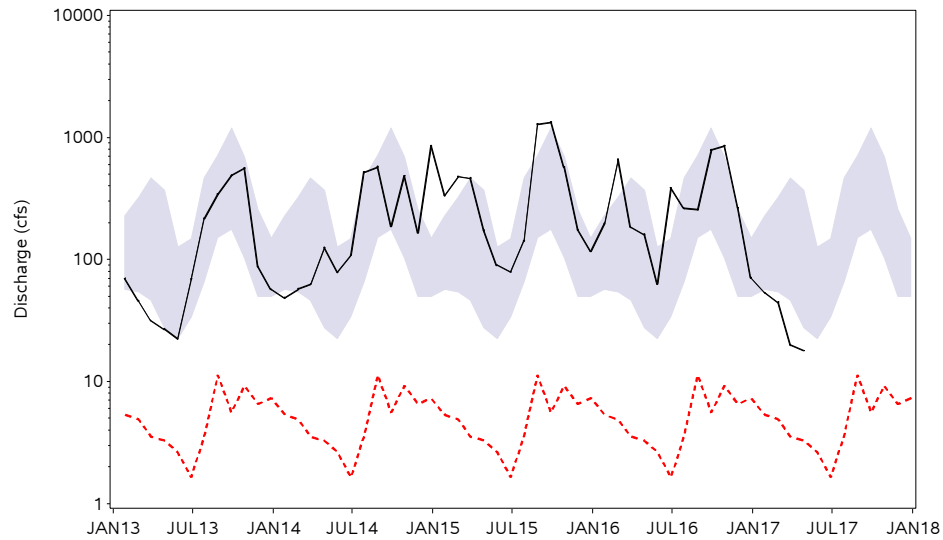
## SUMMARY OF STREAM DISCHARGE FROM MAJOR STREAMS (CFS), APRIL 2017

	<i>Beginning Year of Record</i>	<i>Mean Discharge APR 2017</i>	<i>Mean Discharge MAR 2017</i>	<i>Mean Discharge APR 2016</i>	<i>Change from MAR 2017</i>	<i>Change from APR 2016</i>	<i>APR 2017 Percentile Rank</i>	<i>Period of Record Low</i>	<i>Record Low Date</i>	<i>Period of Record High</i>	<i>Record High Date</i>
<i>NORTHERN COUNTIES</i>											
Withlacoochee R at Trilby	1930	17.9	19.9	160.2	-2.0	-142.3	15%	0.1	JUN2000	8840	JUN1934
Withlacoochee R near Holder	1931	129.0	187.4	561.5	-58.4	-432.5	3%	33.0	MAR2001	8660	APR1960
<i>CENTRAL COUNTIES</i>											
Anclote River near Elfers	1946	2.0	3.2	54.7	-1.2	-52.7	4%	0.0	APR2017	3710	JUL1960
Pithlachascotte R near New Port Richey	1963	0.1	0.7	12.0	-0.6	-11.9	10%	0.0	MAY2013	2180	JUN2012
Hillsborough R near Zephyrhills	1939	54.9	69.8	135.3	-14.9	-80.4	5%	27.0	MAY2001	9700	MAR1960
Alafia River at Lithia	1932	35.6	50.5	145.3	-14.9	-109.7	8%	4.1	JUN2000	9820	SEP2004
Little Manatee R near Wimauma	1939	17.1	25.0	84.3	-7.9	-67.2	19%	0.9	DEC1976	9720	SEP1988
Peace River at Bartow	1939	48.6	33.7	181.4	14.9	-132.8	49%	0.0	MAY2009	4100	SEP1947
<i>SOUTHERN COUNTIES</i>											
Josephine Cr near DeSoto City	1946	7.3	12.8	28.8	-5.5	-21.5	24%	0.5	MAY1956	1680	SEP1948
Manatee River near Myakka Head	1966	6.3	10.9	14.5	-4.6	-8.2	28%	0.1	MAY1975	6440	JUN2003
Myakka River near Sarasota	1936	6.3	19.2	27.7	-12.9	-21.4	27%	0.0	JUN2012	9540	JUN2003
Peace River at Arcadia	1931	70.9	101.6	532.2	-30.7	-461.3	8%	0.0	JUL1974	9990	OCT1953

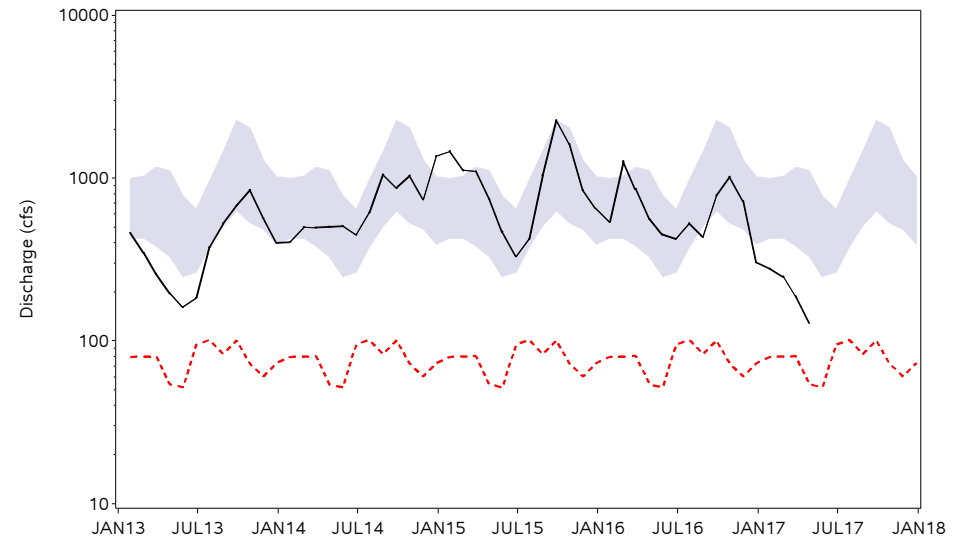
# HYDROGRAPHS OF MAJOR STREAMS

## JANUARY 2013 TO APRIL 2017

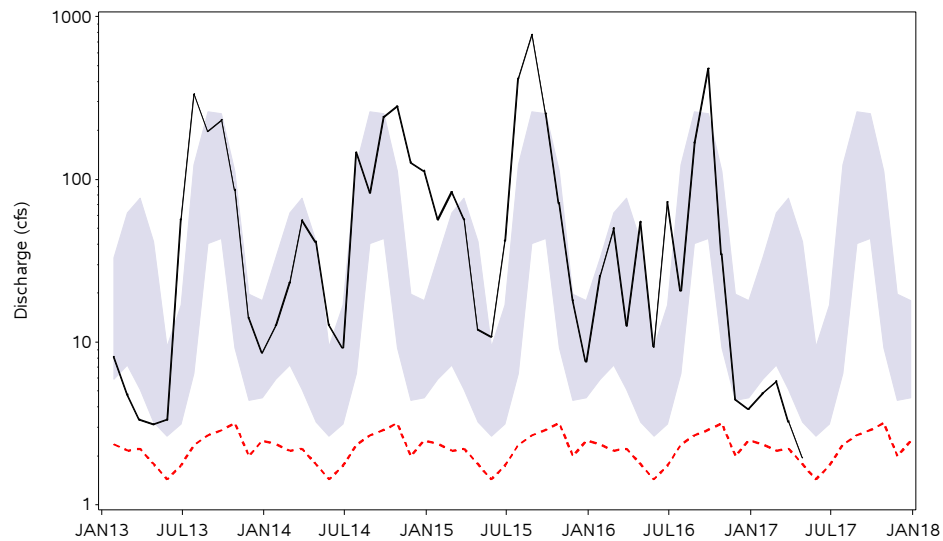
Withlacoochee R at Trilby  
Northern Counties



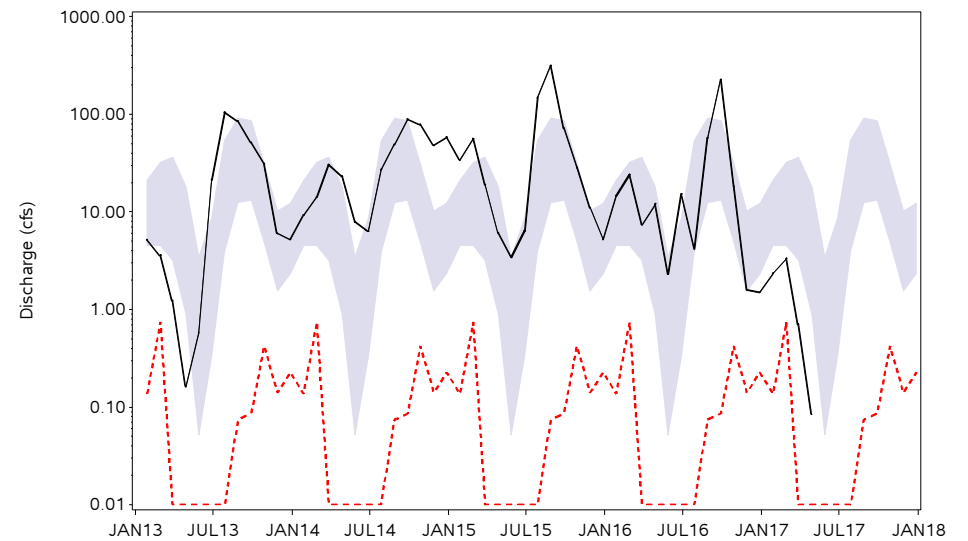
Withlacoochee R near Holder  
Northern Counties



Anclole River near Elfers  
Central Counties



Pithlachascotee R near New Port Richey  
Central Counties



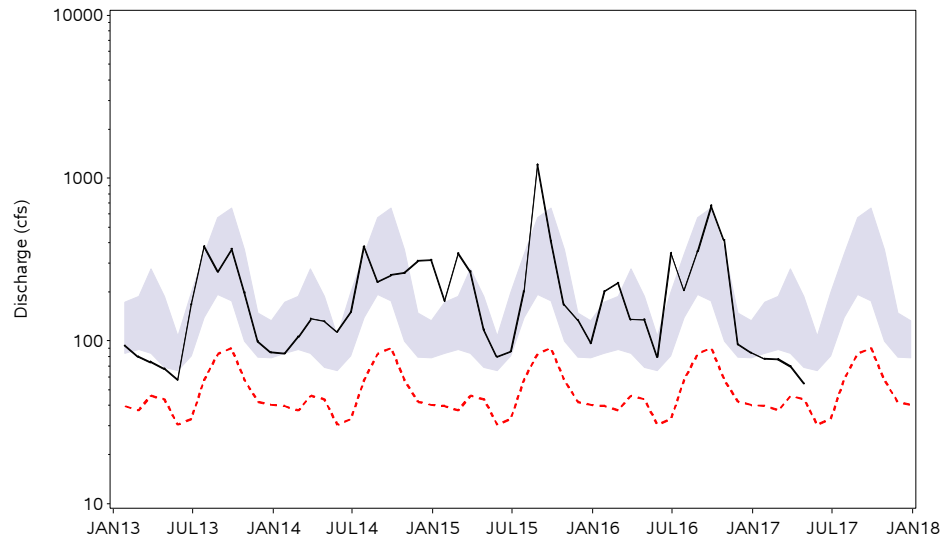
— Monthly Mean Discharge

- - - POR Monthly Low

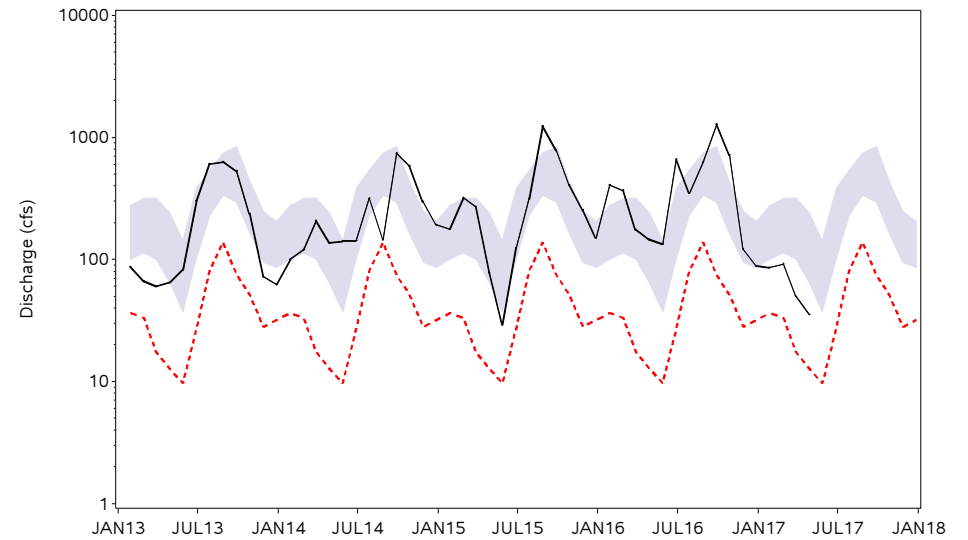
■ Normal Range

# HYDROGRAPHS OF MAJOR STREAMS JANUARY 2013 TO APRIL 2017

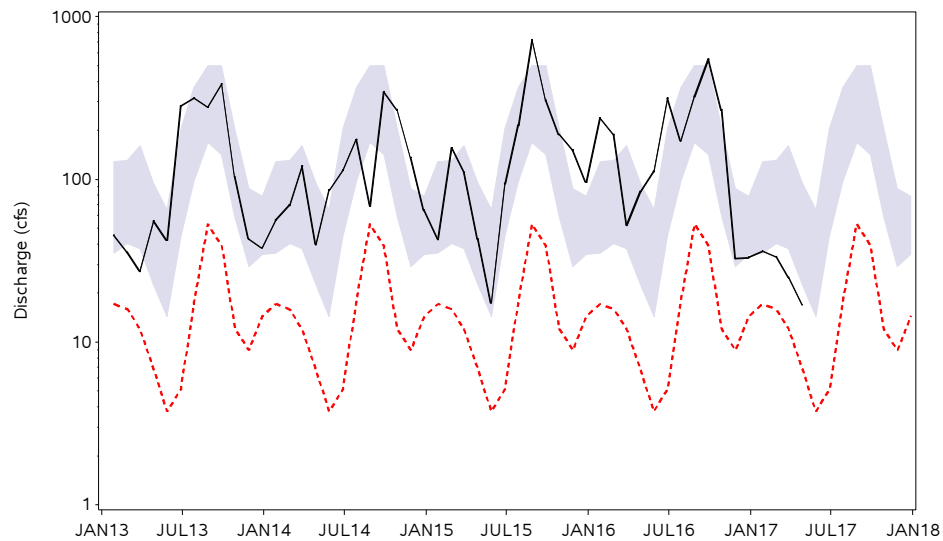
Hillsborough R near Zephyrhills  
Central Counties



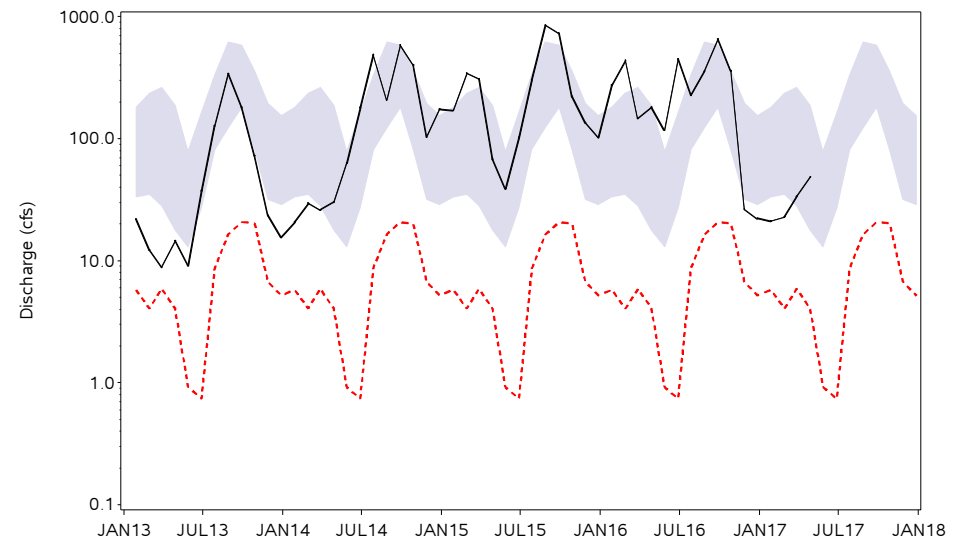
Alafia River at Lithia  
Central Counties



Little Manatee R near Wimauma  
Central Counties



Peace River at Bartow  
Central Counties



— Monthly Mean Discharge

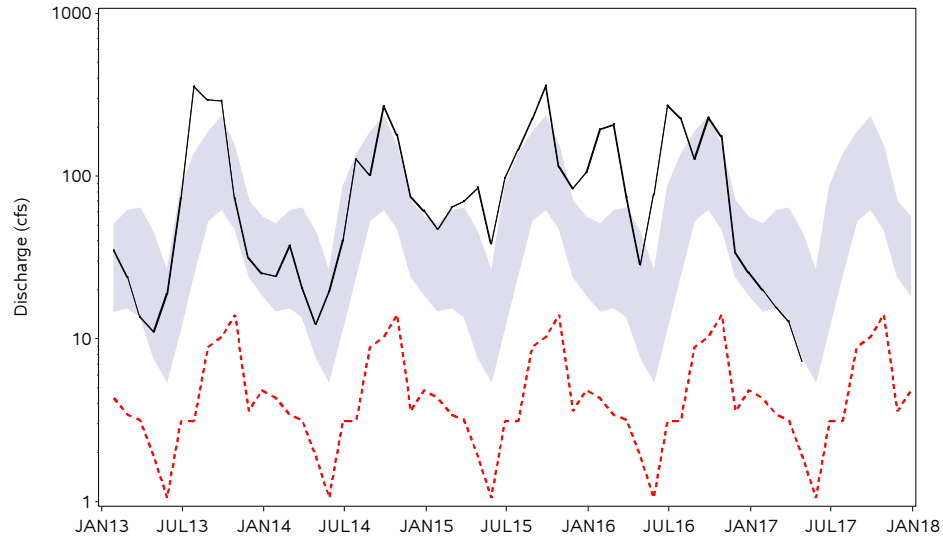
- - - POR Monthly Low

Normal Range

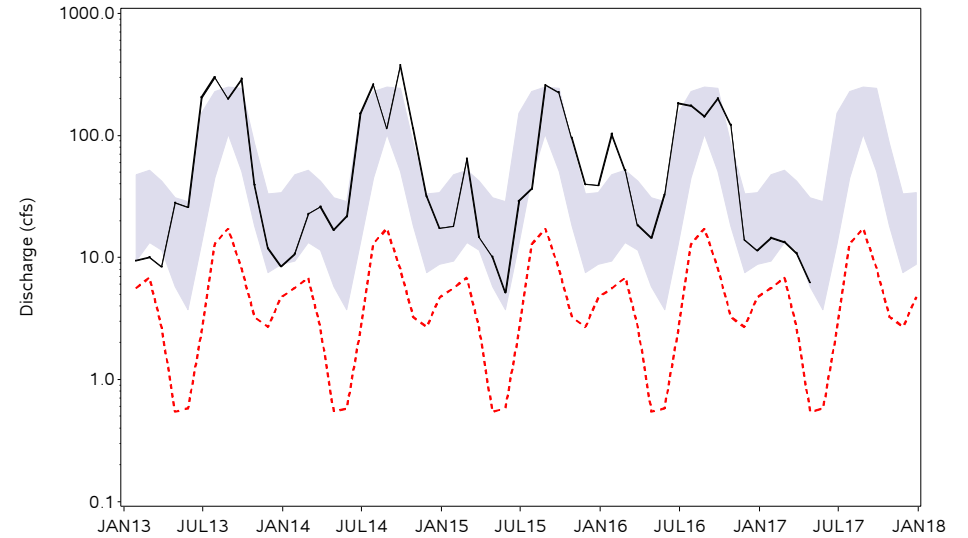
# HYDROGRAPHS OF MAJOR STREAMS

## JANUARY 2013 TO APRIL 2017

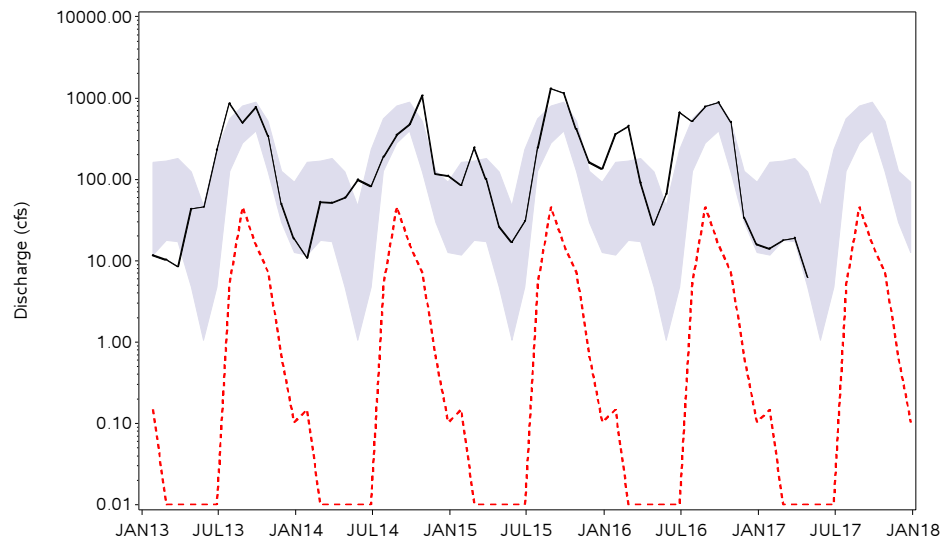
Josephine Cr near DeSoto City  
Southern Counties



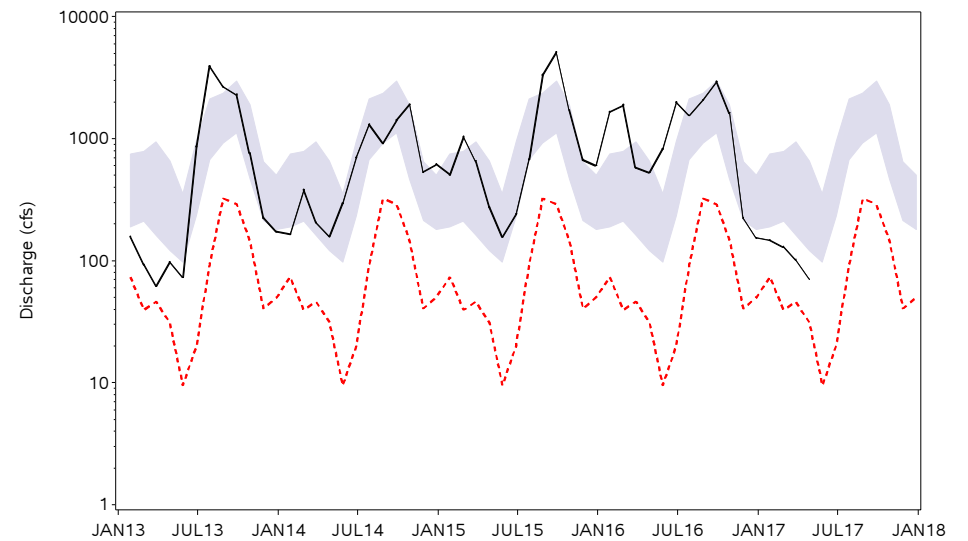
Manatee River near Myakka Head  
Southern Counties



Myakka River near Sarasota  
Southern Counties



Peace River at Arcadia  
Southern Counties



— Monthly Mean Discharge

- - - POR Monthly Low

Normal Range

## **Springs**

The District processes springflow data collected by Tampa Bay Water through a mutual agreement and by the U.S. Geological Survey (USGS) under a cooperatively funded program between the District and the USGS. Springflow is monitored at seven gauging stations in two regions of the District (see index map in the Appendix). Springflow data for Rainbow, Silver and Sulphur Springs are recorded as daily water levels. The USGS uses rating curves developed for these springs from historical water level elevations to calculate springflow discharge in units of cubic feet per second (cfs). Crystal and Weeki Wachee Springs discharge (cfs) is provided as an instantaneous reading calculated by the USGS. Buckhorn and Lithia Springs discharge is obtained from Tampa Bay Water biweekly and weekly, respectively. Period-of-record high and low values correspond to monthly theoretical means and not to peak events. Values are reported as percentiles calculated from an analysis of historical monthly means recorded during a given month. The percentile is the monthly mean ranked on a scale of zero to 100 that indicates the percent of period-of-record values that are above, equal to or below the median (50<sup>th</sup> percentile) for the current month. The values reported are provisional, and are subject to revision at the end of the water year. Revised USGS springflow data are loaded into the District's WMIS when they become available.

Hydrographs are produced for the seven-springflow stations, and current values are compared to respective 25<sup>th</sup> and 75<sup>th</sup> percentiles that are calculated from historical data. The 25<sup>th</sup> and 75<sup>th</sup> percentiles are calculated using the SAS<sup>TM</sup> software system for data analysis using period-of-record monthly theoretical means for each springflow station analyzed.

During April, five of the seven stations reported decreased springflow, compared to the previous month. Total springflow decreased in the northern and central regions by 76.6 cfs (49.5 mgd) and 1.4 cfs (0.9 mgd), respectively. District-wide, springflow decreased by 78.0 cfs (50.4 mgd).

In April, total springflow recorded at all seven stations was below last year's levels. Total springflow for the northern and central regions were lower by 347.5 cfs (224.6 mgd) and 31.1 cfs (20.1 mgd), respectively. District-wide, springflow was lower by 378.6 cfs (224.7 mgd), compared to April 2016 rates.

Compared to historical period-of-record values for April, total springflow measured in Rainbow, Silver and Weeki Wachee Springs, in the northern region, was in the 3<sup>rd</sup>, 2<sup>nd</sup> and 45<sup>th</sup> percentiles of respective historical readings. Springflow measured in Crystal, Sulphur, Buckhorn and Lithia Springs in the central region was in the 34<sup>th</sup>, 8<sup>th</sup>, 17<sup>th</sup> and 46<sup>th</sup> percentiles, respectively, of historical April readings.

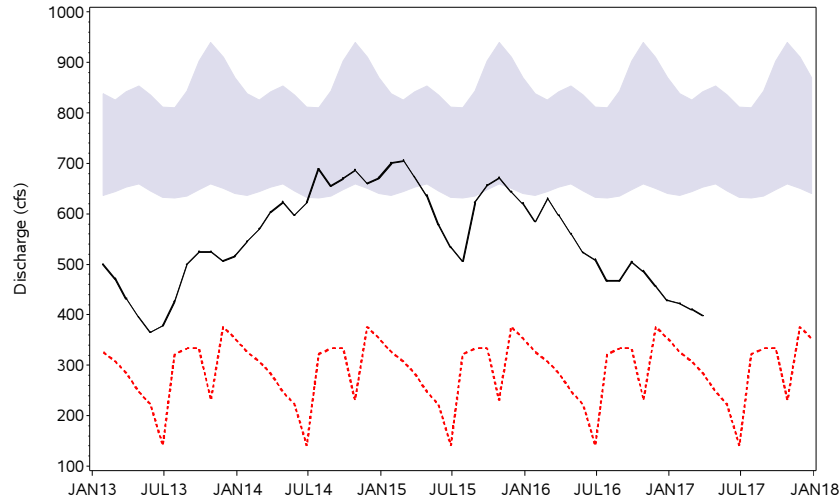
## SUMMARY OF SPRINGS DISCHARGE FROM MAJOR SPRINGS (CFS), APRIL 2017

<i>NORTHERN COUNTIES</i>	<i>APR 2017 Discharge</i>	<i>MAR 2017 Discharge</i>	<i>APR 2016 Discharge</i>	<i>Change From MAR 2017</i>	<i>Change From APR 2016</i>	<i>APR 2017 Percentile Rank</i>	<i>Period of Record Low</i>	<i>Record Low Date</i>	<i>Period of Record High</i>	<i>Record High Date</i>
Rainbow Springs	476.5	516.6	595.1	-40.1	-118.6	3%	391.0	MAY2012	1060.0	SEP1988
Silver Springs	379.3	405.9	583.4	-26.6	-204.1	2%	141.0	JUN2012	1290.0	OCT1960
Weeki Wachee Springs	131.3	141.2	156.1	-9.9	-24.8	45%	101.0	JUN1994	257.0	OCT2004
<i>CENTRAL COUNTIES</i>										
Crystal Springs	46.1	46.9	52.1	-0.8	-6.0	34%	25.7	JUN2001	113.6	AUG1941
Sulphur Springs	1.6	1.4	16.5	0.2	-14.9	8%	0.0	FEB1976	145.0	MAR1960
Buckhorn Springs	9.5	8.9	10.3	0.6	-0.8	17%	2.2	MAY2006	32.7	AUG2004
Lithia Springs	27.9	29.3	37.3	-1.4	-9.4	46%	9.1	MAY2000	91.5	NOV2004

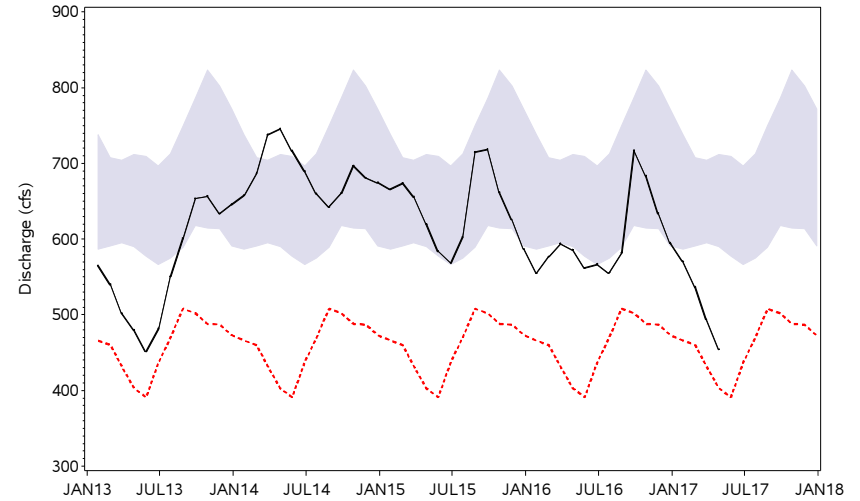
# HYDROGRAPHS OF REGIONAL SPRINGS

## JANUARY 2013 TO APRIL 2017

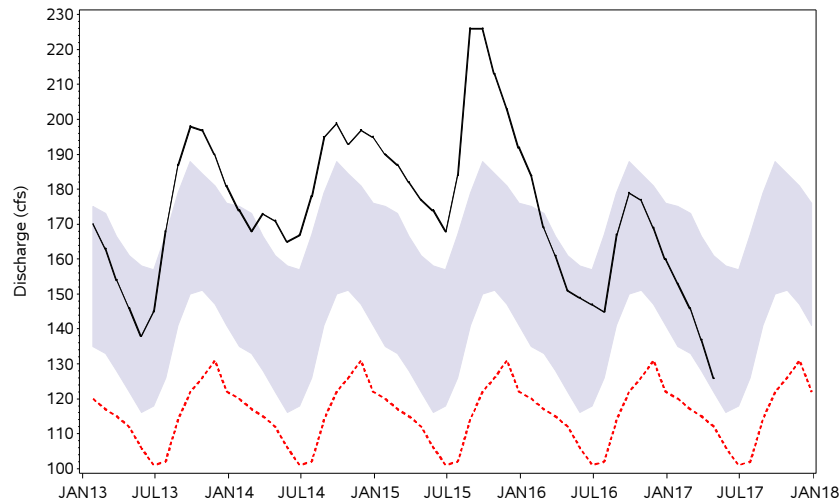
Silver Springs  
Northern Counties



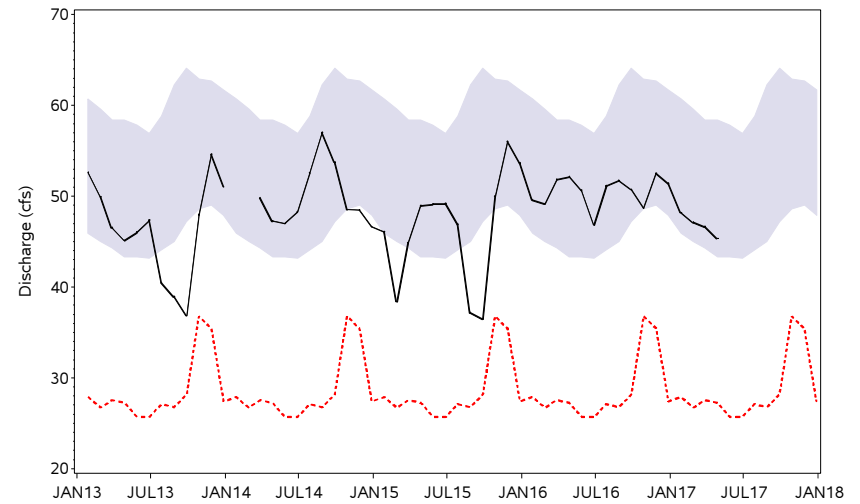
Rainbow Springs  
Northern Counties



Weeki Wachee Springs  
Northern Counties



Crystal Springs  
Central Counties



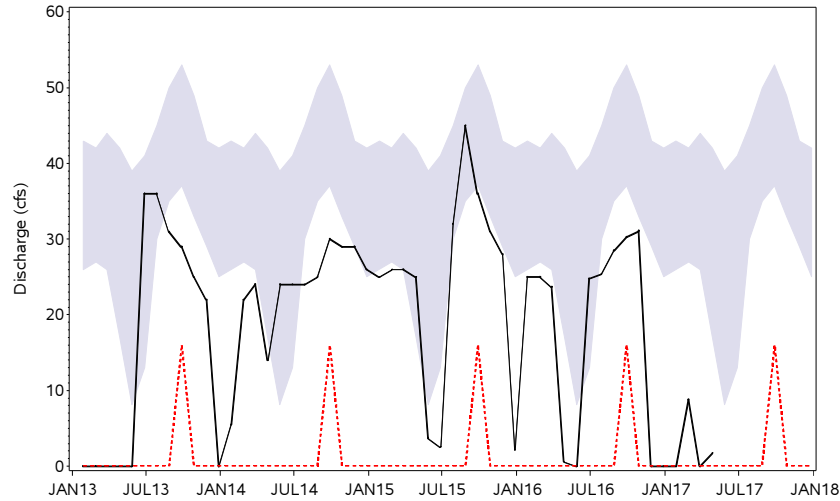
— Monthly Discharge

- - - POR Monthly Low

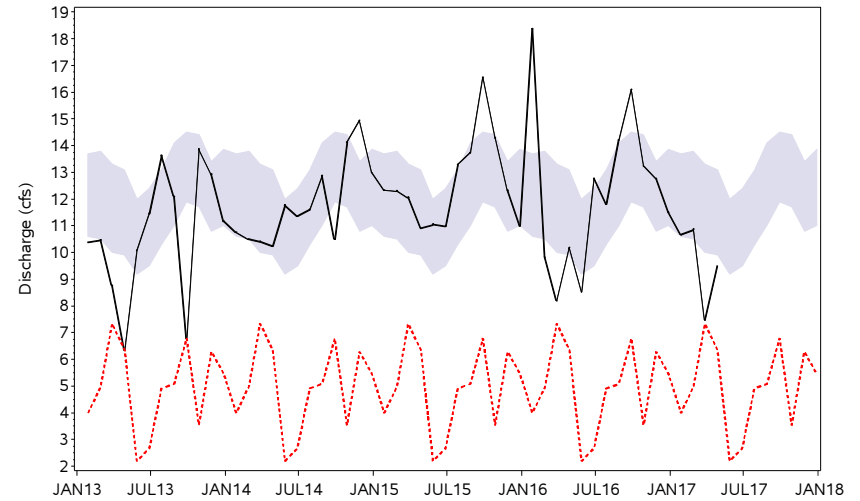
Normal Range

# HYDROGRAPHS OF REGIONAL SPRINGS JANUARY 2013 TO APRIL 2017

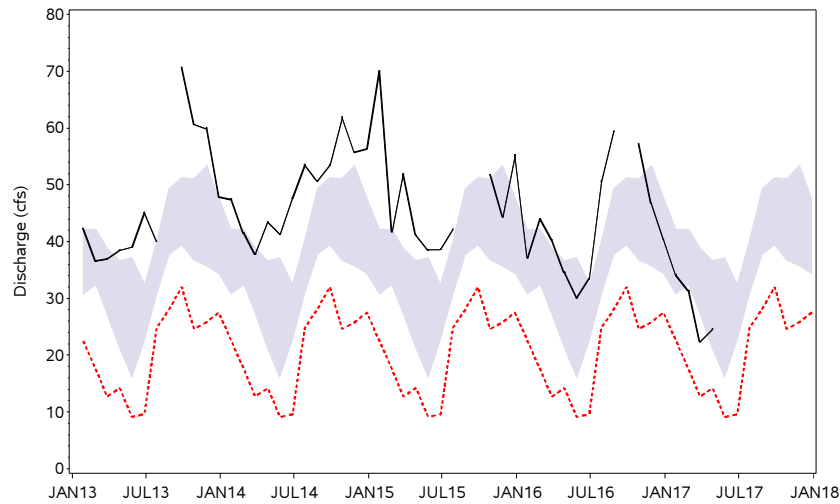
Sulphur Springs  
Central Counties



Buckhorn Spring  
Central Counties



Lithia Springs  
Central Counties



— Monthly Discharge

- - - POR Monthly Low

Normal Range

## GROUND WATER

The ground-water section of this report provides ground-water level information within the District based on geographically delineated areas (regions) within the District. For this report, the District has been divided into three geographical regions that are defined by county boundaries (see index maps in the Appendix). Each regional area includes all or part of each county that is located within that region and that is also within the District's jurisdictional boundaries. The northern region includes the counties of Citrus, Hernando, Lake, Levy, Marion and Sumter, where the Floridan aquifer is generally unconfined and at or near land surface, allowing rainfall to easily recharge (replenish) the aquifer system. The central region includes the counties of Hillsborough, Pasco, Pinellas and Polk, where the Floridan aquifer can be unconfined, semi-confined or confined (overlain by thick clays). Where the Floridan aquifer is confined, recharge to the aquifer from rainfall is low. The southern region includes the counties of Charlotte, DeSoto, Hardee, Highlands, Manatee and Sarasota, where the Floridan aquifer is confined.

Twelve surficial aquifer (shallow, non-artesian) and 77 intermediate and Floridan aquifer (deep) monitor wells are measured for this report to determine the relative health of ground-water levels District-wide. Only monitor wells with an adequate and reliable period-of-record water level measurements were selected for the network. For each well, the 25<sup>th</sup> and 75<sup>th</sup> percentiles ("low normal" and "high normal," respectively) were calculated for each week of the year using the period-of-record data. The 25<sup>th</sup> and 75<sup>th</sup> percentiles are used to represent the lower and upper limits of the normal range, as they are considered a reliable and robust measure of the normal range, and are less affected by extremes in the data record. The end-of month water-level readings measured for this report are compared to their corresponding normal ranges. Trend data from 16 intermediate and Floridan aquifer wells are shown in hydrographs to compare current water levels to the low normal and high normal levels.

Data from these wells are further compiled into regional statistics for the three regions of the District. Wells in the northern counties are unconfined and non-artesian, while those in the southern counties are confined and artesian. Wells included in the central counties vary between confined and unconfined conditions due to the transitional nature of geology in this area. The potentiometric levels of representative Floridan aquifer wells are used to produce the potentiometric surface maps presented in this report.

## **Surficial Aquifer**

In April, monthly analysis indicates that eleven of the twelve surficial aquifer wells recorded water level decreases, while one remained unchanged, compared to last month. Regionally, average surficial aquifer water levels decreased in the northern, central and southern regions of the District by 0.96, 0.74 and 0.58 foot, respectively. District-wide, average surficial aquifer water levels decreased by 0.74 foot.

During April, annual analysis indicates average water levels in all twelve surficial aquifer wells were lower than April 2016 levels. Average surficial aquifer water levels were lower in the northern, central and southern regions by 2.28, 2.30 and 2.28 feet, respectively. District-wide, average water levels in surficial wells were 2.29 feet lower than April 2016 levels.

For April, water levels were below the low normal level in nine of the twelve surficial wells. Average surficial aquifer water levels in the northern region were 0.01 foot below the low normal level, while levels in the central and southern regions were 0.77 and 0.83 foot, respectively, below the low normal level. District-wide, the average water level in surficial wells was 0.66 foot below the low normal level.

## SUMMARY OF SURFICIAL AQUIFER LEVELS IN REPRESENTATIVE WELLS, APRIL 2017

	<i>APR 2017 Elev</i>	<i>MAR 2017 Elev</i>	<i>APR 2016 Elev</i>	<i>Change From MAR 2017</i>	<i>Change From APR 2016</i>	<i>APR Historical Low Normal</i>	<i>APR Historical High Normal</i>	<i>Departure From Low Normal</i>	<i>Period of Record Low</i>	<i>Record Low Date</i>	<i>Period of Record High</i>	<i>Record High Date</i>
<i>NORTHERN COUNTIES</i>												
Green Swamp	87.12	88.85	90.80	-1.73	-3.68	87.31	90.80	-0.19	82.95	MAY2000	93.07	SEP1985
Lecanto 2	7.06	7.26	7.95	-0.20	-0.89	6.89	8.22	0.17	5.76	MAY2001	13.92	SEP1974
<i>CENTRAL COUNTIES</i>												
Loughman	89.67	90.25	92.06	-0.59	-2.39	90.37	91.91	-0.70	88.40	JUN2001	95.79	SEP2004
Lutz-Lake Fern	55.75	56.32	57.19	-0.57	-1.43	55.84	57.16	-0.09	52.64	NOV2009	61.10	SEP1986
ROMP 50 Shallow	41.06	41.06	41.81	-0.00	-0.75	40.99	41.68	0.07	38.01	OCT2010	44.05	SEP2001
SR 33 & Combee Road	131.43	131.85	133.77	-0.42	-2.34	132.38	134.39	-0.95	129.16	FEB2001	136.97	OCT1995
SR 577 Shallow	113.11	115.90	120.38	-2.78	-7.27	117.67	123.49	-4.56	109.99	JAN2000	129.26	SEP2013
Tarpon Road Shallow	9.72	10.16	10.80	-0.44	-1.08	10.59	12.58	-0.87	9.31	JUN1978	17.25	AUG2015
USGS P-48	99.87	100.23	100.73	-0.36	-0.86	98.13	99.76	1.74	96.07	JUN2001	104.79	SEP2004
<i>SOUTHERN COUNTIES</i>												
Edgeville 4 Shallow	64.69	65.57	66.62	-0.88	-1.93	66.09	67.30	-1.40	63.76	MAY2012	69.87	SEP1994
ROMP 26 Shallow	66.66	67.12	69.60	-0.46	-2.94	67.52	70.13	-0.86	64.32	JUN1999	75.11	JUN1982
SR 74	13.61	14.02	15.59	-0.41	-1.98	13.84	15.16	-0.23	12.66	MAY2000	18.78	AUG2013

## **Intermediate and Floridan Aquifers**

In April, monthly analysis indicates that 73 of the 77 intermediate and Floridan aquifer wells monitored for this report recorded water level decreases, compared to last month. Regionally, average water levels decreased in the northern, central and southern regions by 0.41 foot, 1.90 feet and 3.79 feet, respectively. District-wide, the average water level in the intermediate and Floridan aquifer decreased by 2.17 feet.

During April, annual analysis indicates that all 77 intermediate and Floridan aquifer wells monitored for this report recorded water level decreases, compared to levels measured in April 2016. Regionally, the mean water level in the northern, central and southern regions were lower by 2.33, 5.99 and 8.78 feet, respectively, compared to last year's levels. District-wide, average water levels in intermediate and Floridan aquifer wells were 6.03 feet lower than April 2016 levels.

For April, 43 of the 77 intermediate and Floridan aquifer wells had levels below the low normal level, compared to historical monthly levels. Average water levels in the northern and southern regions were 0.46 foot and 2.49 feet, respectively, below the low normal level, while levels in the central region was 2.38 feet above the low normal level. District-wide, the average water level in intermediate and Floridan aquifer wells was 0.03 foot above the low normal level.

### **Record Low Level**

In April 2017, a period-of-record low water level was set in the Sarasota 11<sup>th</sup> Street Deep well, located in the southern region.

## SUMMARY OF INTERMEDIATE AND FLORIDAN AQUIFER LEVELS IN REPRESENTATIVE WELLS, APRIL 2017

### Regional Summary:

<i>Region</i>	<i>APR 2017 Mean Elevation</i>	<i>APR 2017 Relation to POR Median</i>	<i>APR 2017 Relation to 25th Percentile</i>	<i>APR 2017 Mean Percentile Rank</i>	<i>MAR 2017 Mean Percentile Rank</i>	<i>APR 2016 Mean Percentile Rank</i>
Northern Counties	34.86	-2.01	-0.46	22%	25%	60%
Central Counties	53.61	-1.23	2.38	36%	39%	77%
Southern Counties	21.34	-6.72	-2.49	16%	26%	64%

### Regional Wells Summary:

<i>NORTHERN COUNTIES</i>	<i>APR 2017 Elev</i>	<i>MAR 2017 Elev</i>	<i>APR 2016 Elev</i>	<i>Change From MAR 2017</i>	<i>Change From APR 2016</i>	<i>APR Historical Low Normal</i>	<i>APR Historical High Normal</i>	<i>Departure From Low Normal</i>	<i>APR 2017 Percentile Rank</i>	<i>Period of Record Low</i>	<i>Record Low Date</i>	<i>Period of Record High</i>	<i>Record High Date</i>
CE 14 Dunnellon Deep	34.74	35.45	38.66	-0.71	-3.92	37.30	42.63	-2.56	5%	31.94	MAY2012	60.24	MAR1966
Chassahowitzka 1 Deep	5.65	5.74	6.31	-0.09	-0.66	5.69	6.79	-0.04	23%	4.80	JUN2001	9.75	SEP2004
Inverness Dot Fldn	27.86	28.23	29.28	-0.37	-1.42	28.06	30.98	-0.20	25%	21.70	JUN2001	37.80	OCT1982
Mascotte Deep	96.76	97.52	99.96	-0.76	-3.20	98.33	100.25	-1.57	8%	93.94	JUN2000	102.66	SEP1988
North Locanto Deep	3.62	3.51	4.34	0.11	-0.72	3.93	5.07	-0.31	14%	2.94	MAY2001	8.10	OCT1982
ROMP 103 Suwannee/Ocala	38.61	39.16	41.43	-0.55	-2.82	37.49	42.73	1.12	37%	33.75	MAY2009	51.03	OCT2004
ROMP 107 Ocala/Avon Park	11.08	11.47	12.19	-0.39	-1.11	10.89	13.55	0.19	32%	8.08	AUG2007	19.78	NOV1982
ROMP 111 Ocala/Avon Park	47.33	47.54	49.35	-0.21	-2.02	48.06	49.87	-0.73	11%	44.23	JUL1992	53.36	SEP2004
ROMP 116 Avon Park	30.60	30.82	33.12	-0.22	-2.52	31.88	33.65	-1.28	9%	29.24	MAY2012	39.28	OCT2004
ROMP 119 Avon Park	41.36	41.63	43.47	-0.27	-2.11	42.13	46.12	-0.77	11%	39.86	MAY2012	52.20	MAR1998
ROMP 120 Avon Park	40.76	41.06	43.04	-0.30	-2.28	41.23	45.67	-0.47	15%	38.71	MAY2012	52.24	MAR1998
ROMP 134 Ocala/Avon Park	43.87	44.38	47.17	-0.51	-3.30	42.95	48.62	0.92	36%	37.80	JUN2012	57.35	APR1998
ROMP 89 Ocala	88.22	89.48	91.99	-1.26	-3.77	87.61	91.39	0.61	27%	82.44	JUN2000	94.93	DEC1997
ROMP 97 Avon Park	15.33	16.01	18.31	-0.68	-2.98	14.90	19.77	0.43	29%	11.84	MAY2009	26.24	SEP2004
ROMP TR 124 Avon Park	2.48	2.71	3.67	-0.23	-1.19	2.48	3.41	0.00	26%	0.77	SEP2004	8.06	SEP2016
ROMP TR 21-2 Ocala/Avpk	1.96	1.98	2.28	-0.02	-0.32	1.41	2.00	0.55	74%	-0.06	DEC1990	4.56	NOV1987
Sumter 13 JC 59 Up Fldn	38.21	38.45	40.99	-0.24	-2.78	40.22	43.03	-2.01	8%	36.52	MAY2012	47.01	JUN2003
Webster City Fldn	76.66	77.14	81.95	-0.48	-5.29	78.79	83.51	-2.13	12%	74.16	MAY2012	88.77	SEP2005
Weeki Wachee Deep Repl	13.36	14.03	15.24	-0.67	-1.88	13.86	17.53	-0.50	17%	10.37	MAY2009	23.61	AUG1984

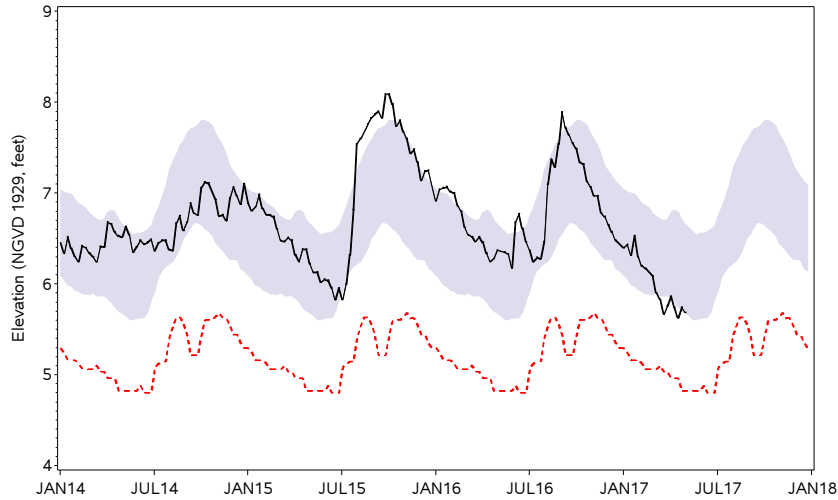
## Regional Wells Summary (continued):

	APR 2017 Elev	MAR 2017 Elev	APR 2016 Elev	Change From MAR 2017	Change From APR 2016	APR Historical Low Normal	APR Historical High Normal	Departure From Low Normal	APR 2017 Percentile Rank	Period of Record Low	Record Low Date	Period of Record High	Record High Date
<b>CENTRAL COUNTIES</b>													
Bexley 2 Fldn	58.66	59.59	62.02	-0.93	-3.36	58.98	61.54	-0.32	19%	56.08	JUN2000	64.30	AUG2015
Coley Deep	77.82	79.17	83.13	-1.35	-5.31	74.38	84.20	3.44	41%	60.77	JAN2010	94.17	SEP1949
Debuel Road Deep	52.51	53.21	55.64	-0.70	-3.13	51.99	55.41	0.52	34%	46.48	JUN2002	60.13	SEP1979
Hills State Pk Parking Deep	36.71	37.21	38.89	-0.50	-2.18	36.89	39.29	-0.18	15%	35.35	JUN2000	47.42	DEC1997
Lk Alftred Deep nr Lake Alfr	126.41	127.20	128.51	-0.79	-2.10	124.33	127.28	2.08	59%	119.85	MAY1974	131.62	OCT1960
Loughman Deep	87.05	87.93	89.67	-0.88	-2.62	89.07	90.88	-2.02	3%	85.90	MAY2001	93.23	OCT1979
Lykes Pasco Fldn	63.79	64.52	67.07	-0.73	-3.28	61.97	67.19	1.82	47%	56.94	JUN2000	75.78	OCT2004
Masaryktown Deep	31.17	32.08	34.26	-0.91	-3.09	28.19	36.64	2.98	42%	21.89	AUG1994	50.32	SEP1984
Moon Lake Deep	29.54	29.50	31.24	0.04	-1.70	29.10	31.09	0.44	38%	26.10	JUN2000	38.78	DEC1997
Pasco 13 nr Drexel Fldn	69.58	70.02	71.66	-0.44	-2.08	71.06	73.28	-1.48	6%	68.00	JUN2001	77.14	JUL1960
Pinellas 665 Fldn	8.38	8.49	8.91	-0.11	-0.53	8.50	10.16	-0.12	18%	6.70	MAY2006	14.79	SEP1959
ROMP 123 Hawthorn/Ocala	-13.96	-5.73	3.38	-8.23	-17.34	-12.17	3.25	-1.79	21%	-29.47	MAY2000	33.56	FEB1998
ROMP 40 Swnn/AvPk	20.31	26.88	42.32	-6.57	-22.01	19.77	36.78	0.54	26%	-4.15	JUN2000	57.37	FEB1998
ROMP 45 Avon Park	62.40	67.62	76.41	-5.22	-14.01	51.24	67.61	11.16	62%	31.75	MAY1981	84.44	OCT2004
ROMP 48 Tampa/Suwannee	15.57	22.13	36.69	-6.56	-21.12	13.88	30.70	1.69	32%	-9.39	JUN2000	52.64	AUG1982
ROMP 50 Avon Park	-1.97	0.26	6.61	-2.23	-8.58	-5.25	2.67	3.28	37%	-32.77	FEB2004	14.95	AUG1982
ROMP 58 Ocala	99.78	101.44	101.01	-1.66	-1.23	91.29	96.41	8.49	97%	84.03	JUN2000	111.01	DEC2005
ROMP 59 Swnn/AvPk	63.86	68.91	77.70	-5.05	-13.84	50.29	68.74	13.57	68%	33.33	MAY1981	85.92	OCT2004
ROMP 60 Ocala/Avon Park	63.28	68.49	77.15	-5.21	-13.87	48.55	67.87	14.73	63%	51.29	MAY2012	82.61	SEP2015
ROMP 66 Tampa	15.14	15.39	17.48	-0.25	-2.34	15.14	17.50	0.00	26%	12.04	JUN1977	25.47	AUG2015
ROMP 76 U Fldn	126.96	128.05	129.68	-1.09	-2.72	125.24	128.42	1.72	54%	119.37	MAY1981	132.92	SEP2004
ROMP 87 Avon Park	98.81	100.23	103.53	-1.42	-4.72	99.15	102.86	-0.34	19%	94.88	JUN2000	106.30	FEB1998
ROMP 88 Avon Park	100.31	101.65	104.49	-1.34	-4.18	100.58	104.23	-0.27	17%	97.42	JUN2000	107.10	DEC1997
ROMP 93 Swnn/AvPk	69.34	70.07	73.21	-0.73	-3.87	65.73	72.06	3.61	51%	59.03	JUN2001	76.60	SEP1982
ROMP DV-1 Suwannee	48.10	49.92	55.87	-1.82	-7.77	47.36	54.66	0.74	29%	12.06	JAN2010	65.72	FEB1998
ROMP TR 10-2 Tampa	7.58	8.19	9.75	-0.61	-2.17	6.97	8.96	0.61	51%	0.22	MAY1981	14.90	SEP2004
ROMP TR 13-3 Avon Park	14.44	14.73	15.31	-0.29	-0.87	14.17	15.64	0.27	29%	10.95	JUL1987	18.79	AUG2015
SR 52 And CR581 Deep	69.15	70.18	73.55	-1.03	-4.40	66.72	74.49	2.43	36%	56.96	JUN2001	79.44	AUG1965
SR 52 Deep W nr Fivay Jct	50.63	51.14	52.47	-0.51	-1.84	51.20	52.90	-0.57	11%	48.08	JUN2000	59.53	AUG2010
SR 577 Deep	84.82	86.24	90.19	-1.42	-5.37	83.60	91.35	1.22	32%	72.76	JUN2000	98.51	MAR1998
Sanlon Ranch Fldn	91.00	93.60	99.66	-2.60	-8.66	82.12	91.88	8.88	71%	66.38	MAY1975	105.27	OCT2004
Tarpon Rd Deep	8.21	7.81	9.66	0.40	-1.45	9.23	10.25	-1.02	2%	7.50	JUN2006	13.48	AUG2015

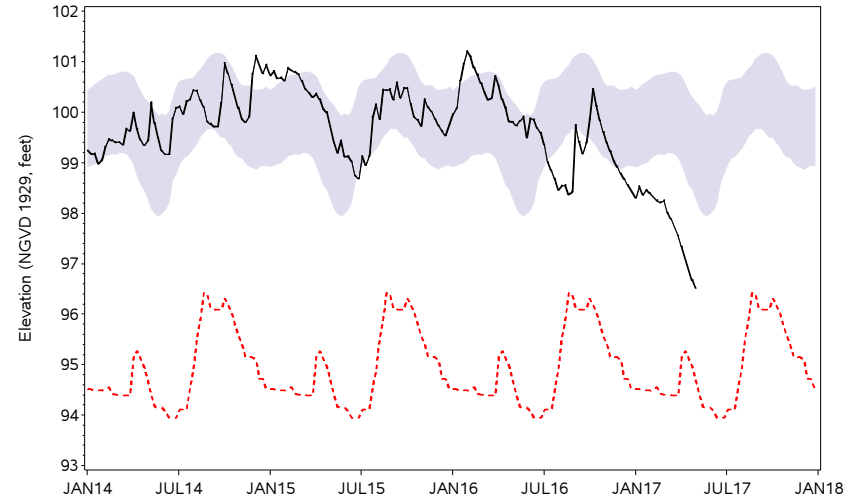
# Regional Wells Summary (continued):

	APR 2017 Elev	MAR 2017 Elev	APR 2016 Elev	Change From MAR 2017	Change From APR 2016	APR Historical Low Normal	APR Historical High Normal	Departure From Low Normal	APR 2017 Percentile Rank	Period of Record Low	Record Low Date	Period of Record High	Record High Date
<b>SOUTHERN COUNTIES</b>													
Big Slough Deep	29.37	30.24	33.14	-0.87	-3.77	30.53	32.89	-1.16	4%	26.85	MAY2006	36.59	JAN1983
Cargill FA-1 Fldn	59.27	65.25	72.57	-5.98	-13.30	48.64	66.78	10.63	55%	30.50	MAY1981	82.95	OCT2004
Edgeville 3 Deep	6.13	14.86	21.98	-8.73	-15.85	17.72	27.09	-11.59	2%	1.13	MAY2000	46.40	OCT1965
Englewood 14 Deep	0.22	0.77	2.99	-0.55	-2.77	1.72	4.60	-1.50	1%	-0.97	FEB2001	11.37	SEP1974
Florida Cities Test 1	-7.64	-7.82	-1.95	0.18	-5.69	-1.84	11.02	-5.80	8%	-18.63	MAY1976	26.07	MAR1978
Florida Pwr @ Piney Point	8.42	10.83	14.89	-2.41	-6.47	5.98	11.74	2.44	41%	-4.84	MAY1989	21.45	SEP2016
Kibler Deep	-22.27	-15.36	-4.01	-6.91	-18.26	-13.36	1.82	-8.91	4%	-29.95	MAY2000	29.30	AUG1978
Manasota 14 Deep	16.26	16.38	18.13	-0.12	-1.87	18.33	20.44	-2.07	3%	15.55	MAY2009	22.70	NOV1971
Marshall Deep	28.16	34.85	41.43	-6.69	-13.27	31.37	43.26	-3.21	16%	8.96	JUN2000	55.24	MAR1964
ROMP 16 Ocala	39.98	42.40	44.61	-2.42	-4.63	43.34	47.36	-3.36	5%	28.94	JAN2001	51.21	SEP1995
ROMP 17 Up Fldn	38.32	41.40	43.76	-3.08	-5.44	39.97	44.09	-1.65	9%	31.89	JUN2000	51.64	OCT1994
ROMP 19 West UFA Swnn	20.92	23.61	25.57	-2.69	-4.65	18.86	26.06	2.06	36%	10.99	JUN2000	33.63	OCT2013
ROMP 26 Suwannee/Tampa	32.43	37.85	41.77	-5.42	-9.34	37.21	44.20	-4.78	6%	19.48	JAN2010	53.18	OCT1979
ROMP 28X Swnn/AvPk	65.29	66.89	68.45	-1.60	-3.16	65.24	68.02	0.05	27%	57.24	JAN2010	74.68	OCT1995
ROMP 30 Swnn/AvPk	26.31	36.05	46.36	-9.74	-20.05	29.54	45.59	-3.23	16%	-0.20	JUN2000	60.52	MAR1998
ROMP 31 Swnn/AvPk	21.26	30.19	42.35	-8.93	-21.09	22.91	40.11	-1.65	20%	-8.20	JUN2000	57.92	MAR1998
ROMP 32 Low Ocala/Avpk	-1.86	9.46	23.68	-11.32	-25.54	9.52	22.33	-11.38	7%	-17.74	JUN2000	51.65	OCT1987
ROMP 43XX Avon Park	84.61	86.04	87.97	-1.43	-3.36	80.64	86.12	3.97	59%	70.93	JAN2010	94.60	MAR1998
ROMP TR 1-2 Up Fldn	42.99	43.78	44.80	-0.79	-1.81	43.38	45.05	-0.39	20%	40.72	JUN2000	47.22	SEP2015
ROMP TR 3-1 Up Fldn	31.80	32.62	33.83	-0.82	-2.03	32.02	33.42	-0.22	24%	29.04	JUN2000	35.72	SEP2003
ROMP TR 5-1 Suwannee	15.69	16.85	19.47	-1.16	-3.78	16.53	19.31	-0.84	12%	13.26	JUN2000	23.00	SEP1983
ROMP TR 7-1 Tampa	13.53	15.36	17.78	-1.83	-4.25	14.32	17.85	-0.79	12%	10.01	JUN2000	23.82	SEP1995
ROMP TR 7-4 Swnn/Ocala	2.60	6.18	11.65	-3.58	-9.05	3.97	11.49	-1.37	17%	-3.55	MAY2000	23.78	OCT1994
Sarasota 11TH St Deep	-1.15	-0.84	1.24	-0.31	-2.39	3.94	8.54	-5.09	1%	-3.73	APR2017	19.31	SEP1979
Sarasota Office Up Floridan	2.16	6.36	12.49	-4.20	-10.33	8.37	24.02	-6.21	6%	-3.24	JUN2000	35.21	MAR1931
Verna T 0-1	-9.66	-2.60	6.37	-7.06	-16.03	-0.94	11.15	-8.72	5%	-15.73	MAY2000	33.32	JAN1984

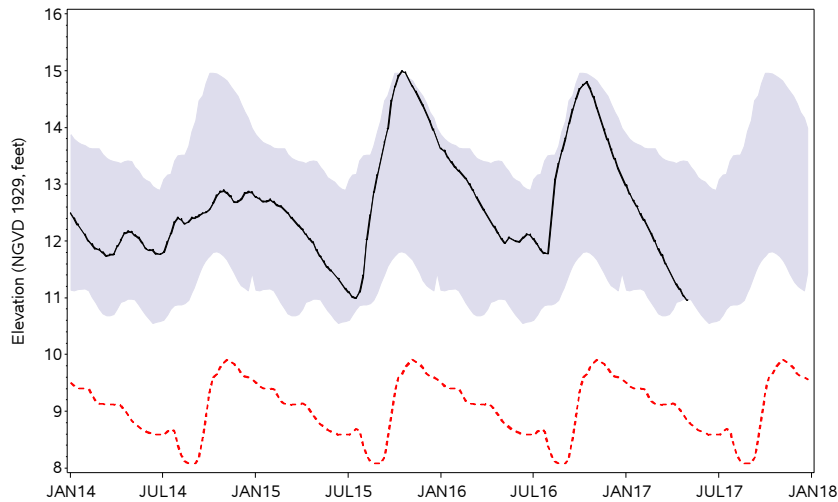
Chassahowitzka #1  
Northern Region



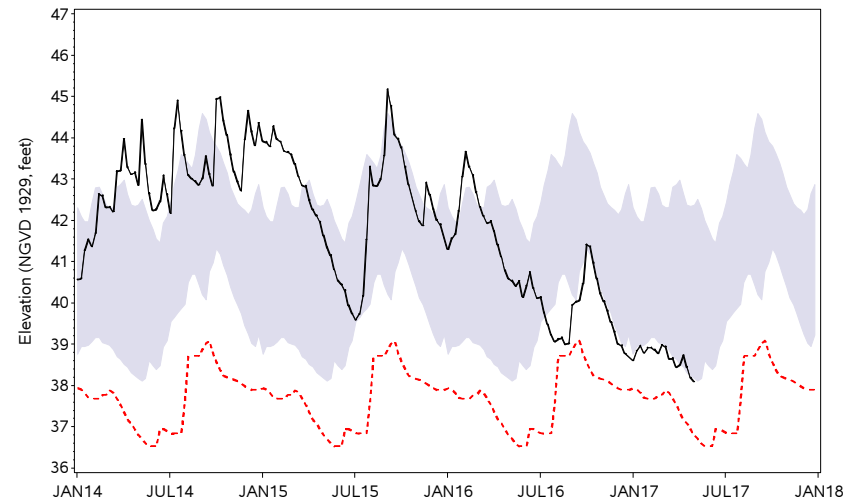
Mascotte Deep  
Northern Region



ROMP 107 Ocala/Avon Park  
Northern Region

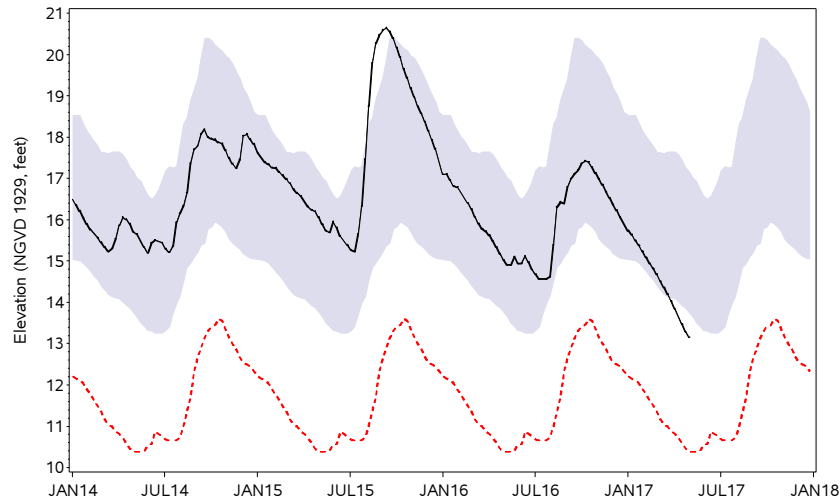


Sumter 13 Upper Fldn  
Northern Region

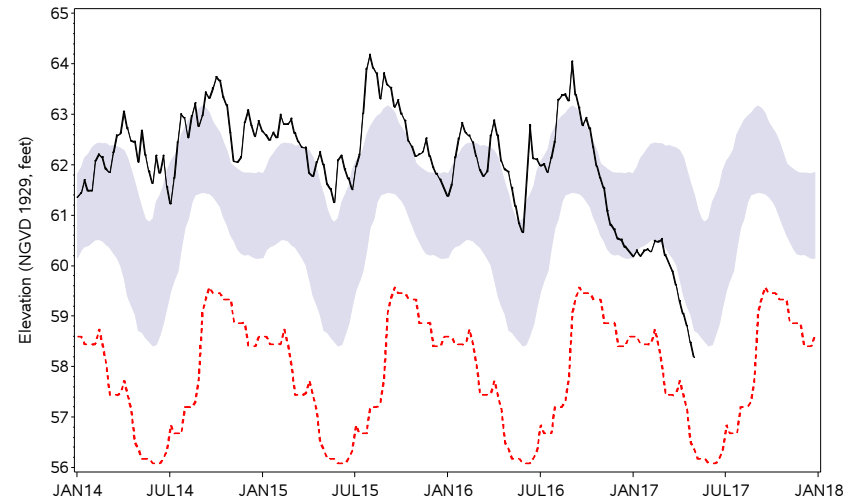


— Average Weekly Elevation      - - - - - POR Weekly Low      Normal Range

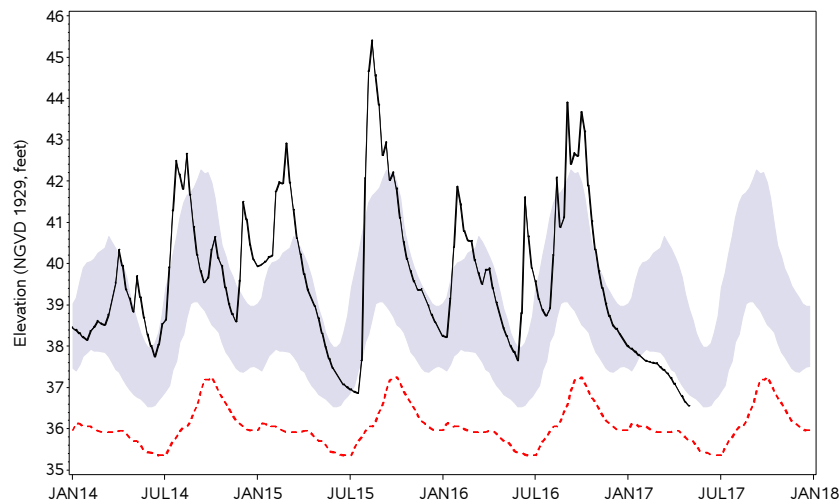
Weeki Wachee Deep  
Northern Region



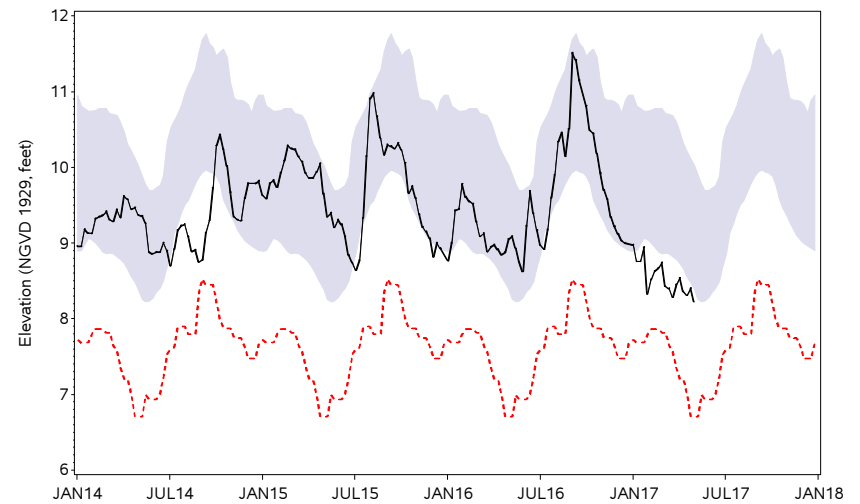
Bexley Well 2  
Central Region



Hillsborough St Park Deep  
Central Region

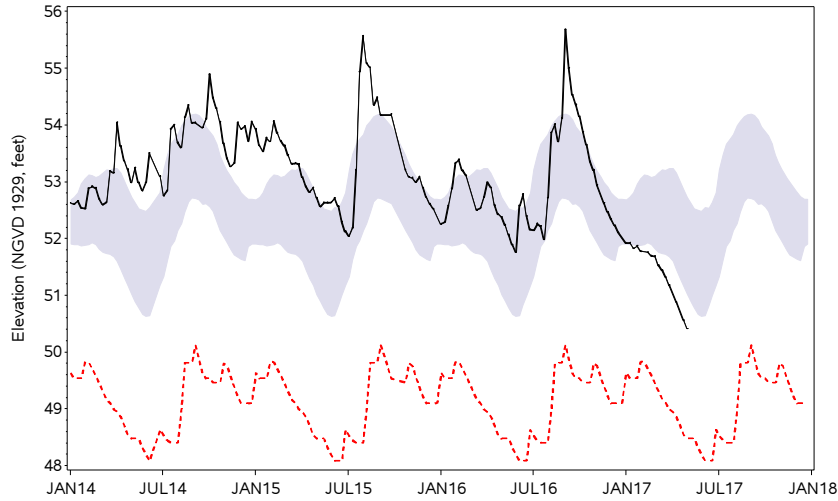


Pinellas 665  
Central Region

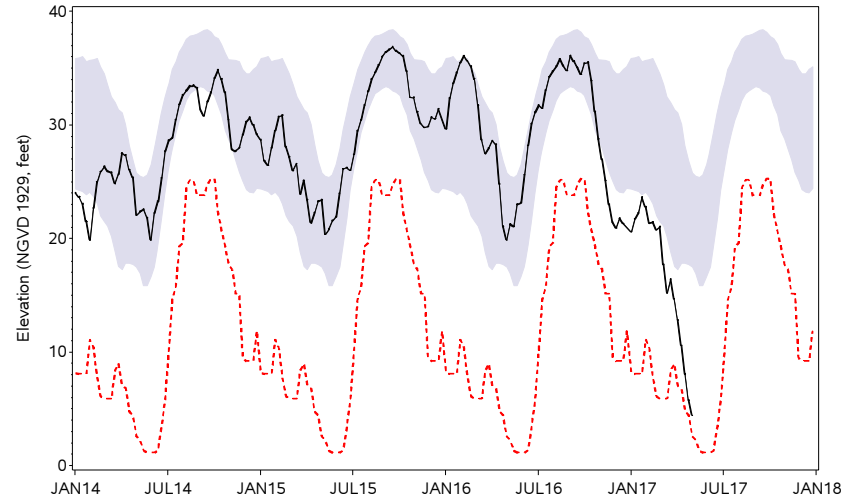


— Average Weekly Elevation      - - - - - POR Weekly Low      Normal Range

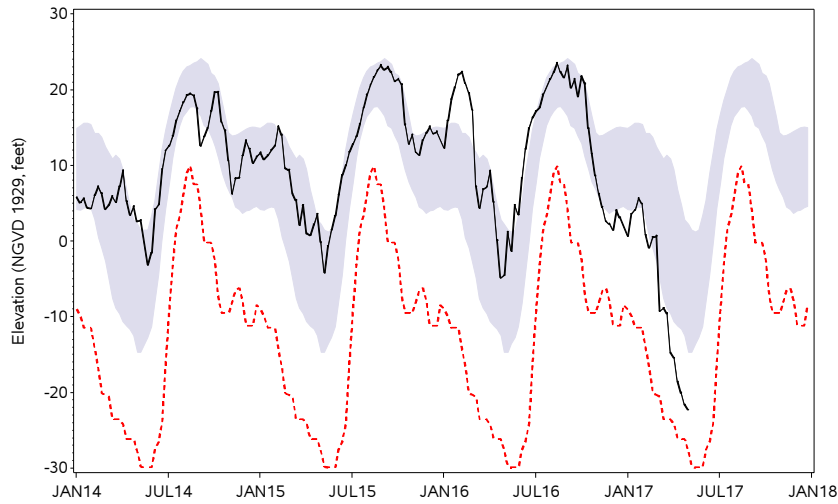
SR 52 Deep (West) near Fivay  
Central Region



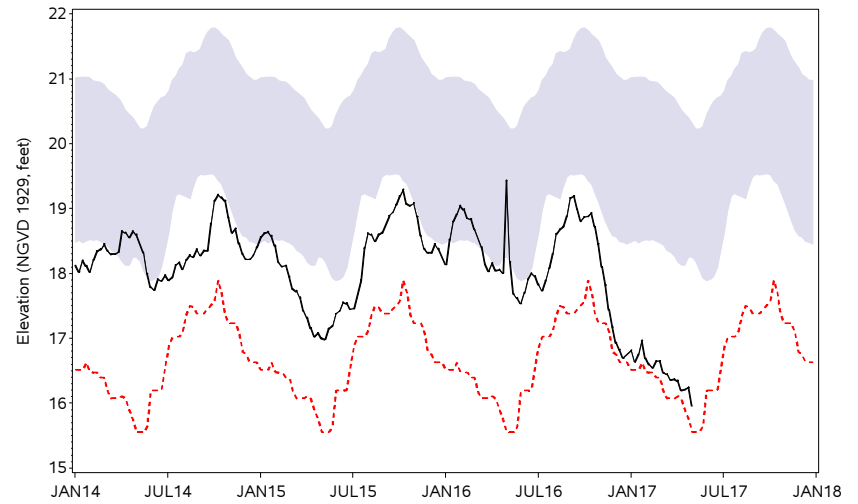
Edgeville 3 Deep  
Southern Region



Kibler Deep  
Southern Region



Manasota 14 Deep  
Southern Region

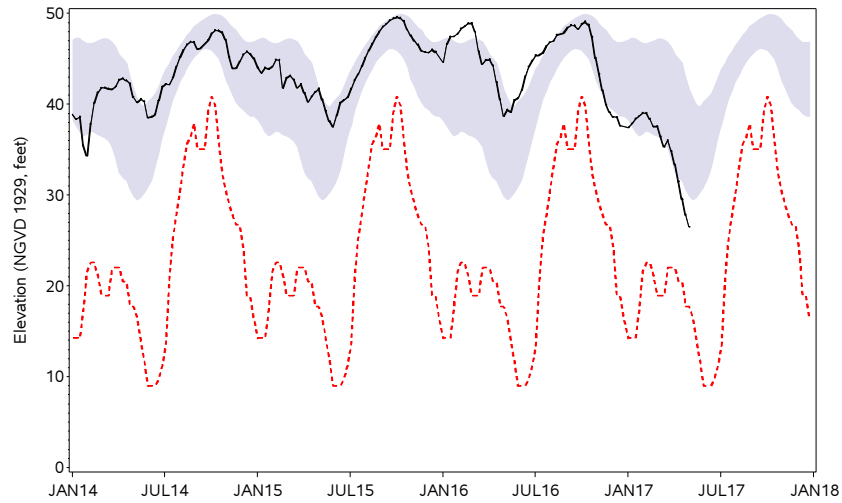


— Average Weekly Elevation

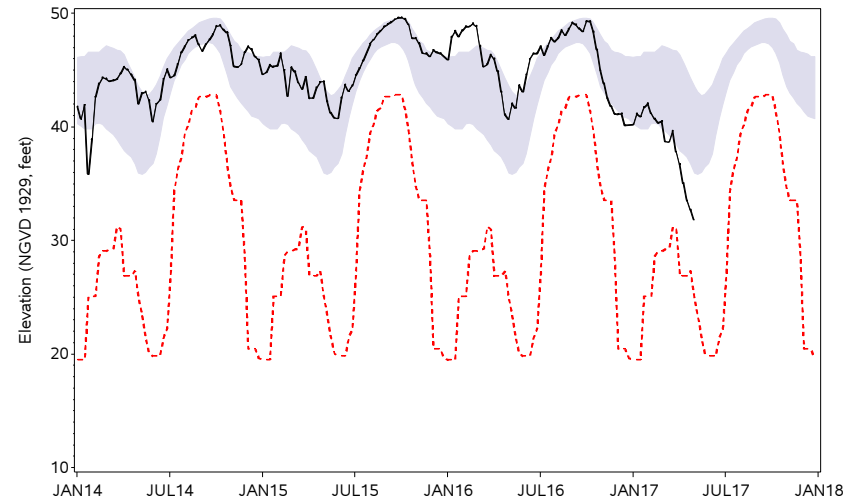
- - - POR Weekly Low

Normal Range

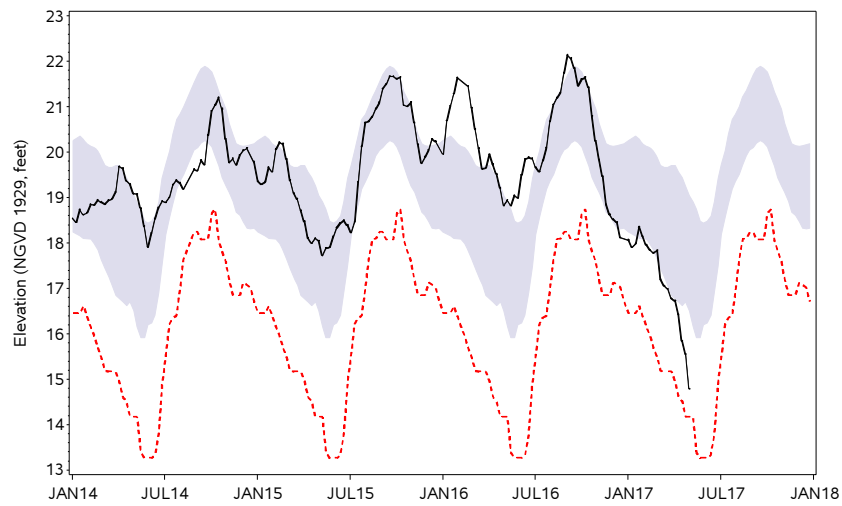
Marshall Deep  
Southern Region



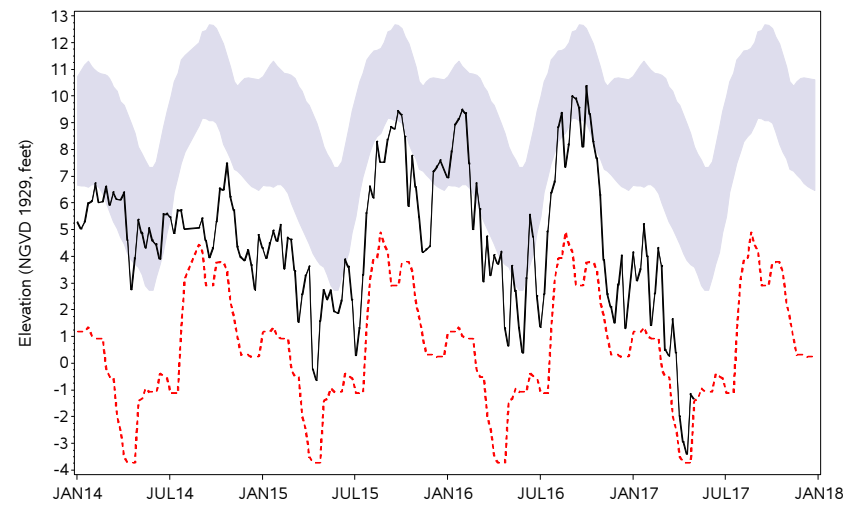
ROMP 26 Suwannee/Avon Park  
Southern Region



ROMP TR 5-1 Suwannee  
Southern Region



Sarasota 11th Street Deep  
Southern Region

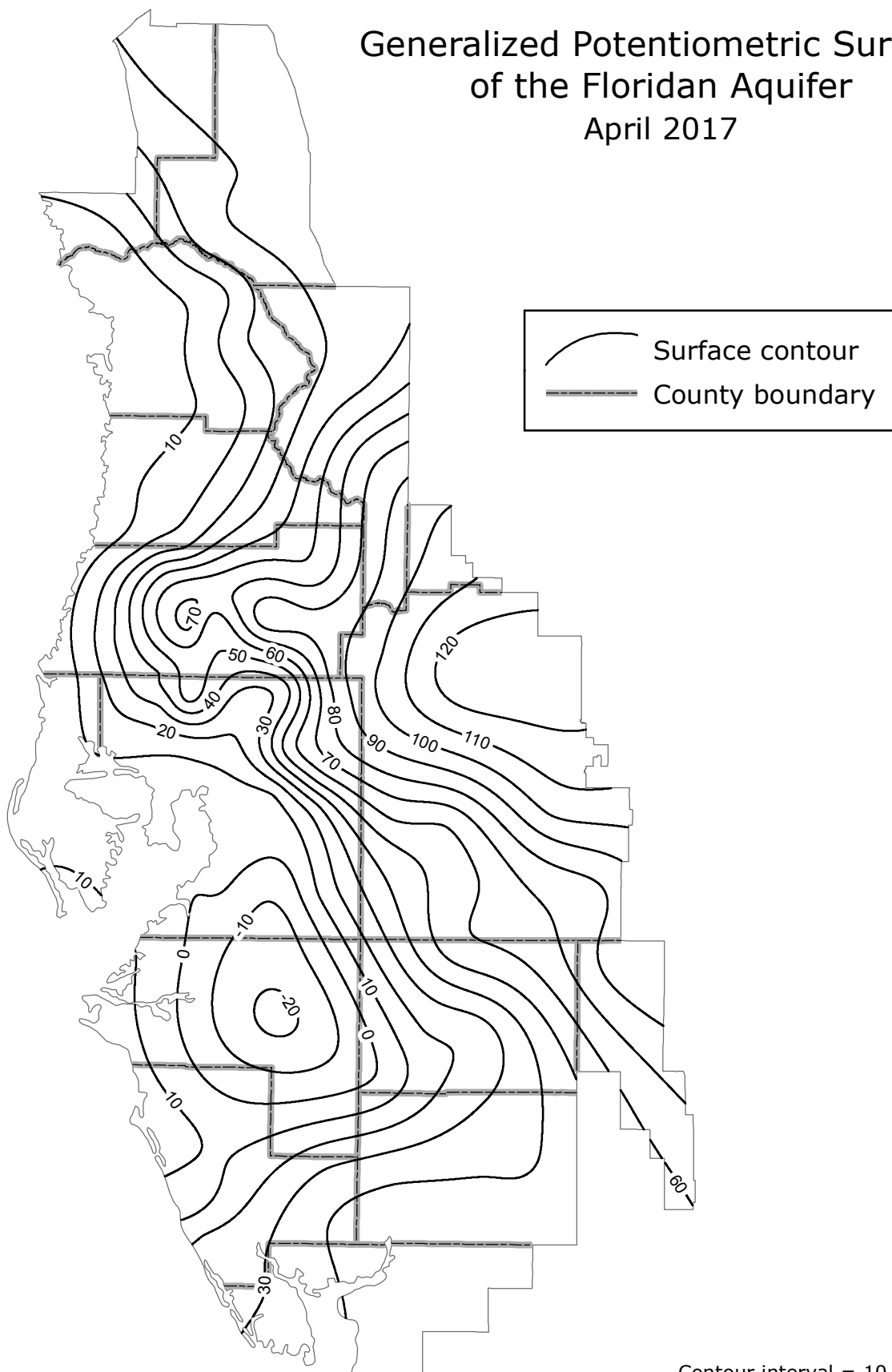


— Average Weekly Elevation

- - - POR Weekly Low

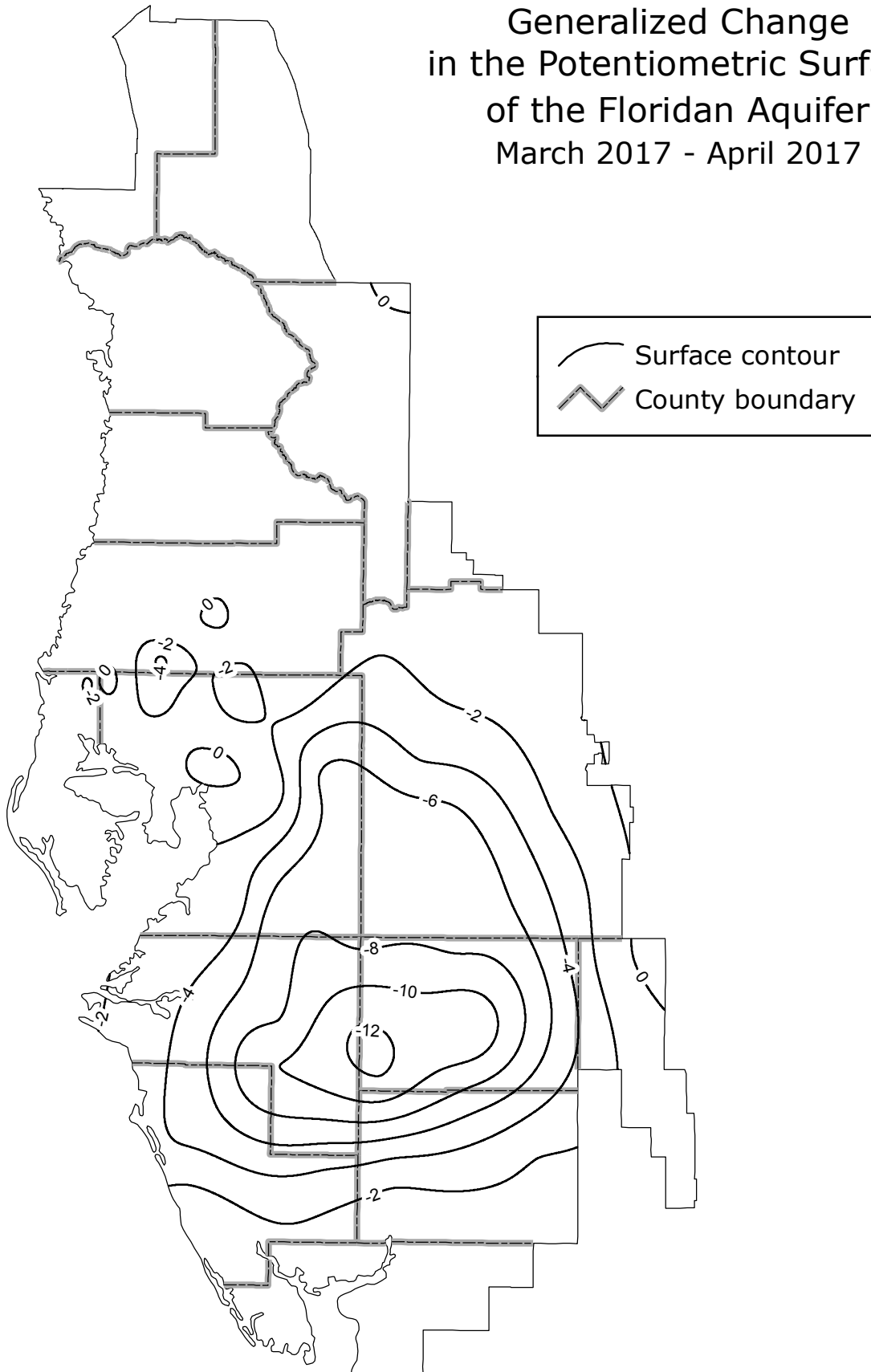
Normal Range

# Generalized Potentiometric Surface of the Floridan Aquifer April 2017



Compiled by M.L. Crowell

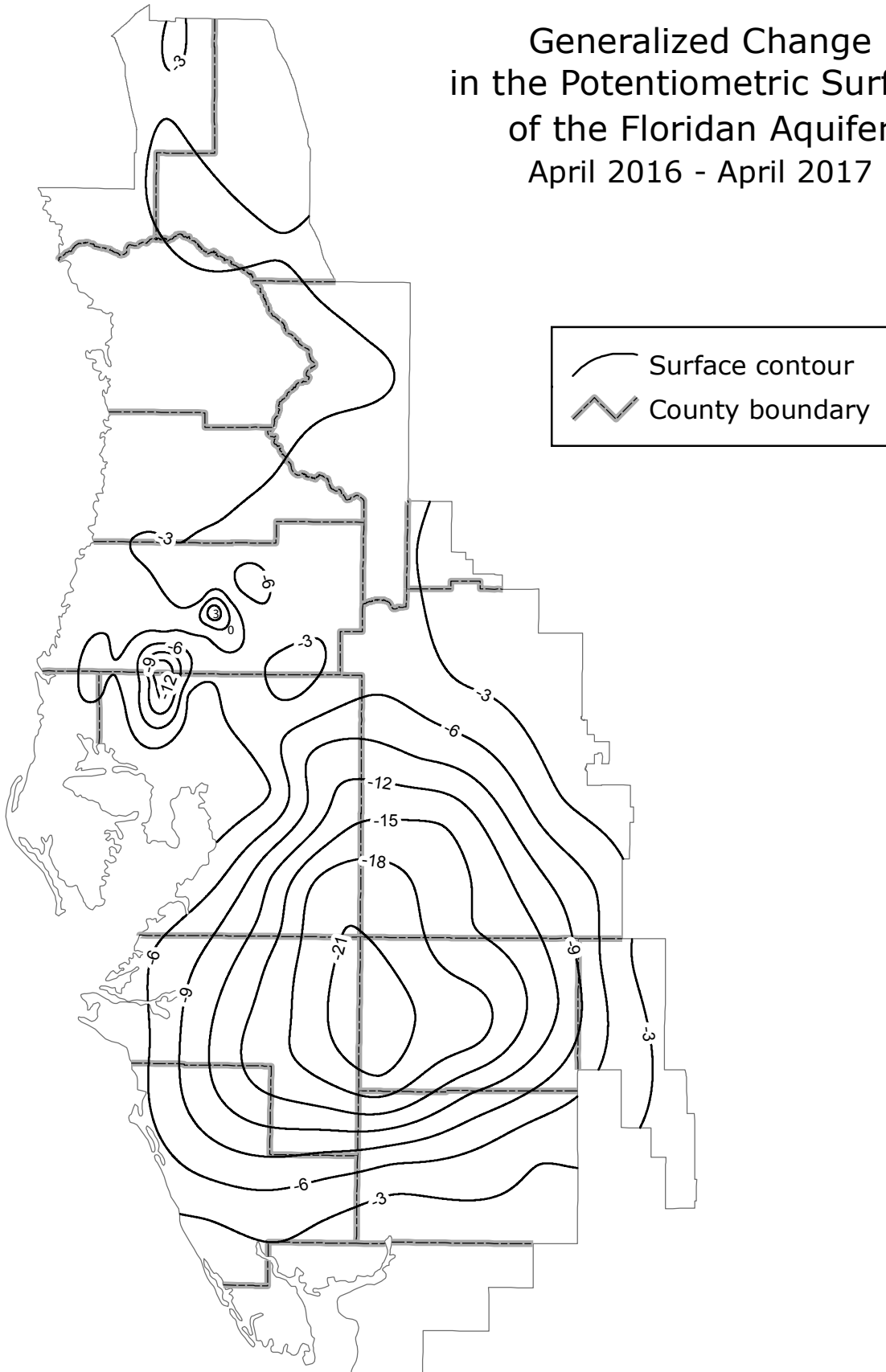
# Generalized Change in the Potentiometric Surface of the Floridan Aquifer March 2017 - April 2017



Compiled by M.L. Crowell

Contour interval = 2 feet

Generalized Change  
in the Potentiometric Surface  
of the Floridan Aquifer  
April 2016 - April 2017



Compiled by M.L. Crowell

Contour interval = 3 feet

## **Public Supply Wellfields**

Water levels are measured in 21 monitor wells (9 surficial, 12 intermediate and Floridan aquifer wells) located at nine public supply wellfields in the District. Thirteen of the 21 monitor wells have water levels measured monthly, two biweekly, and six weekly. Monthly data are tabulated to compare recent water levels to historical means.

In April, monthly analysis indicates that average water levels decreased in eleven of the twelve intermediate and Floridan wells and all nine surficial wells. Average water levels measured in the intermediate and Floridan wells decreased 2.16 feet, while levels measured in surficial wells decreased 0.91 foot.

During April, annual analysis indicates average water levels in all twelve intermediate and Floridan wells and all nine surficial wells were below last year's levels. Water levels measured in the intermediate and Floridan wells averaged 5.96 feet below last year's levels, while surficial water levels averaged 2.68 foot below April 2016 levels.

For April, average water levels in ten of the twelve intermediate and Floridan wells and eight of the nine surficial wells were above the low normal level, compared to historical monthly levels. Water levels measured in the intermediate and Floridan wells averaged 4.35 feet above the low normal level, while levels in the surficial wells averaged 3.21 feet above the low normal level.

# SUMMARY OF GROUNDWATER LEVELS IN REPRESENTATIVE WELLFIELD WELLS, APRIL 2017

	APR 2017 Elev	MAR 2017 Elev	APR 2016 Elev	Change From MAR 2017	Change From APR 2016	APR Historical Low Normal	APR Historical High Normal	Departure From Low Normal	Period of Record Low	Record Low Date	Period of Record High	Record High Date
<i>INT/FLORIDAN WELLS</i>												
Cosme-Odessa Cosme No. 3	21.54	22.01	26.60	-0.48	-5.07	21.26	25.85	0.28	11.58	JUN2000	33.84	AUG2012
Cross Bar WRW	45.75	47.24	49.62	-1.49	-3.87	39.65	52.28	6.10	33.94	JAN1994	61.65	AUG1984
Cypress Crk TMR-1 Deep	57.67	59.32	59.10	-1.64	-1.42	48.40	61.41	9.27	36.93	FEB2001	70.87	JUN1976
Cypress Crk TMR-3 Deep	57.03	58.95	57.21	-1.92	-0.18	48.44	58.10	8.59	34.22	FEB2001	68.74	JUL1976
Eldridge-Wilde 11 Deep	17.68	17.64	21.36	0.04	-3.68	7.40	15.70	10.28	0.31	SEP1990	64.70	NOV2009
Eldridge-Wilde 2S	17.65	18.79	20.58	-1.14	-2.93	7.08	17.97	10.57	-1.05	JUN2000	25.44	SEP2013
Morris Bridge 3A Deep	24.09	27.00	28.73	-2.91	-4.64	24.09	30.84	0.00	17.02	MAY2009	42.53	AUG2013
Section 21 Hills 13 Deep	34.90	37.31	45.55	-2.41	-10.65	33.52	44.75	1.38	21.54	JUN2002	52.08	JUL1944
South Pasco 42	42.41	46.49	55.47	-4.08	-13.06	39.19	47.20	3.22	27.98	MAY2002	58.40	AUG2012
South Pasco SR 54 Deep	46.25	49.77	56.52	-3.52	-10.27	43.75	52.03	2.50	33.49	MAY2002	59.26	AUG2012
Starkey Regional	32.17	33.18	35.22	-1.00	-3.05	29.73	34.11	2.44	25.03	JUN2000	38.37	AUG2015
Verna 08	-10.41	-5.00	2.33	-5.41	-12.74	-7.98	3.91	-2.43	-24.32	MAY1989	26.68	FEB1998
<i>SURFICIAL WELLS</i>												
Cosme-Odessa IC-6	35.66	36.23	37.15	-0.58	-1.50	35.06	37.41	0.59	31.91	JUL1973	42.95	AUG2015
Cross Bar SERW	65.04	66.13	68.11	-1.09	-3.07	58.41	67.76	6.63	53.08	JUL1994	72.53	JUL1984
Cypress Crk TMR-1 Shallow	57.77	59.38	59.61	-1.62	-1.84	55.55	63.06	2.22	39.89	DEC2000	69.22	SEP2004
Cypress Crk TMR-3 Shallow	56.31	57.08	59.01	-0.77	-2.70	54.00	60.39	2.31	53.55	MAY1997	64.80	JUN2003
Eldridge-Wilde 11 Shallow	24.18	24.76	26.32	-0.58	-2.14	16.01	24.24	8.17	10.28	MAY1991	31.72	JUL2015
Morris Bridge 3A Shallow	27.99	29.43	32.86	-1.44	-4.86	28.84	34.73	-0.85	24.86	MAY2009	39.20	DEC1997
Section 21 Hills 13 Shallow	47.78	48.77	51.16	-0.99	-3.38	40.28	50.01	7.50	33.81	MAY2001	53.82	AUG2012
South Pasco SR 54 Shallow	56.71	57.31	58.65	-0.60	-1.94	56.34	58.53	0.37	54.43	OCT1980	60.49	SEP1998
Starkey 707	27.95	28.49	30.64	-0.54	-2.69	25.96	29.67	1.99	22.70	JUN2000	34.18	AUG2015

## **Aquifer Resource Index**

The Aquifer Resource Index (ARI) was created to provide information to the media, residents, local governments and other interested parties about current ground-water conditions and how they compare to historical records. The underlying purpose of this index is to provide the public with a gauge of ground-water levels in their area, so they can develop an understanding of the severity and cycles of drought and recovery.

The ARI is derived by comparing current ground-water levels with historical levels for 77 intermediate and Floridan aquifer (deep) monitor wells located throughout the three geographic areas of the District. Monitor wells with an adequate and reliable period-of-record to calculate weekly percentiles were selected for the network.

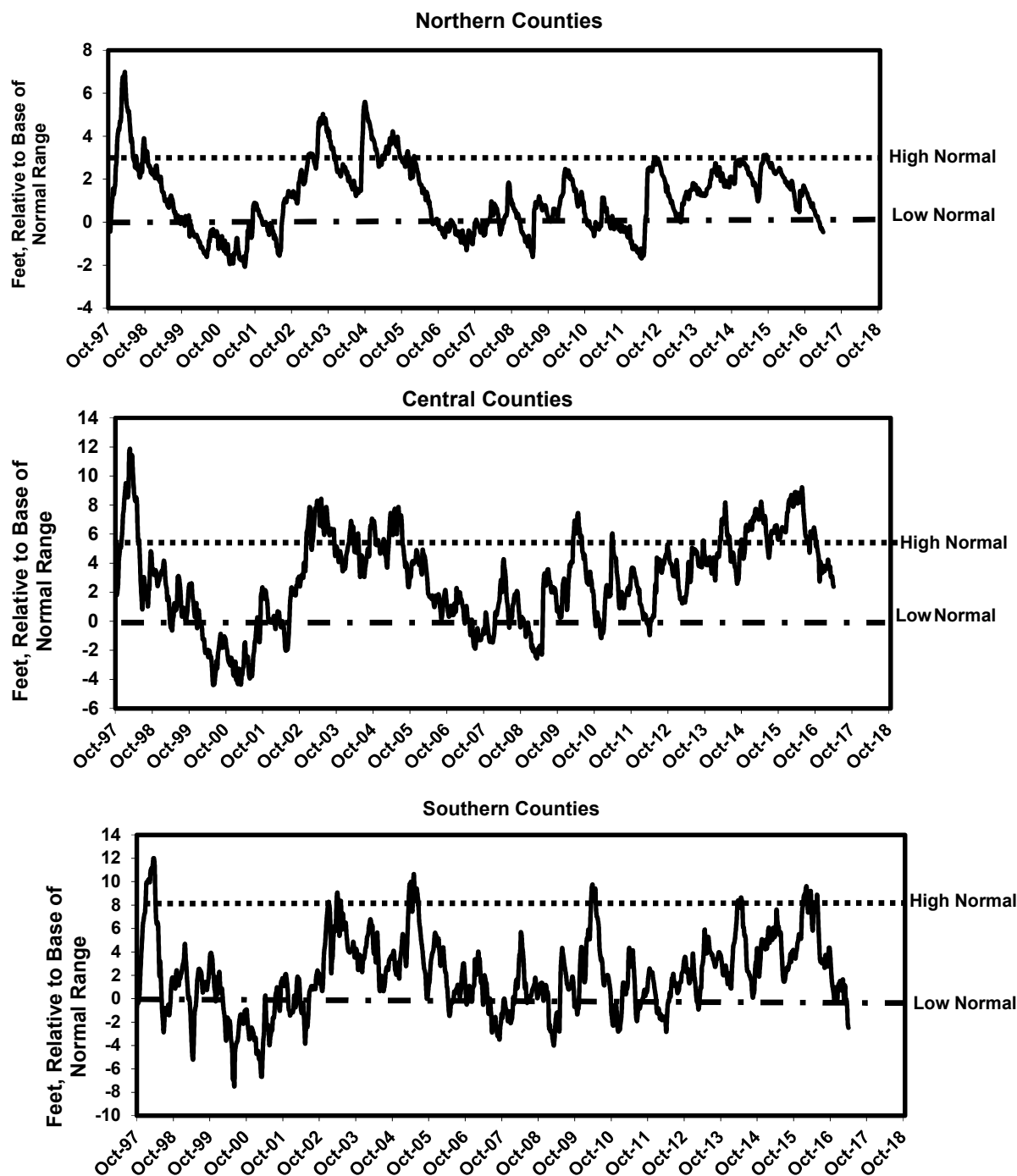
To determine the ARI value for a geographic area, each well is compared to its respective low-normal value weekly, and the difference is calculated. The weekly differences are used to determine the regional ARI value and the resulting ARI value represents how far water levels in the aquifer have to rise or fall to reach their respective low-normal value. The normal range for the northern region is approximately zero to three feet, zero to five-and-one-half feet for the central region and zero to eight feet for the southern region.

**Weekly Aquifer Resource Index Level, In Feet  
(Relative to Bottom of the Normal Range or 25<sup>th</sup> Percentile)**

<b>Report Date</b>	<b>Northern Counties</b>	<b>Central Counties</b>	<b>Southern Counties</b>
04/03/2017	-0.32	3.02	-0.06
04/10/2017	-0.29	3.08	-0.56
04/17/2017	-0.41	2.58	-2.04
04/24/2017	-0.46	2.38	-2.49

Note: A negative value indicates the regional average is below the “Low-Normal” level

**AQUIFER RESOURCE INDEX\***  
April 2017



\*Average Groundwater Level Relative to Low Normal, NGVD 29

Compiled By Steven DeSmith, P.G.

# **PUBLIC SUPPLY SURFACE WATER RESERVOIRS**

**CITY OF TAMPA RESERVOIR (Hillsborough River Basin):** Constructed in 1924, it is located on the Hillsborough River in Hillsborough County. It is the fourth largest public supply surface water facility in the District. It is the main water supply for the City of Tampa and has a total storage capacity of 1.7 billion gallons (bg). The total usable volume is 1.4 bg, when the reservoir elevation is 22.5 feet NGVD. It is an in-stream reservoir with a depth that ranges between nine and 22 feet. Given this amount of water, it is estimated that a 15-day supply of water is available from this facility over an extended dry period. During periods of low water due to drought conditions, the facility is permitted to pump water from two alternate sources. The first of these two sources is the Tampa Bypass Canal. Water is pumped over the water control structure at S-161 into the Hillsborough River above the dam. The second source is Sulphur Springs, just downstream from the dam, where water is captured at the spring and pumped back behind the dam. Withdrawals from both sources are in strict accordance with pumpage schedules as outlined in the facility's water use permit. When water levels fall below 12 feet NGVD, water cannot be withdrawn because the reservoir level is below the intake pipes. The permitted average daily withdrawal for this facility is 82 mgd, with a permitted maximum daily withdrawal of 104 mgd. Currently, ground water wells are not used to augment this facility. The minimum producible level is 9.00 feet.

## **PEACE RIVER RESERVOIRS - PEACE RIVER/MANASOTA REGIONAL WATER**

**SUPPLY AUTHORITY (Peace River Basin):** The Peace River reservoirs are located in southwestern DeSoto County. They are an off-stream reservoir system consisting of two reservoirs that store surface water captured from the Peace River during wet periods. The first reservoir, Reservoir 1, was built in 1980 and encompasses approximately 85 acres, has a water depth of approximately 31 feet, and has a total storage capacity of approximately 625 million gallons. The second reservoir, Reservoir 2, was built in 2009, covers about 616 acres, has a water depth of approximately 35 feet, and has a total storage capacity of about 6.0 billion gallons. The PRMRWSA facility ranks as the third largest in the District for total volume storage and supplies water to Charlotte, DeSoto, Manatee and Sarasota counties and to the City of North Port. The facility also uses an aquifer storage recovery (ASR) system for storing treated water pumped from the river. The minimum producible level at Reservoir 1 is Elevation 8.0 feet, while Reservoir 2 is Elevation 27.0 feet.

**MANATEE RESERVOIR (Manasota Basin):** Completed in 1967 by the damming of the Manatee River, the Manatee Reservoir is the second largest of the six surface-water public supply facilities within the District. Located in Manatee County, this in-stream facility has a storage capacity of 7.5 bg. The service area of the Manatee reservoir is the unincorporated portions of Manatee County, the City of Palmetto and Anna Maria Island, and also the Sarasota SUD#1. This reservoir provides essentially all public supply for Manatee County, with the exception of the City of Bradenton. The total size of this reservoir is 1800 acres with an average depth of 15 feet. With the reservoir full, the facility has approximately 220 days of available water supply. When the surface-water elevation drops below 21.0 feet, water cannot be withdrawn because levels are below the facility's intakes. The permitted average daily withdrawal for this facility is 34.9 mgd, with a permitted peak monthly quantity of 41.9 mgd. The minimum producible level is 21.00 feet.

**EVERS RESERVOIR (Manasota Basin):** Constructed in 1935 and expanded in 1985, it is located on the Braden River in Manatee County. This is the fifth largest public supply reservoir in the District. Its main service area is the City of Bradenton and approximately 500 customers outside the city. It has a total storage capacity of 1.5 bg. The total size of the facility is 300 acres with an average depth of 12 feet. Water ceases to flow over the dam when the level falls below 3.84 feet NGVD. During the 1985 drought, while expansion of the facility was taking place, the water level dropped to one foot below sea level and demand was still met. Given a completely full reservoir, with no water going over the spillway, it is estimated the facility could supply water for approximately 260 days, with no input from rainfall. The permitted average daily withdrawal for this facility is 6.95 mgd, with a permitted peak monthly quantity of 8.13 mgd. Currently, ground-water wells are not used to augment this facility.

**SHELL CREEK RESERVOIR (Peace River Basin):** Shell Creek Reservoir, located in Charlotte County, is the sixth largest surface water system within the District. This system was built in 1964 and services the City of Punta Gorda as well as unincorporated areas surrounding the city limits. The Shell Creek Reservoir is fed by two primary tributaries, Shell Creek from the east and Prairie Creek from the northwest. The total drainage area at Hendrickson Dam is 373 square miles. It has a surface area of 800 acres and depths of 10 to 12 feet. Total storage capacity is 765 mg. Even with this low volume of water, personnel at this facility estimate they have approximately 125 days of available supply with no input from rainfall. Water ceases to flow across the weir when surface elevations drop below 5.0 feet NGVD, and at 3.7 feet NGVD water quality becomes a major concern. When surface elevations drop below 1.75 feet NGVD, the water is below the intakes and withdrawal of water is not possible. The permitted average daily withdrawal by this facility is 5.358 mgd, with a permitted peak monthly quantity of 6.901 mgd. The minimum producible level is 1.70 feet.

**C.W. BILL YOUNG REGIONAL RESERVOIR - TAMPA BAY WATER (Alafia River Basin):** Constructed in early 2005, it is the largest public supply surface water facility in the District. Located in southern Hillsborough County, it is an off-stream reservoir that stores surface water skimmed from the Tampa Bypass Canal and Alafia and Hillsborough Rivers. It services the Tampa Bay region through the Tampa Bay Water regional public supply water distribution system. The reservoir has an estimated storage capacity of 15.0 bg when the water level elevation is 136.5 feet NGVD. The reservoir is approximately 45 feet deep, two miles long and one mile wide, and encompasses a land area of approximately 1,100 acres. It reportedly has the capacity to provide 25 percent of the Tampa Bay region's public supply needs for six months and can supply the Tampa Bay regional surface water treatment plant at full capacity for 227 days.

## **Reservoirs**

Water-level data for the seven reservoirs are obtained weekly from the USGS, Manatee County Utilities Department, Peace River/Manasota Regional Water Supply Authority, or Tampa Bay Water. The last weekly water-level value of the month is indicated in this report. The values reported are provisional and subject to revision.

In April, all seven reservoirs monitored for this report recorded water-level decreases, compared to last month. The Evers, Hillsborough, Lake Manatee, Bill Young, Peace River Nos. 1 and 2, and Shell Creek reservoirs posted water level decreases of 1.37 feet, 1.52 feet, 0.95 foot, 6.06 feet, 0.10 foot and 3.00 feet, and 0.20 foot, respectively, compared to last month.

# SUMMARY OF WATER LEVELS IN WATER SUPPLY RESERVOIRS (ELEVATION IN FEET, NGVD 29)

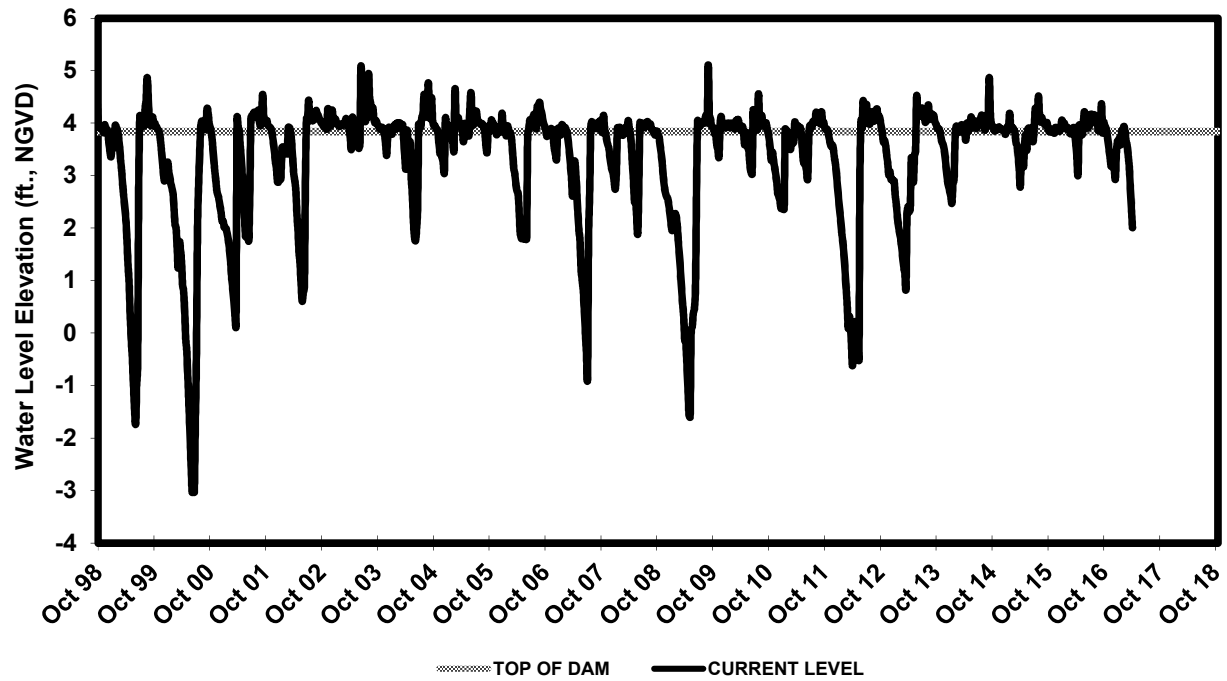
RESERVOIR	2017 March	2017 April	2016 April	Change from Prior Month	Change from Prior Year
<b>Evers</b>					
City of Bradenton	3.38	2.01	3.32	-1.37	-1.31
<b>Hillsborough</b>					
City of Tampa	20.74	19.22	22.40	-1.52	-3.18
<b>Lake Manatee</b>					
Manatee County	38.43	37.48	39.54	-0.95	-2.06
<b>C.W. Bill Young Regional</b>					
Tampa Bay Water	120.68	114.62	132.21	-6.06	-17.59
<b>Peace River</b>					
PRMRWSA Reservoir #1	24.80	24.70	25.40	-0.10	-0.70
PRMRWSA Reservoir #2	49.30	46.30	61.30	-3.00	-15.00
<b>Shell Creek</b>					
City of Punta Gorda	5.02	4.82	5.11	-0.20	-0.29

NGVD - National Geodetic Vertical Datum

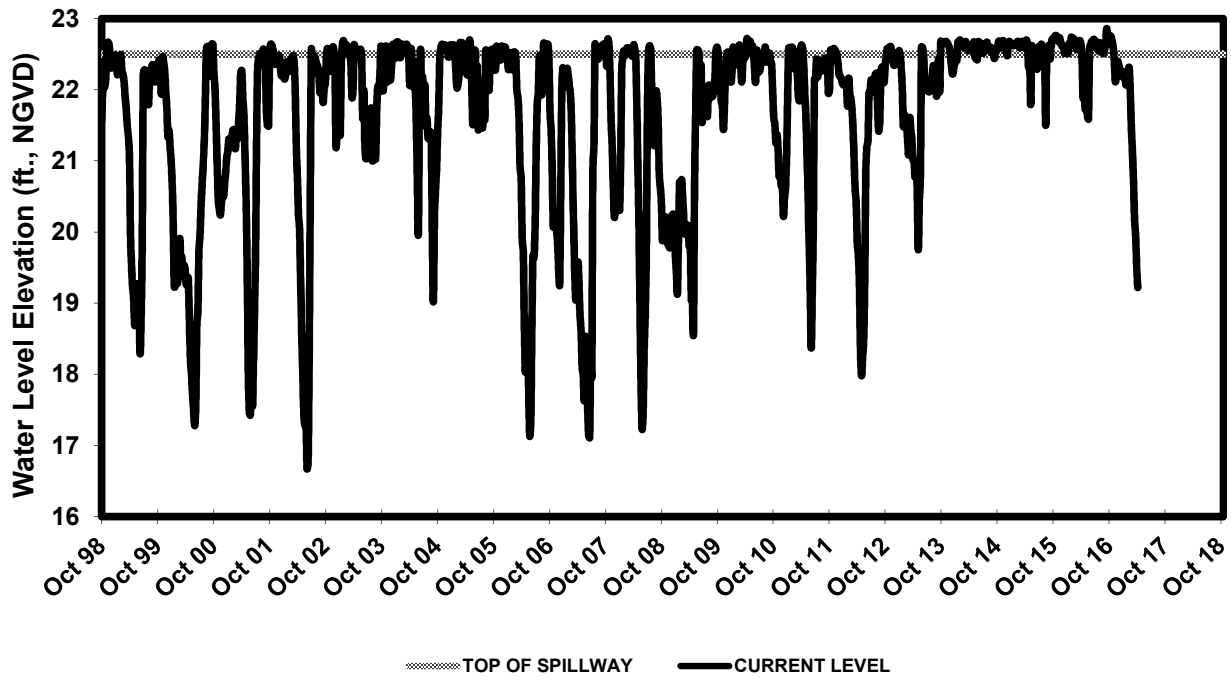
Reported data are provisional and subject to revision.

Compiled by Steven W. DeSmith, P.G.

# **EVERS RESERVOIR** City of Bradenton

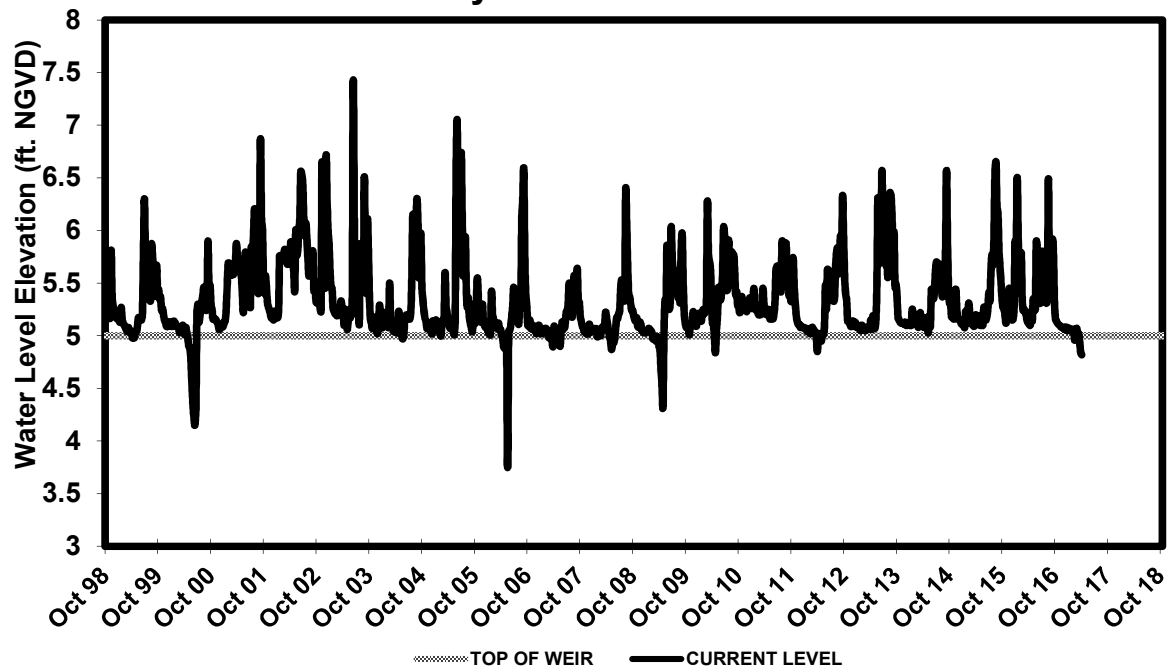


# **HILLSBOROUGH RESERVOIR** City of Tampa

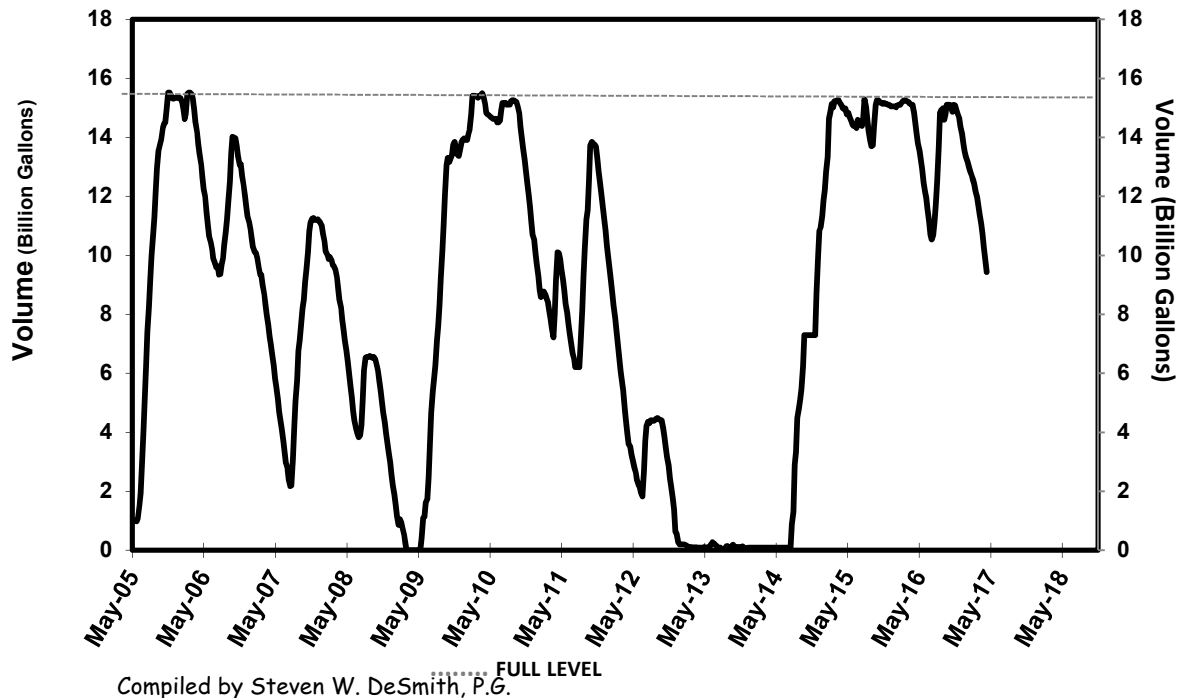


Compiled by Steven W. DeSmith, P.G.

# **SHELL CREEK RESERVOIR** City of Punta Gorda

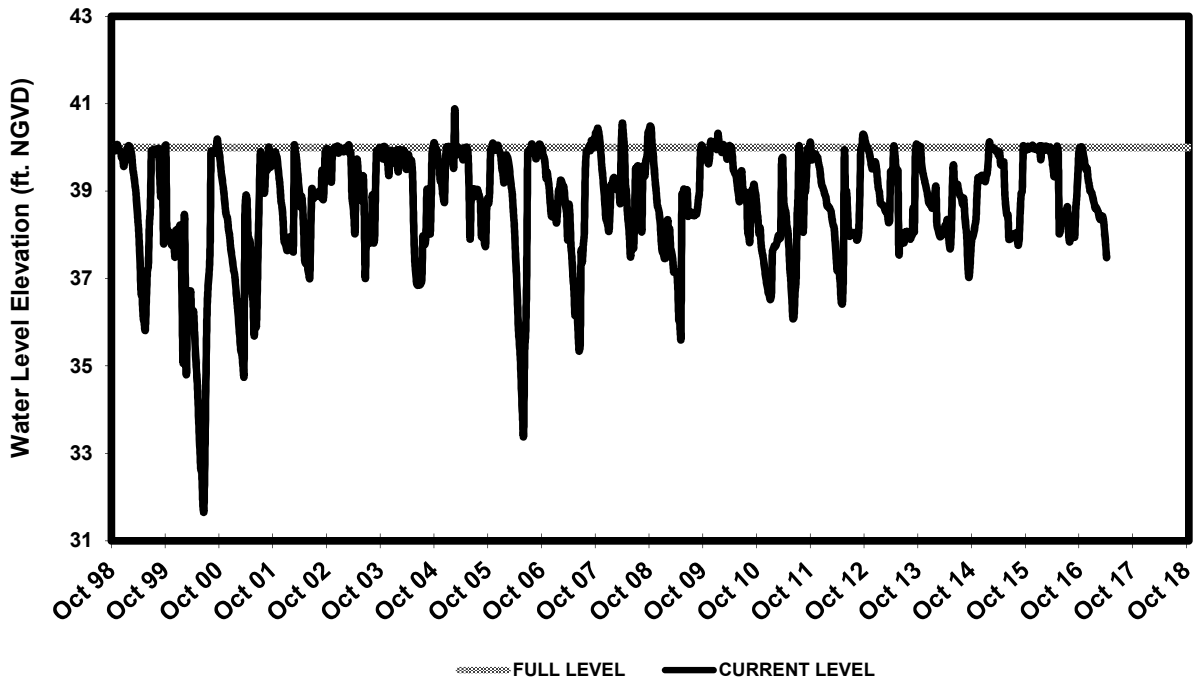


# **C.W. BILL YOUNG REGIONAL RESERVOIR** Tampa Bay Water

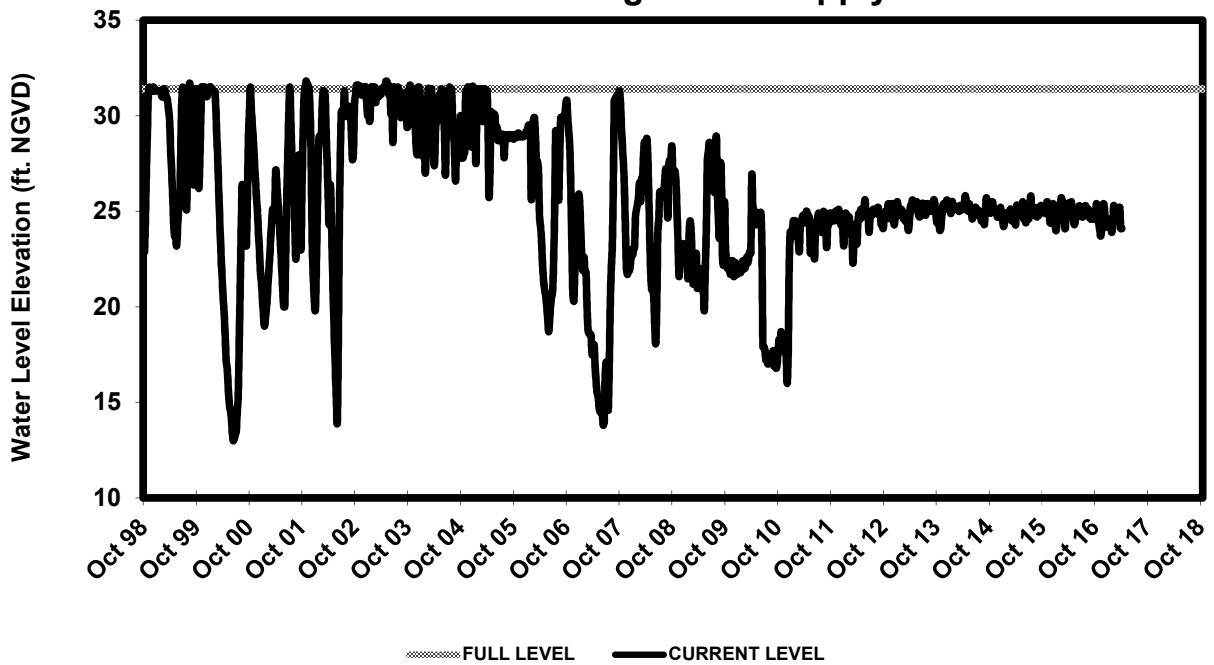


Compiled by Steven W. DeSmith, P.G.

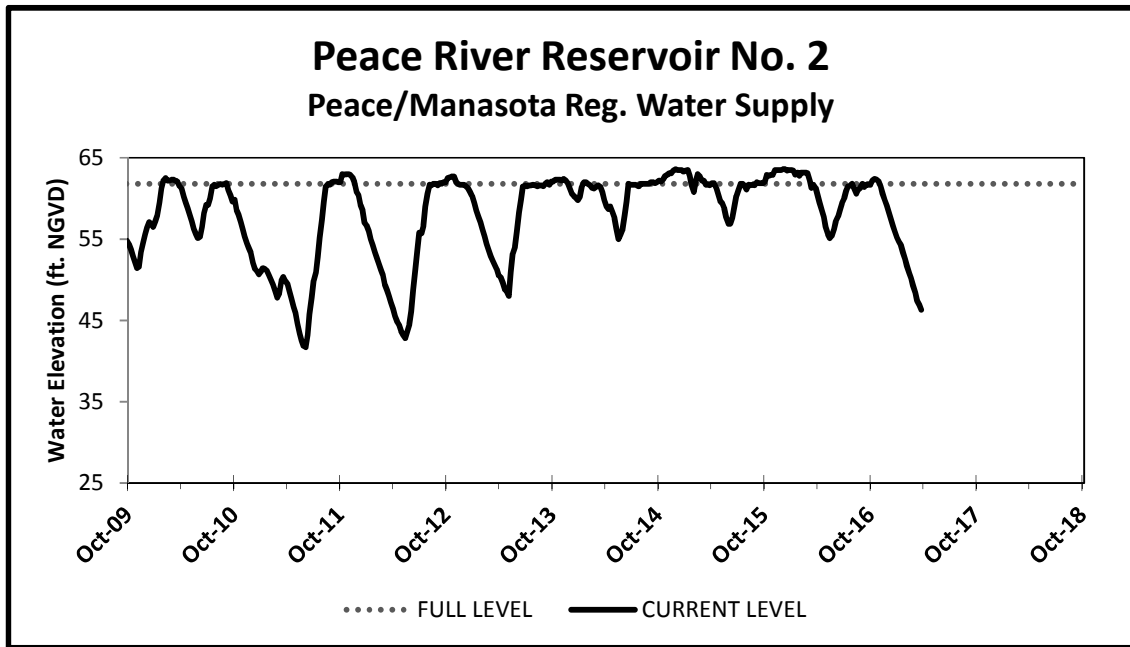
# LAKE MANATEE RESERVOIR Manatee County



# PEACE RIVER RESERVOIR No. 1 Peace/Manasota Reg. Water Supply



Compiled by Steven W. DeSmith, P.G.



Compiled by Steven W. DeSmith, P.G.

# **APPENDICES**

Rainfall percentiles by interval and region, inches.

<b>Rainfall Interval</b>	<b>Region</b>	<b>10<sup>TH</sup> Percentile (P10)</b>	<b>25<sup>th</sup> Percentile (P25)</b>	<b>50<sup>th</sup> Percentile (P50)</b>	<b>75<sup>th</sup> Percentile (P75)</b>	<b>90<sup>th</sup> Percentile (P90)</b>
Annual total	<i>Northern</i>	43.19	48.35	54.01	58.86	63.46
Annual total	<i>Central</i>	41.45	46.10	52.16	57.28	63.82
Annual total	<i>Southern</i>	42.05	46.25	52.19	57.82	63.43
Annual total	<i>District</i>	43.12	47.22	52.99	57.46	62.83
Dry season total	<i>Northern</i>	15.27	18.42	23.79	28.72	32.10
Dry season total	<i>Central</i>	13.32	16.48	21.59	26.86	30.83
Dry season total	<i>Southern</i>	12.35	15.68	21.24	26.23	30.01
Dry season total	<i>District</i>	13.71	16.79	22.02	27.22	29.70
Wet season total	<i>Northern</i>	22.79	25.44	29.45	33.43	38.16
Wet season total	<i>Central</i>	23.22	25.79	29.71	34.86	39.22
Wet season total	<i>Southern</i>	24.37	27.37	30.58	35.88	41.68
Wet season total	<i>District</i>	23.92	27.16	29.97	34.71	38.93
January total	<i>Northern</i>	0.73	1.50	2.45	4.00	5.30
January total	<i>Central</i>	0.72	1.21	2.23	3.72	4.60
January total	<i>Southern</i>	0.39	0.93	1.88	3.31	4.93
January total	<i>District</i>	0.65	1.17	2.10	3.55	4.90
February total	<i>Northern</i>	0.82	1.42	2.82	4.08	5.76
February total	<i>Central</i>	0.60	1.12	2.38	4.17	5.50
February total	<i>Southern</i>	0.36	1.26	2.21	3.63	4.93
February total	<i>District</i>	0.73	1.32	2.38	3.94	5.12
March total	<i>Northern</i>	1.00	2.06	3.15	5.43	7.21
March total	<i>Central</i>	0.97	1.66	2.96	4.95	6.44
March total	<i>Southern</i>	0.81	1.28	2.56	4.29	6.68
March total	<i>District</i>	1.09	1.64	3.04	4.86	6.92
April total	<i>Northern</i>	0.65	1.33	2.38	3.95	5.52
April total	<i>Central</i>	0.51	0.96	1.87	3.44	5.59
April total	<i>Southern</i>	0.48	1.19	2.04	3.75	4.66
April total	<i>District</i>	0.65	1.20	2.24	3.72	5.12
May total	<i>Northern</i>	1.18	1.95	3.21	4.67	6.92
May total	<i>Central</i>	0.87	1.64	2.73	4.58	5.75
May total	<i>Southern</i>	1.17	1.91	3.36	5.22	6.75
May total	<i>District</i>	1.23	2.04	3.24	4.87	6.29
June total	<i>Northern</i>	4.60	5.47	7.27	8.63	10.16
June total	<i>Central</i>	3.65	4.79	6.46	8.27	9.48
June total	<i>Southern</i>	4.22	5.63	7.44	9.06	12.06
June total	<i>District</i>	4.55	5.46	7.24	8.60	10.99
July total	<i>Northern</i>	5.36	6.75	8.29	9.16	11.52
July total	<i>Central</i>	4.89	5.98	8.35	10.05	11.44
July total	<i>Southern</i>	5.68	6.94	8.11	9.50	10.99
July total	<i>District</i>	5.60	6.83	8.19	9.57	10.58
August total	<i>Northern</i>	5.44	6.30	7.31	9.72	11.33
August total	<i>Central</i>	5.52	6.55	7.90	9.62	12.03
August total	<i>Southern</i>	5.55	6.22	7.70	8.97	10.49
August total	<i>District</i>	5.65	6.52	7.70	9.37	10.67
September total	<i>Northern</i>	2.79	4.18	5.84	8.04	11.35
September total	<i>Central</i>	3.19	5.11	6.46	8.50	11.69
September total	<i>Southern</i>	4.30	5.46	6.94	9.33	11.85
September total	<i>District</i>	3.85	5.21	6.53	8.62	11.65
October total	<i>Northern</i>	0.63	1.27	2.46	4.40	6.15
October total	<i>Central</i>	0.69	1.39	2.61	4.03	6.13
October total	<i>Southern</i>	0.92	1.78	2.73	4.27	6.04
October total	<i>District</i>	1.06	1.57	2.80	4.15	5.79

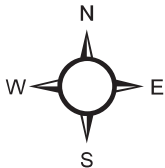
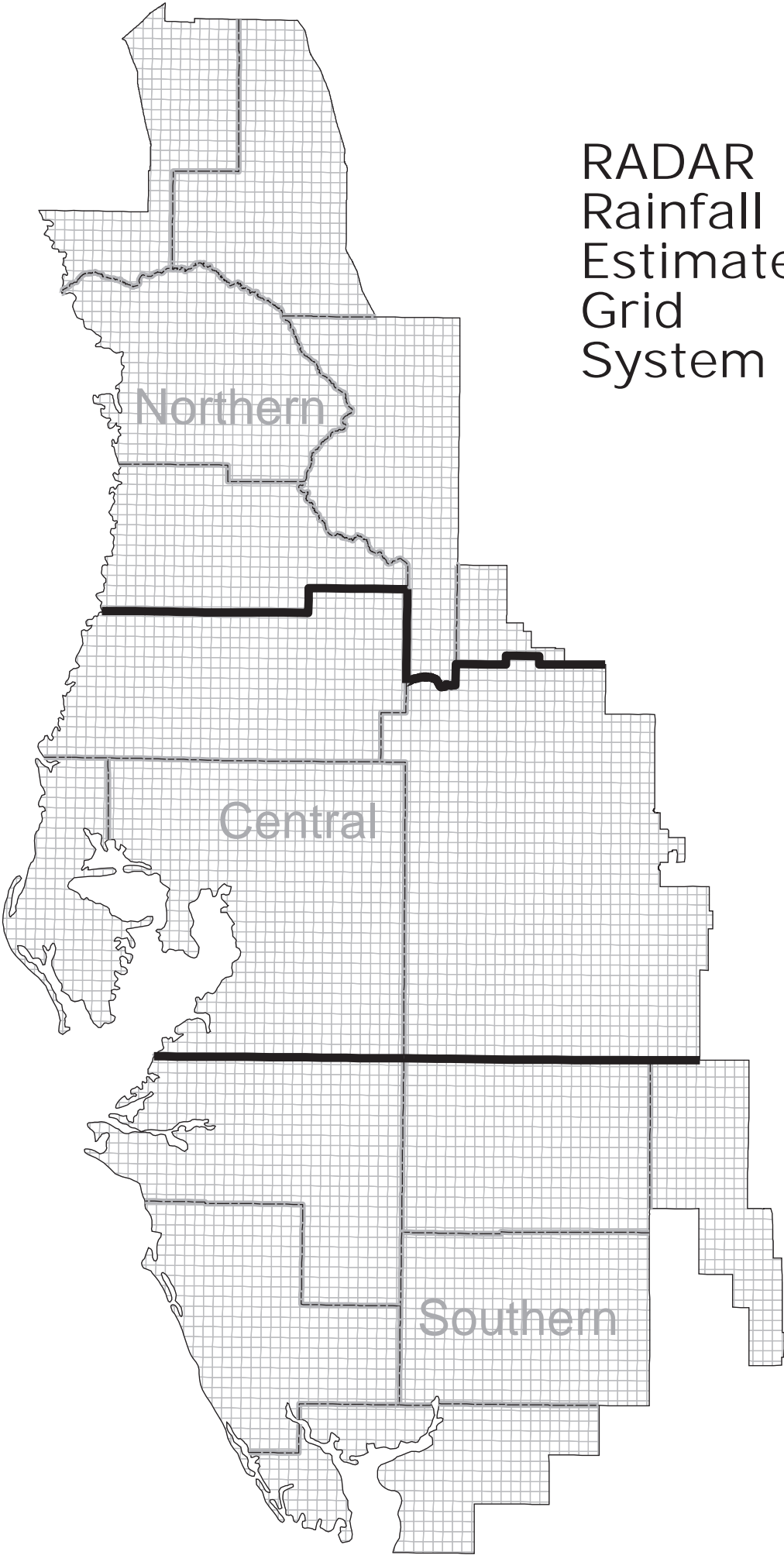
Rainfall percentiles by interval and region, inches (continued).

<b>Rainfall Interval</b>	<b>Region</b>	<b>10<sup>TH</sup> Percentile (P10)</b>	<b>25<sup>th</sup> Percentile (P25)</b>	<b>50<sup>th</sup> Percentile (P50)</b>	<b>75<sup>th</sup> Percentile (P75)</b>	<b>90<sup>th</sup> Percentile (P90)</b>
November total	<i>Northern</i>	0.38	0.71	1.63	2.88	4.56
November total	<i>Central</i>	0.25	0.47	1.42	2.82	4.33
November total	<i>Southern</i>	0.40	0.64	1.46	2.56	3.82
November total	<i>District</i>	0.37	0.63	1.53	2.73	4.39
December total	<i>Northern</i>	0.54	1.06	2.06	3.71	5.19
December total	<i>Central</i>	0.48	0.84	1.89	3.03	4.87
December total	<i>Southern</i>	0.45	0.77	1.56	2.63	4.18
December total	<i>District</i>	0.54	0.89	1.86	2.92	4.34

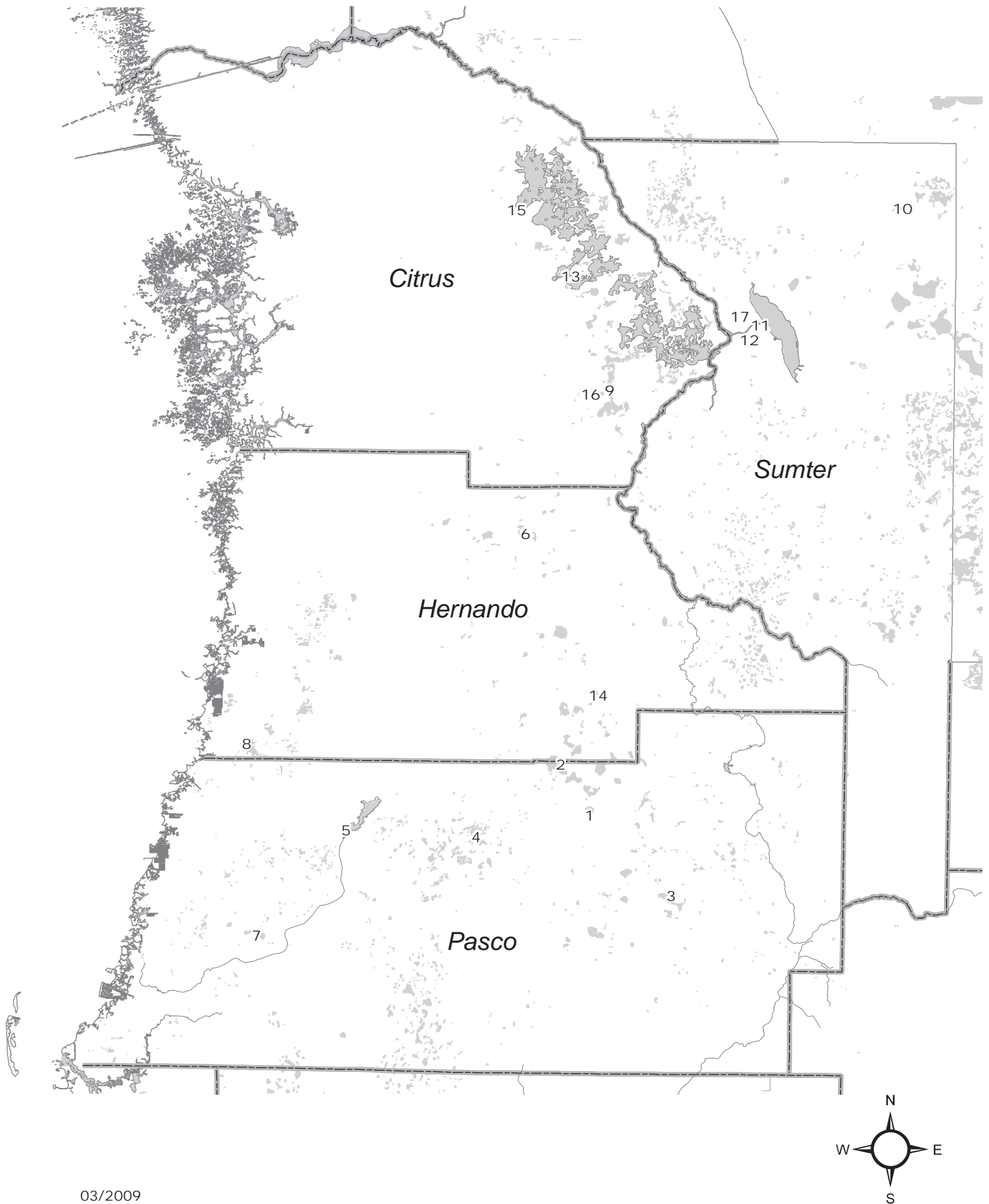
Rainfall characterization ranges

<b>Characterization</b>	<b>Range</b>	<b>Corresponding Rainfall Percent of Normal (approximate)</b>
Very dry	Less than the P10 rainfall	Less than 80 percent of normal
Drier than normal	P10 to P24 rainfall	80 to 90 percent of normal
Normal	P25 to P75 rainfall	90 to 110 percent of normal
Wetter than normal	P76 to P90 rainfall	110 to 120 percent of normal
Very Wet	Greater than the P90 rainfall	Greater than 120 percent of normal

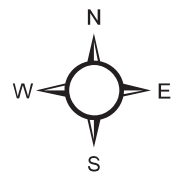
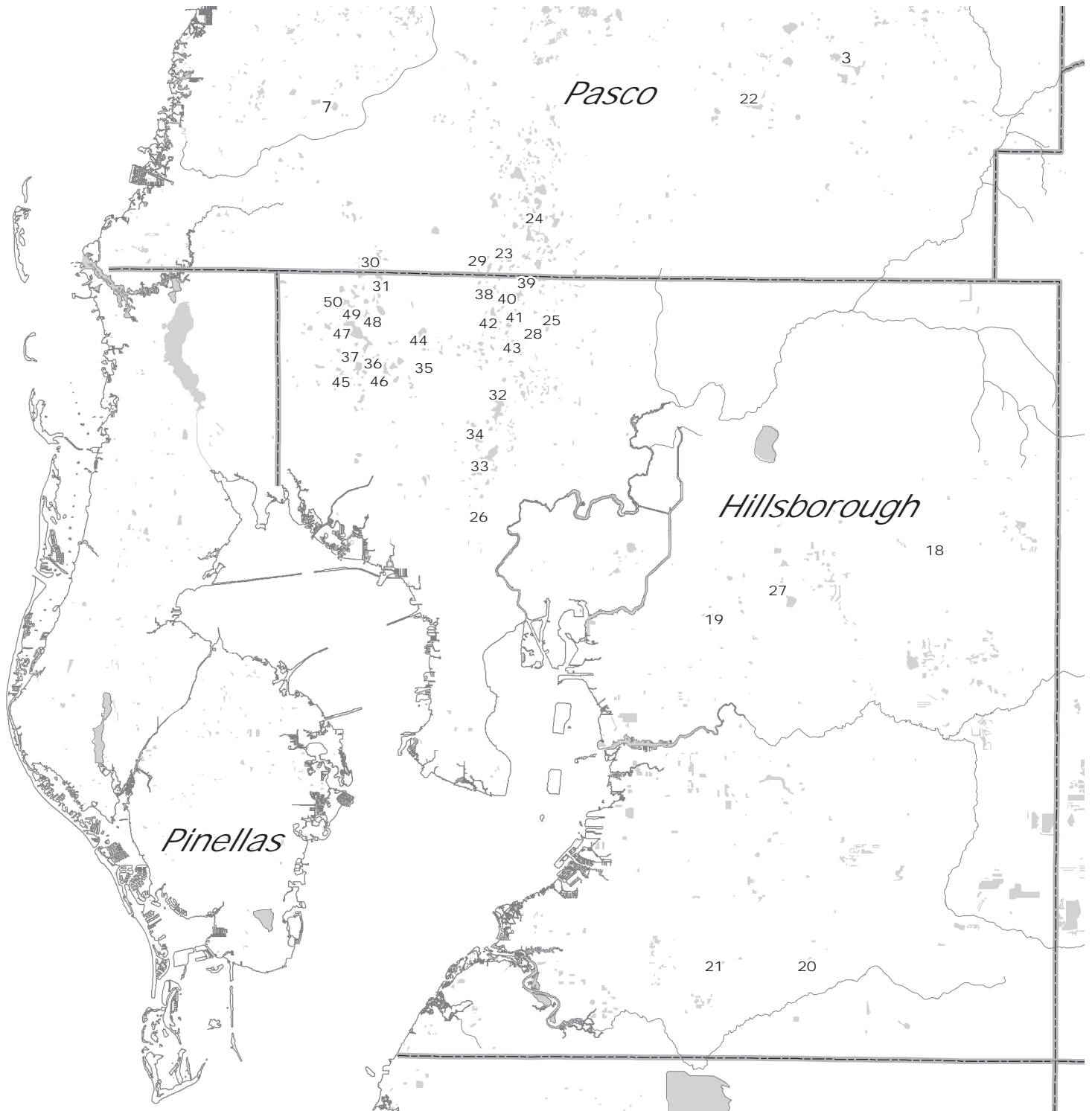
RADAR  
Rainfall  
Estimate  
Grid  
System



# Selected Lake Monitoring Stations Northern Region

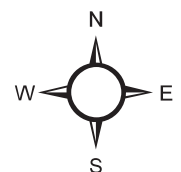
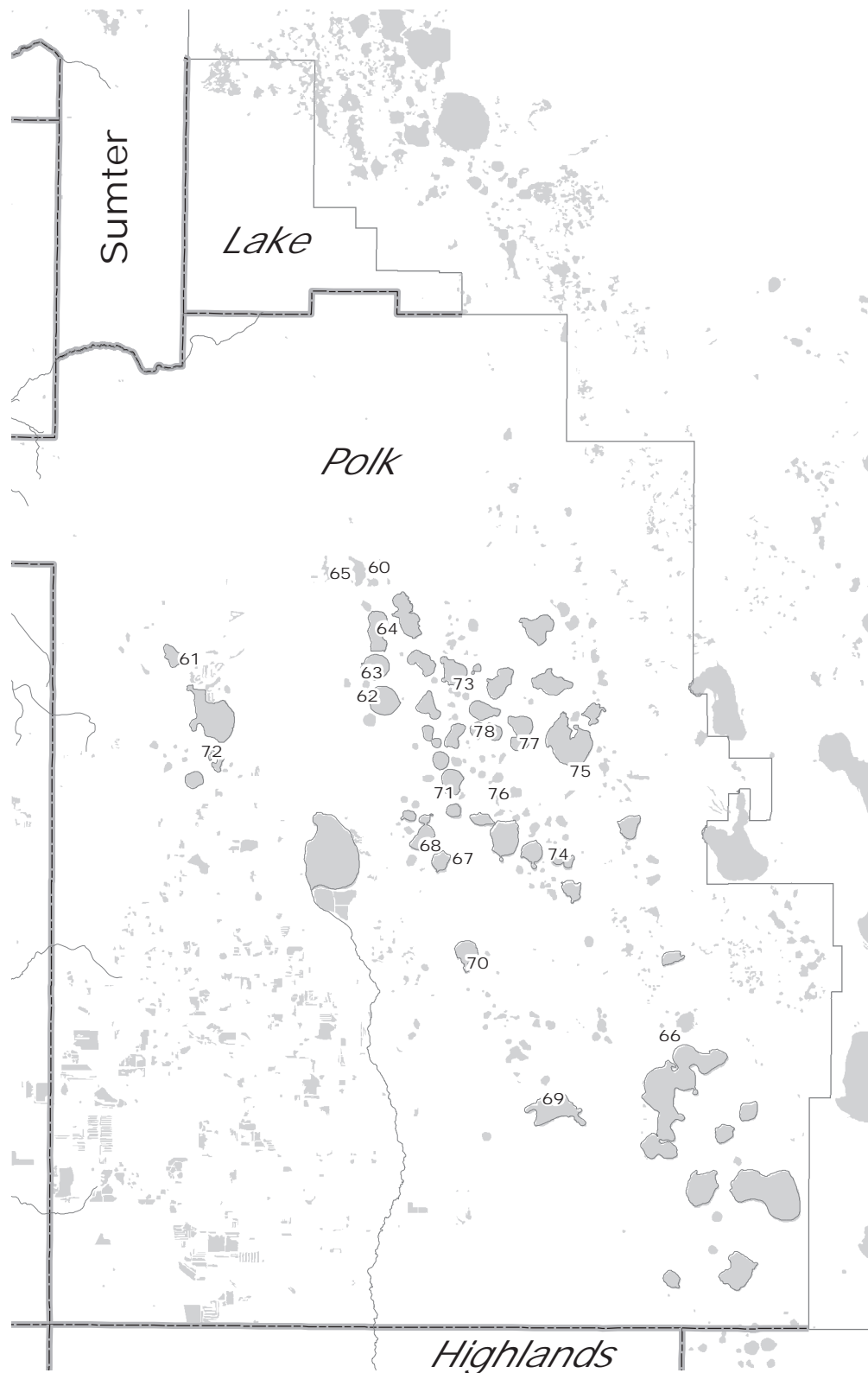


# Selected Lake Monitoring Stations Tampa Bay Region



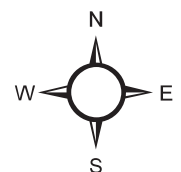
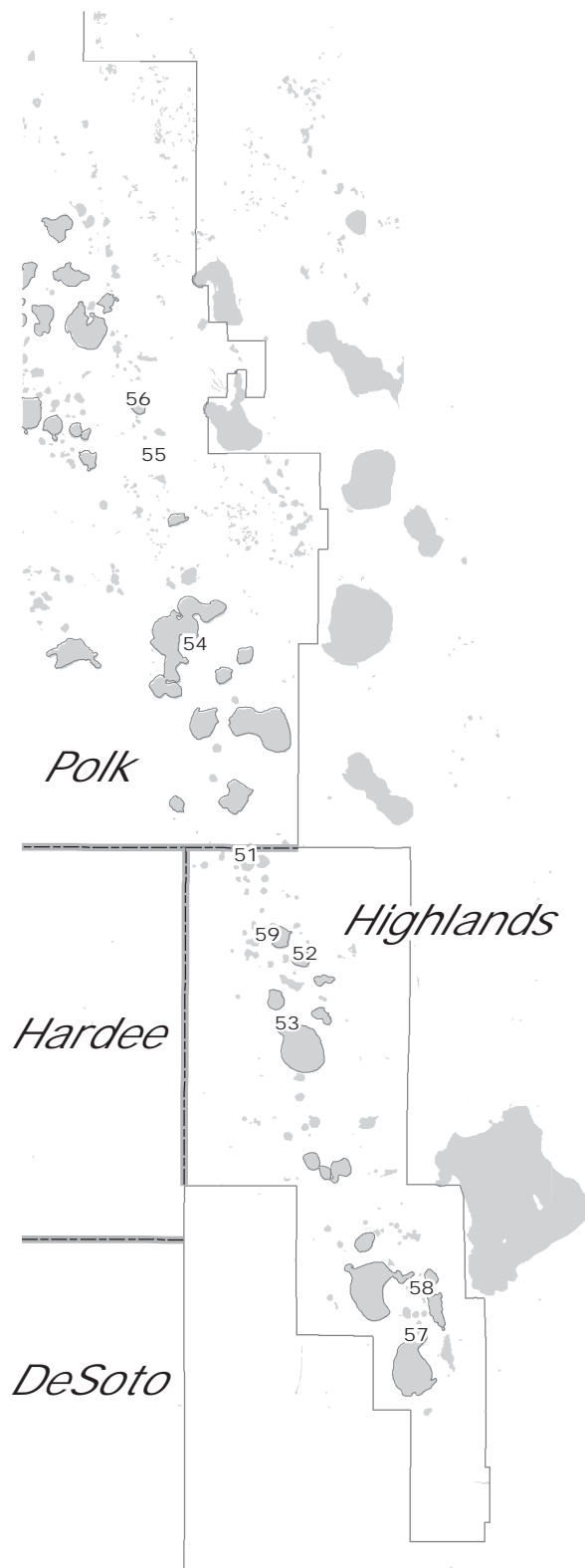
# Selected Lake Monitoring Stations

## Polk Uplands Region



# Selected Lake Monitoring Stations

## Lake Wales Ridge Region



## Selected Lake Monitoring Stations

### Northern Region

<u>Map ID</u>	<u>Site Name</u>
1	Lake Iola
2	Hancock Lake
3	Lake Pasadena
4	Big Fish Lake
5	Crews Lake
6	Lake Lindsey
7	Moon Lake
8	Hunters Lake
9	Tsala Apopka at Floral City
10	Lake Miona
11	Pana Vista Outlet River
12	Outlet River at Panacoochee
13	Tsala Apopka at Inverness
14	Spring Lake
15	Tsala Apopka at Hernando
16	Little Lake (Consuella)
17	Lake Panasoffkee

### Tampa Bay Region

<u>Map ID</u>	<u>Site Name</u>	<u>Map ID</u>	<u>Site Name</u>
18	Mud (Walden) Lake	40	Lake Brooker
19	Gornto Lake	41	Cooper Lake
20	Carlton Lake	42	Lake Thomas
21	Lake Wimauma	43	Brant Lake
22	King Lake near San Antonio	44	Turkey Ford Lake
23	Lake Linda	45	Church Lake
24	Lake Padgett	46	Horse Lake
25	Keene Lake	47	Lake Alice
26	Egypt Lake	48	Lake Calm
27	Long Pond	49	Keystone Lake
28	Lake Stemper	50	Crescent Lake
29	Camp Lake		
30	Lake Ann (Parker)		
31	Lake Hiawatha		
32	Platt Lake		
33	Lake Carroll		
34	Bay Lake		
35	Lake LeClare		
36	Little Lake		
37	Rainbow Lake		
38	Lake Harvey		
39	Deer Lake		

## Selected Lake Monitoring Stations

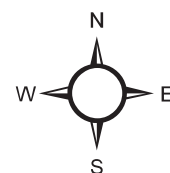
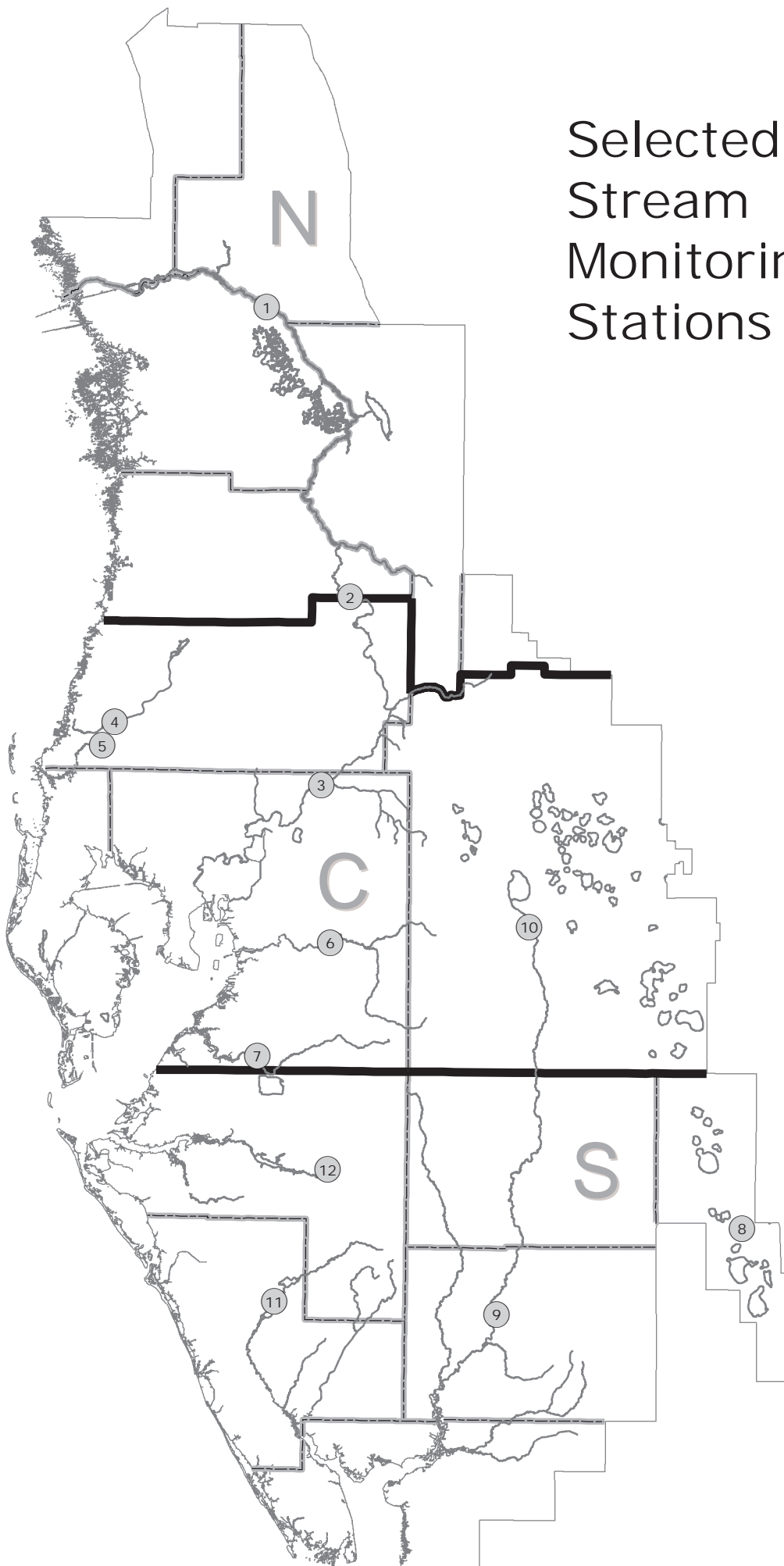
### Lake Wales Ridge Region

<u>Map ID</u>	<u>Site Name</u>
51	Trout Lake
52	Lake Letta
53	Lake Jackson at Sebring
54	Crooked Lake near Babson Park
55	Lake Starr
56	Lake Annie
57	Lake Placid
58	Lake Clay
59	Lake Lotela

### Polk Uplands Region

<u>Map ID</u>	<u>Site Name</u>
60	Lake Helene
61	Lake Gibson
62	Lake Ariana
63	Lake Arietta
64	Lake Juliana
65	Clearwater Lake
66	Blue Lake South
67	Lake McLeod
68	Eagle Lake
69	Lake Buffum
70	Lake Garfield
71	Lake Howard
72	Lake Bonny
73	Lake Alfred
74	Lake Ruby
75	Lake Hamilton
76	Lake Otis
77	Lake Fannie
78	Lake Conine

# Selected Stream Monitoring Stations



## Selected Stream Monitoring Stations

<u>Map ID</u>	<u>Site Name</u>
1	Withlacoochee River near Holder
2	Withlacoochee River at Trilby
3	Hillsborough River near Zephyrhills
4	Pithlachascotee River near New Port Richey
5	Anclote River near Elfers
6	Alafia River at Lithia
7	Little Manatee River near Wimauma
8	Josephine Creek near DeSoto City
9	Peace River at Arcadia
10	Peace River at Bartow
11	Myakka River near Sarasota
12	Manatee River near Myakka Head

## **STREAM MONITORING STATIONS**

### **WITHLACOOCHEE RIVER (Northern Region)**

Total length: 157 miles  
Headwaters: NW Polk and southern Sumter Counties  
Elevation: 135 feet  
Tributaries: Little Withlacoochee, Big Gant Canal, Jumper Creek, Shady Brook, Outlet River of Lake Panasoffkee, Leslie Heifner Canal, Orange State Canal, Tsala Apopka Outfall Canal and Rainbow Springs.  
Mouth: Gulf of Mexico, Citrus County  
Average fall: 0.9 feet/mile  
Drainage area: 2000 square miles

#### **Holder Station**

County: Marion  
Period-of-record: 1928  
Location: 38 miles upstream from mouth  
Avg daily discharge: 1036.3 cfs  
Runoff per year: 10.36 inches  
Max of monthly avg discharge: 7096.3 cfs in 04/1960  
Min of monthly avg discharge: 111.8 cfs in 07/1992  
Drainage area: 1825 square miles

#### **Trilby Station**

County: Hernando  
Period-of-record: 1928  
Location: 93 miles upstream from mouth  
Avg daily discharge: 336.3 cfs  
Runoff per year: 6.73 inches  
Max of monthly avg discharge: 4254.7 cfs in 09/1933  
Min of monthly avg discharge: 6.1 cfs in 07/1992  
Drainage area: 570 square miles

### **ANCLOTE RIVER (Central Region)**

Total length: 27.5 miles  
Headwaters: South-central Pasco County, west of Land O Lakes  
Elevation: 65 feet  
Tributaries: South Branch and Hollin Creek  
Mouth: Gulf of Mexico, Pasco County  
Average fall: 2.4 feet/mile  
Drainage area: 113 square miles

#### **Elfers Station**

County: Pasco  
Period-of-record: 1946  
Location: 16 miles upstream from mouth  
Avg daily discharge: 65.1 cfs  
Runoff per year: 12.20 inches  
Max of monthly avg discharge: 633.8 cfs in 09/1988  
Min of monthly avg discharge: 1.4 cfs in 05/1981  
Drainage area: 72.5 square miles

**HILLSBOROUGH RIVER (Central Region)**

Total length: 55 miles  
Headwaters: Southeast Pasco County  
Elevation: 77 feet  
Tributaries: Crystal Springs, Blackwater Creek, Flint Creek, Trout Creek, Cypress Creek, Curiosity Creek and Sulphur Springs  
Mouth: Hillsborough Bay  
Average fall: 1.4 feet/mile  
Drainage area: 690 square miles

**Zephyrhills Station**

County: Hillsborough  
Period-of-record: 1939  
Location: 40 miles upstream from mouth  
Avg daily discharge: 244.2 cfs  
Runoff per year: 15.05 inches  
Max of monthly avg discharge: 2284.5 cfs in 12/1997  
Min of monthly avg discharge: 47.1 cfs in 05/1994  
Drainage area: 200 square miles

**PITHLACHASCOTEE RIVER (Central Region)**

Total length: 41 miles  
Headwaters: Crews Lake and Masaryktown area in central Pasco and southern Hernando Counties  
Elevation: 120 feet  
Mouth: Gulf of Mexico  
Average fall: 2.9 feet/mile  
Drainage area: 191 square miles

**New Port Richey Station:**

County: Pasco  
Period-of-record: 1963  
Location: 10.5 miles upstream from mouth  
Avg daily discharge: 27.9 cfs  
Runoff per year: 2.11 inches  
Max of monthly avg discharge: 329.4 cfs in 09/1988  
Min of monthly avg discharge: 0.0 cfs  
Drainage area: 180 square miles

**ALAFIA RIVER (Central Region)**

Total length: 24 miles  
Headwaters: Western Polk and eastern Hillsborough Counties  
Tributaries: North and South Prongs, Lithia Springs, and Buckhorn Creek.  
Elevation: 30 feet  
Mouth: Tampa Bay  
Average fall: 1.5 feet/mile  
Drainage area: 420 square miles

**Lithia Station:**

County: Hillsborough  
Period-of-record: 1932  
Location: 16 miles upstream from mouth  
Avg daily discharge: 339.7 cfs  
Runoff per year: 13.59 inches  
Max of monthly avg discharge: 4185.4 cfs in 09/1933  
Min of monthly avg discharge: 13.0 cfs in 05/1945  
Drainage area: 335 square miles

**LITTLE MANATEE RIVER (Central Region)**

Total length: 39 miles  
Headwaters: Southeast Hillsborough County  
Tributaries: Carlton Branch, the South Fork, Dug Creek and Cypress Creek.  
Elevation: 130 feet  
Mouth: Tampa Bay  
Average fall: 3.4 feet/mile  
Drainage area: 225 square miles

**Wimauma Station:**

County: Hillsborough  
Period-of-record: 1939  
Location: 15 miles upstream from mouth  
Avg daily discharge: 171.4 cfs  
Runoff per year: 15.68 inches  
Max of monthly avg discharge: 1443.7 cfs in 07/1945  
Min of monthly avg discharge: 3.8 cfs in 05/45  
Drainage area: 149 square miles

**JOSEPHINE CREEK (Southern Region)**

Total length: 12 miles  
Headwaters: Lake Josephine in central Highlands County  
Elevation: 80 feet  
Mouth: Lake Istokpoga in Highlands County  
Average fall: 3.5 feet/mile  
Drainage area: 143 square miles

**DeSoto City Station:**

County: Highlands  
Period-of-record: 1946  
Location: 4.9 miles upstream of mouth  
Avg daily discharge: 74.2 cfs  
Runoff per year: 8.90 inches  
Max of monthly avg discharge: 769.9 cfs in 09/1960  
Min of monthly avg discharge: 1.1 cfs in 05/56  
Drainage area: 109 square miles

**MANATEE RIVER (Southern Region)**

Total length: 45 miles  
Headwaters: Four corners area Hillsborough, Polk, Hardee and manatee Counties.  
Elevation: 130 feet  
Mouth: Tampa Bay  
Average fall: 2.9 feet/mile  
Drainage area: 330 square miles

**Myakka Head Station:**

County: Manatee  
Period-of-record: 1966  
Location: 36 miles upstream from mouth  
Avg daily discharge: 69.6 cfs  
Runoff per year: 14.62 inches  
Max of monthly avg discharge: 529.7 cfs in 09/1994  
Min of monthly avg discharge: 0.5 cfs in 04/75  
Drainage area: 65.3 square miles

**MYAKKA RIVER (Southern Region)**

Total length: 54.1 miles  
Headwaters: Western Hardee and Eastern Manatee Counties  
Tributaries: Howard Creek, Deer Prairie, and Big Slough Canal  
Elevation: 105 feet  
Mouth: Charlotte Harbor  
Average fall: 1.9 feet/mile  
Drainage area: 540 square miles

**Sarasota Station:**

County: Sarasota  
Period-of-record: 1936  
Location: 36 miles upstream from mouth  
Avg daily discharge: 250.5 cfs  
Runoff per year: 15.03 inches  
Max of monthly avg discharge: 2467.2 cfs in 09/1947  
Min of monthly avg discharge: 0.0 cfs numerous times  
Drainage area: 229 square miles

**PEACE RIVER (Central and Southern Region)**

Total length: 120 miles  
Headwaters: Green Swamp in northern Polk County through Lake Hancock, Winter Haven chain of lakes, and Lake Hamilton.  
Tributaries: Peace Creek Canal, Saddle Creek, Charlie Creek, Prairie Creek, Horse Creek, Joshua Creek and Shell Creek. Elevation: 110 feet  
Mouth: Charlotte Harbor  
Average fall: 1 feet/mile  
Drainage area: 2300 square miles

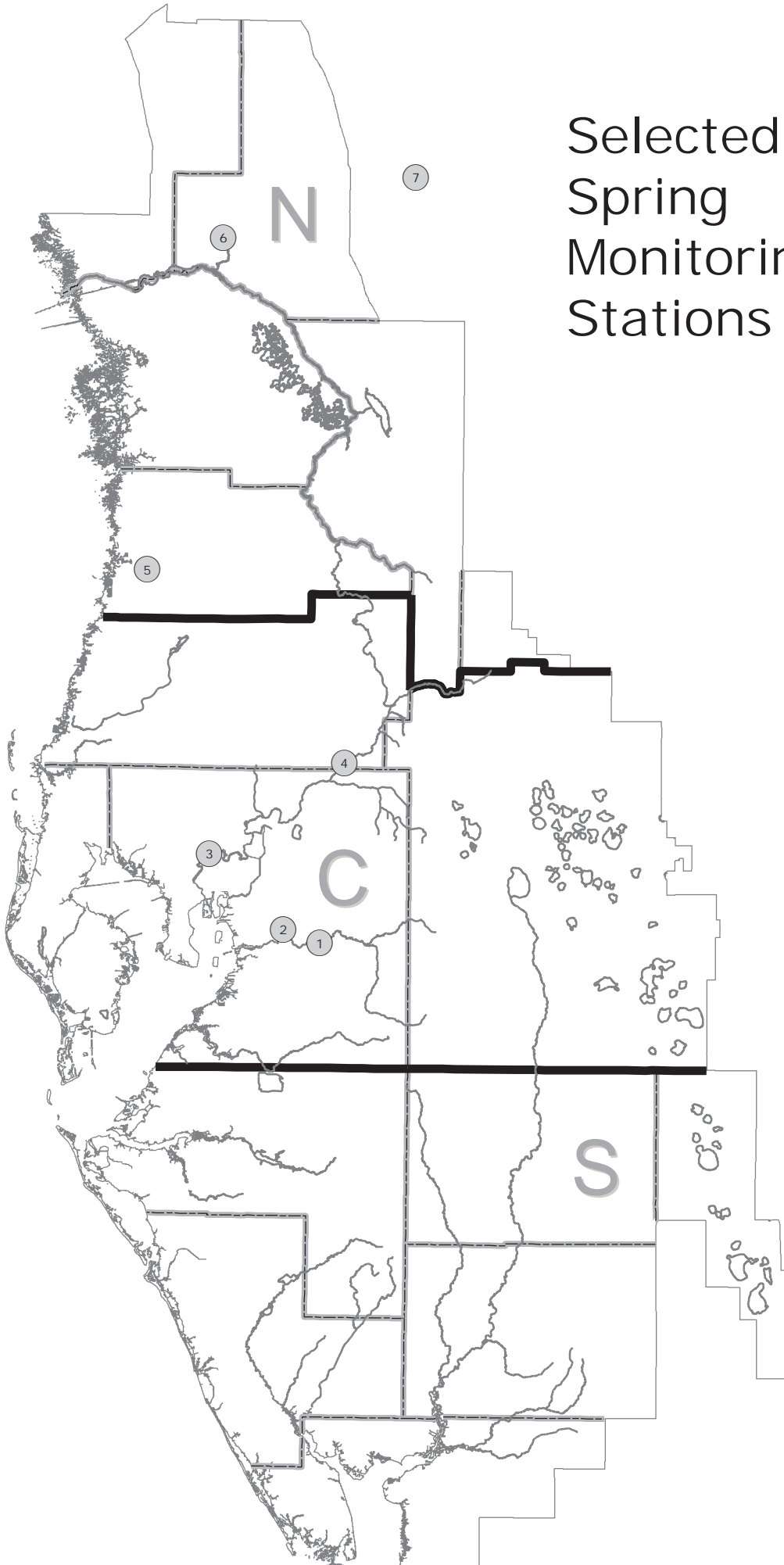
**Arcadia Station (Southern Region):**

County: Desoto  
Period-of-record: 1931  
Location: 36 miles upstream from mouth  
Avg daily discharge: 1078.9 cfs  
Runoff per year: 10.79 inches  
Max of monthly avg discharge: 9876.0 cfs in 09/1933  
Min of monthly avg discharge: 51.6 cfs 05/85  
Drainage area: 1367 square miles

**Bartow Station (Central Region):**

County: Polk  
Period-of-record: 1939  
Location: 105 miles upstream from mouth  
Avg daily discharge: 224.1 cfs  
Runoff per year: 6.72 inches  
Max of monthly avg discharge: 2261.5 cfs in 09/1960  
Min of monthly avg discharge: 6.4 cfs 05/90  
Drainage area: 390 square miles

# Selected Spring Monitoring Stations



## Selected Spring Monitoring Stations

<u>Map ID</u>	<u>Site Name</u>
1	Lithia Main Spring
2	Buckhorn Main Spring
3	Sulphur Springs at Sulphur Springs
4	Crystal Springs near Zephyrhills
5	Weeki Wachee River near Brooksville
6	Rainbow Springs near Dunnellon
7	Silver Springs near Ocala

## **SPRINGS MONITORING STATIONS**

### **RAINBOW SPRINGS (Northern Region)**

County:	Marion
Basin:	Withlacoochee River
Magnitude:	1 <sup>st</sup>
Discharge measurement location:	5 mi downstream from head of springs
Discharge contributes to:	Rainbow River, Withlacoochee River
Public Access:	Yes
Period-of-record:	1965
Gage:	Non-recording gage
Maximum daily mean:	1061 cfs in 09/1988
Minimum daily mean:	489 cfs in 06/2000

### **SILVER SPRINGS (Northern Region)**

County:	Marion
Basin:	Ocklawaha River
Magnitude:	1 <sup>st</sup>
Discharge measurement location:	4 to 5 mi downstream from head of springs
Discharge contributes to:	Silver Springs River, Ocklawaha River, St. Johns River
Public Access:	Yes
Period-of-record:	1932
Gage:	Water-stage recorder
Maximum daily mean:	1290 cfs in 10/1960
Minimum daily mean:	432 cfs in 07/2000

### **WEEKI WACHEE SPRINGS (Northern Region)**

County:	Hernando
Basin:	Coastal Rivers
Magnitude:	1 <sup>st</sup>
Discharge measurement location:	1 mi downstream from head of springs
Discharge contributes to:	Weeki Wachee River
Public Access:	Yes
Period-of-record:	1993
Gage:	Water-stage
Maximum daily mean:	229 cfs in 03/1998
Minimum daily mean:	101 cfs in 06/1994

### **CRYSTAL SPRINGS (Central Region)**

County:	Pasco
Basin:	Hillsborough River
Magnitude:	2 <sup>nd</sup>
Discharge measurement location:	Difference between discharge measurements of Hillsborough River made upstream from and downstream from Crystal Springs
Discharge contributes to:	Hillsborough River
Public Access:	No
Period-of-record:	1923
Gage:	Non-recording gage
Maximum daily mean:	147 cfs in 07/1941
Minimum daily mean:	22 cfs in 08/1986

**SULPHUR SPRINGS (Central Region)**

County:	Hillsborough
Basin:	Hillsborough River
Magnitude:	2 <sup>nd</sup>
Discharge measurement location:	300 ft downstream from gage
Discharge contributes to:	Hillsborough River
Public Access:	Yes
Period-of-record:	1956
Gage:	Water-stage recorder
Maximum daily mean:	145 cfs in 03/1960
Minimum daily mean:	0 cfs for various days throughout the period-of-record

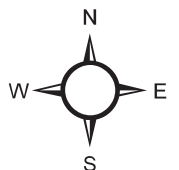
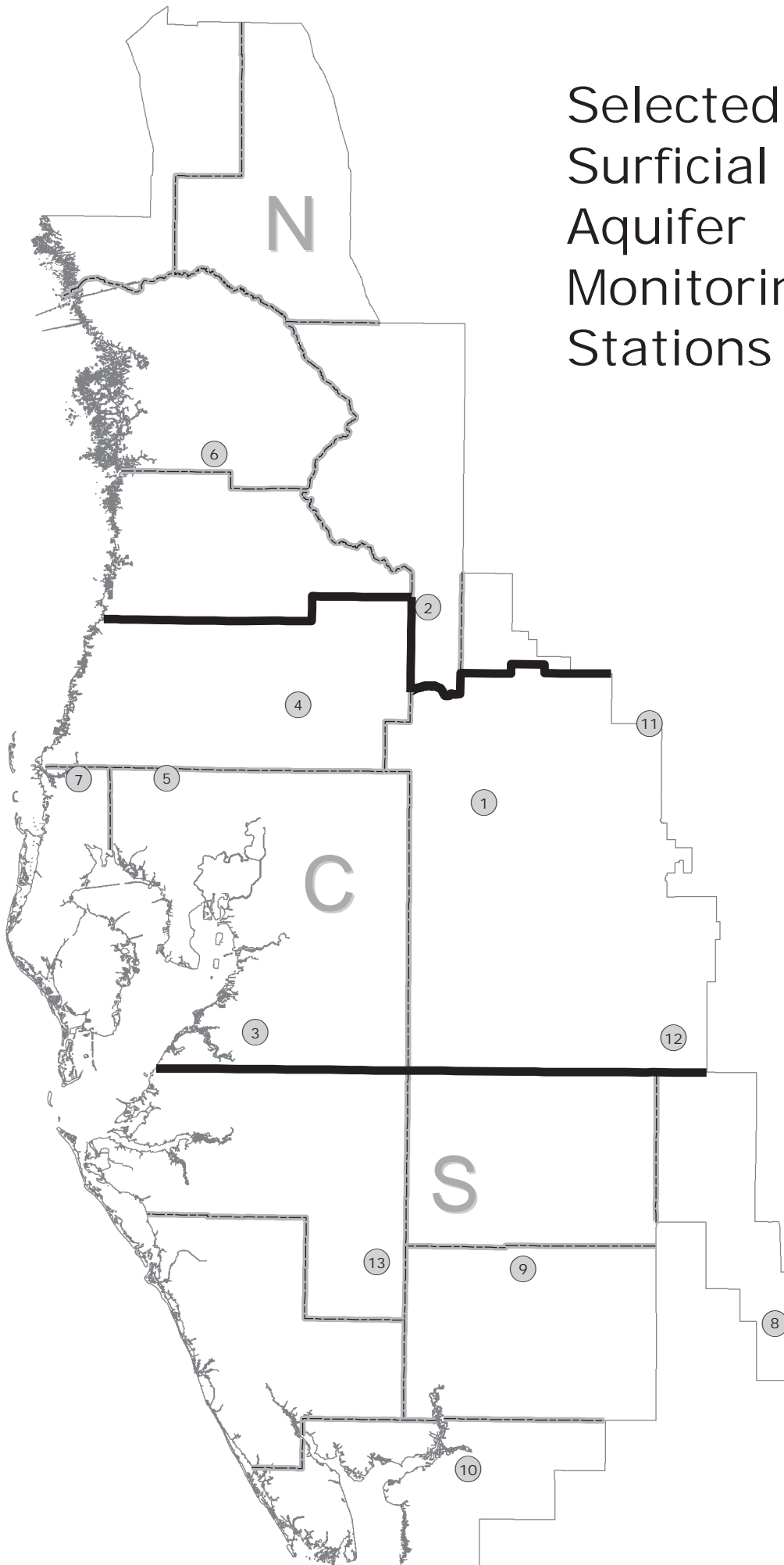
**BUCKHORN SPRINGS (Central Region)**

County:	Hillsborough
Basin:	Alafia River
Magnitude:	2 <sup>nd</sup>
Discharge measurement location:	Difference between discharge measurements of Buckhorn Creek made 25 ft upstream from and 100 ft downstream from Buckhorn Springs
Discharge contributes to:	Buckhorn Creek, Alafia River
Public Access:	No
Period-of-record:	1987
Gage:	Water-stage recorder
Maximum daily mean:	21.9 cfs in 02/1989
Minimum daily mean:	2.7 cfs in 06/1987

**LITHIA SPRINGS: (Central Region)**

County:	Hillsborough
Basin:	Alafia River
Magnitude:	2 <sup>nd</sup>
Discharge measurement location:	50 feet downstream from main pool
Discharge contributes to:	Alafia River
Public Access:	Yes
Period-of-record:	1934
Gage:	Water-stage recorder
Maximum daily mean:	83.4 cfs in 10/1967
Minimum daily mean:	6.3 cfs in 02/1989

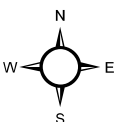
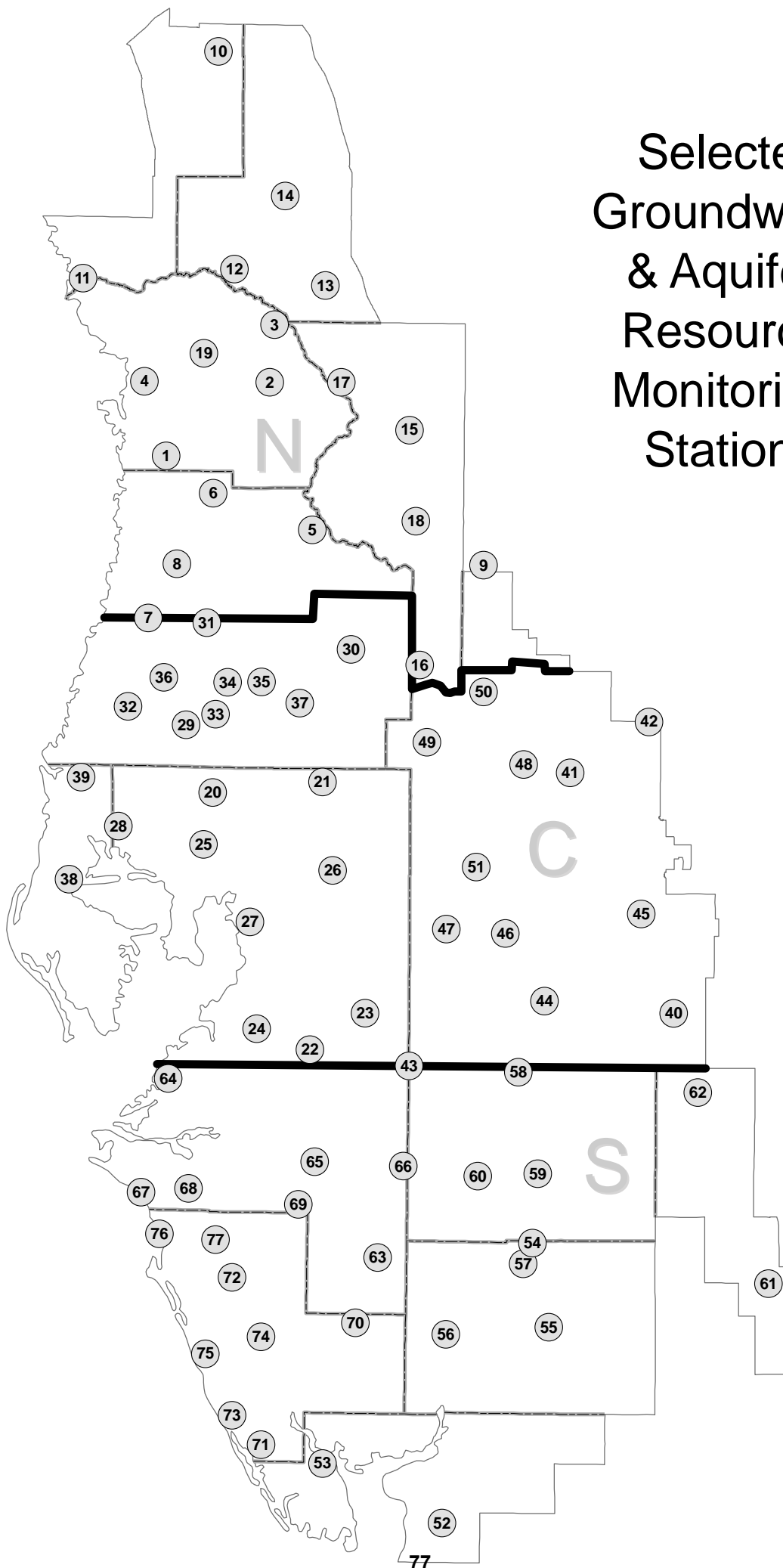
# Selected Surficial Aquifer Monitoring Stations



## Selected Surficial Aquifer Monitoring Stations

<u>Map ID</u>	<u>Site Name</u>
1	State Road 33/Combee Road Shallow
2	Green Swamp L12B Shallow
3	ROMP 50 Surficial
4	State Road 577 Shallow
5	Lutz-Lake Fern Shallow
6	Lecanto 2 Shallow
7	Tarpon Road Shallow
<del>8</del>	<del>Bairs Den Surficial</del>
9	ROMP 26 Surficial
10	State Road 74 (77-Foot) Shallow
11	Loughman Shallow
12	USGS P-48 Shallow
13	Edgeville 4 Shallow

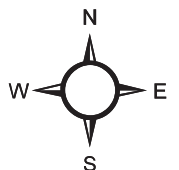
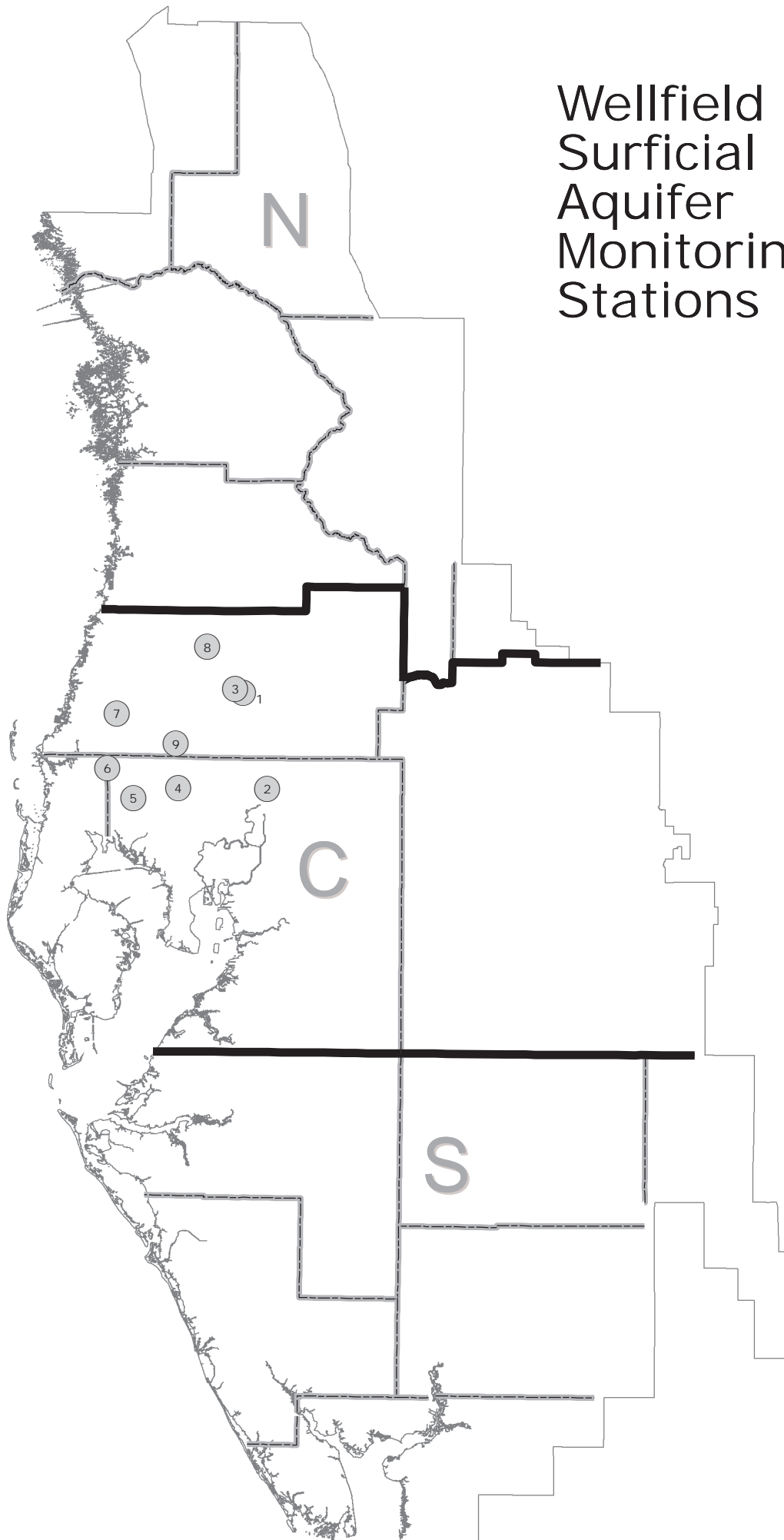
# Selected Groundwater & Aquifer Resource Monitoring Stations



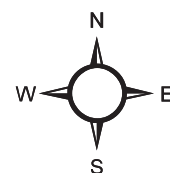
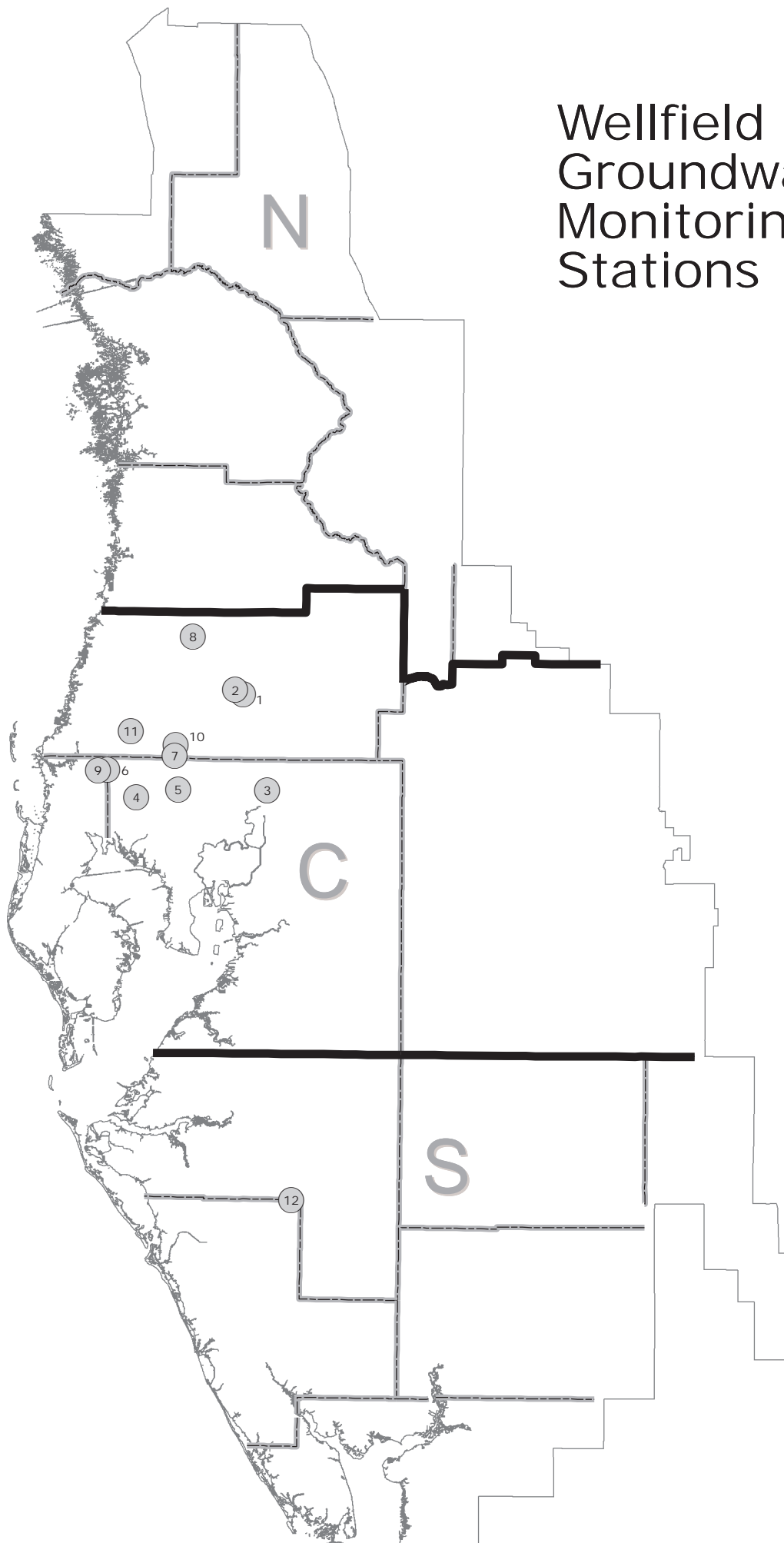
## Select Groundwater & Aquifer Resource Monitoring Stations

<u>Map ID</u>	<u>Site Name</u>	<u>Map ID</u>	<u>Site Name</u>
1	Chassahowitzka 1 Deep	42	Loughman Deep
2	Inverness Dot Fldn	43	ROMP 40 Suwannee/Avon Park
3	ROMP 116 Avon Park	44	ROMP 45 Avon Park
4	ROMP TR 21-2 Ocala/Avpk	45	ROMP 58 Ocala
5	ROMP 103 Suwannee/Ocala	46	ROMP 59 Suwannee/Avon Park
6	ROMP 107 Ocala/Avon Park	47	ROMP 60 Ocala/Avon Park
7	ROMP 97 Avon Park	48	ROMP 76 U Fldn
8	Weeki Wachee Deep Repl	49	ROMP 87 Avon Park
9	Mascotte Deep	50	ROMP 88 Avon Park
10	ROMP 134 Ocala/Avon Park	51	Sanlon Ranch Fldn
11	ROMP TR 124 Avon Park	52	ROMP TR 1-2 Up Fldn
12	CE 14 Dunnellon Deep	53	ROMP TR 3-1 Up Fldn
13	ROMP 119 Avon Park	54	Marshall Deep
14	ROMP 120 Avon Park	55	ROMP 16 Ocala
15	ROMP 111 Ocala/Avon Park	56	ROMP 17 Up Fldn
16	ROMP 89 Ocala	57	ROMP 26 Suwannee/Tampa
17	Sumter 13 JC 59 Up Fldn	58	Cargill FA-1 Fldn
18	Webster City Fldn	59	ROMP 30 Suwannee/Avon Park
19	North Locanto Deep	60	ROMP 31 Suwannee/Avon Park
20	Debuel Road Deep	61	ROMP 28X Suwannee/Avon Park
21	Hills State Pk Parking Deep	62	ROMP 43XX Avon Park
22	ROMP 123 Hawthorn/Ocala	63	Edgeville 3 Deep
23	ROMP 48 Tampa/Suwannee	64	Florida Pwr @ Piney Point
24	ROMP 50 Avon Park	65	Kibler Deep
25	ROMP 66 Tampa	66	ROMP 32 Low Ocala/Avpk
26	ROMP DV-1 Suwannee	67	ROMP TR 7-1 Tampa
27	ROMP TR 10-2 Tampa	68	ROMP TR 7-4 Swnn/Ocala
28	ROMP TR 13-3 Avon Park	69	Verna T 0-1
29	Bexley 2 Fldn	70	Big Slough Deep
30	Lykes Pasco Fldn	71	Englewood 14 Deep
31	Masaryktown Deep	72	Florida Cities Test 1
32	Moon Lake Deep	73	Manasota 14 Deep
33	Pasco 13 nr Drexel Fldn	74	ROMP 19 West UFA Swnn
34	ROMP 93 Suwannee/Avon Park	75	ROMP TR 5-1 Suwannee
35	SR 52 And CR581 Deep	76	Sarasota 11TH St Deep
36	SR 52 Deep W nr Fivay Jct	77	Sarasota Office Up Floridan
37	SR 577 Deep		
38	Pinellas 665 Fldn		
39	Tarpon Rd Deep		
40	Coley Deep		
41	Lk Alfred Deep nr Lake Alfred		

# Wellfield Surficial Aquifer Monitoring Stations



# Wellfield Groundwater Monitoring Stations



## Wellfield Groundwater Monitoring Stations

<u>Map ID</u>	<u>Site Name</u>
1	Cypress Creek TMR-1 Deep
2	Cypress Creek TMR-3 Deep
3	Morris Bridge 3A Floridan
4	Cosme 3 Floridan
5	St. Pete Hillsboro 13 Deep
6	Eldridge-Wilde 11 Floridan
7	St. Pete 42 Deep
8	Cross Bar WRW Floridan
9	Eldridge-Wilde 2S Deep
10	State Road 54 Deep
11	Starkey Regional Floridan
12	Verna 08 Deep

## Wellfield Surficial Aquifer Monitoring Stations

<u>Map ID</u>	<u>Site Name</u>
1	Cypress Creek TMR-1 Shallow
2	Morris Bridge 3A Surficial
3	Cypress Creek TMR-3 Shallow
4	St. Pete Hillsboro 13 Shallow
5	St. Pete IC-6 Shallow
6	Eldridge-Wilde 11 Surficial
7	Starkey 707 Shallow
8	Cross Bar SERW Shallow
9	State Road 54 Shallow

# Reservoir Locations

