

Hydrologic Conditions

for the month of

November 2013

Prepared by the
Hydrologic Data Section
Data Collection Bureau



December 17, 2013

<http://www.watermatters.org>

ACKNOWLEDGMENTS

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Data Collection: Terry Burrell, Dave Dunnett, Don Everson, George Prine, Steve Saxon, James Ferrell, Jeff Taylor, Greg Johnston, Everett Eldridge and Robert Noland.

SCADA System: Mike Katherina.

QA/QC and Reporting: Margit Crowell, Pam Green, Ken Romie, Steve DeSmith, and Patrick Casey.

Administrative Support/
Document Preparation: Karen Diez, Roxanne Frey, and Dianna Brass.

TABLE OF CONTENTS

Introduction	1
Executive Summary – Provisional.....	2
Executive Summary	3
Regional Overview	4
Rainfall	5 - 12
Surface Water	
Lakes.....	13 - 20
Streams.....	21 - 25
Springs.....	26 - 29
Ground Water	
Surficial Aquifer	30 - 32
Intermediate and Floridan Aquifers	33 - 42
Public Supply Wellfields	43 - 44
Aquifer Resource.....	45 - 46
Water Demand	
Public Supply Surface Water Reservoirs.....	47 - 48
Reservoirs.....	49 - 54
Appendices	
Rainfall Percentiles by Intervals & Region.....	55 - 56
Rainfall Grid (NEXRAD).....	57
Lake Monitoring Stations.....	58 - 63
Stream Monitoring Stations.....	64 - 65
Description of Stream Monitoring Stations	66 - 69
Springs Monitoring Stations	70 - 71
Description of Springs Monitoring Stations.....	72 - 73
Surficial Aquifer Monitoring Stations.....	74 - 75
Groundwater & Aquifer Resource Monitoring Stations.....	76 - 77
Wellfield Groundwater Monitoring Stations	78 - 80
Reservoir Locations.....	81

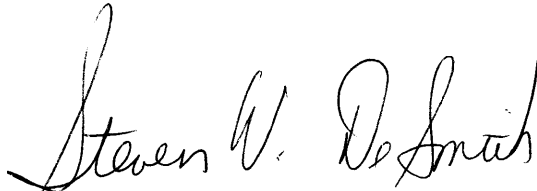
INTRODUCTION

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.

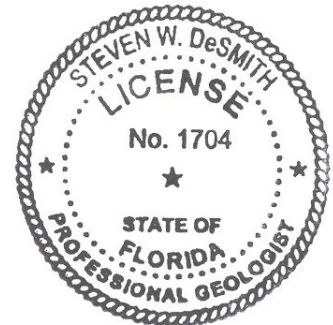
The data presented in this report are monthly rainfall totals, streamflow, springflow, surface and ground water levels, reservoir levels and the Aquifer Resource Index. Associated maps of station locations are at the end of the report in the Appendices. Also reported herein are levels of public supply 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.



12/12/2013

Registration #PG-1704



Americans with Disabilities Act (ADA)

The Southwest Florida Water Management District (District) does not discriminate on the basis of disability. This nondiscrimination policy involves every aspect of the District's functions, including access to and participation in the District's programs and activities. Anyone requiring reasonable accommodation as provided for in the Americans with Disabilities Act should contact the District's Human Resources Director, 2379 Broad Street, Brooksville, Florida 34604-6899; telephone (352) 796-7211, ext. 4702 or 1-800-423-1476 (FL only), ext. 4702; TDD (FL only) 1-800-231-6103; or email to ADACoordinator@swfwmd.state.fl.us.

EXECUTIVE SUMMARY

Provisional Hydrologic Conditions as of December 12, 2013

Provisional rainfall totals are provided for the period of December 1, 2013 through December 11, 2013. The northern region has received an average of 0.09 inch, while the historic mean for the northern region for the month of December is 2.59 inches. The central region has received an average of 0.01 inch, while the historic mean for the central region for December is 2.33 inches. The southern region has received an average of 0.06 inch, while the historic mean for the southern region for December is 1.85 inches. District-wide, rainfall averaged 0.05 inch, while the historic mean for the District for December is 2.25 inches.

Provisional lake level data indicate that during the first 12 days of December, regional water levels have decreased in all regions of the District. Average lake levels in the Northern region decreased an average of 0.07 foot and were 1.16 feet below the base of the normal range. Average lake levels in the Tampa Bay region decreased 0.10 foot and were 1.23 feet above the base of the normal range. Lake levels in the Polk Uplands region decreased 0.05 foot and were 0.54 foot below the base of the normal range. The Lake Wales Ridge region posted an average decrease of 0.13 foot and was 1.39 feet below the base of the normal range.

As of December 9, 2013, provisional streamflow data indicates 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 25th and 75th percentiles. The average streamflow for the Withlacoochee River near Holder in the northern region was in the normal range at the 28th percentile. The average streamflow for the Hillsborough River near Zephyrhills in the central region was normal at the 47th percentile, while flow in the Peace River at Arcadia in the southern region was normal at the 36th percentile.

Provisional groundwater data, as of December 9, 2013, indicate that levels in the intermediate and Floridan aquifers remained the same in the northern region, decreased in the central region, while they increased in the southern region, compared to last month's data. Aquifer levels were in the normal range in all three regions. The normal range is defined as levels that fall on or between the 25th and 75th percentiles. The groundwater level in the northern region was at the 56th percentile, while levels in the central and southern regions were at the 67th and 44th percentile, respectively.

EXECUTIVE SUMMARY

Hydrologic Conditions for November 2013

In November, average rainfall totals were above-normal in the northern region of the District, while they were within the normal range in the central and southern regions. The normal range for rainfall is defined by totals that fall on or between the 25th to 75th percentiles of the historical monthly accumulation for each region and where the 50th percentile represents the historical mean. The northern region received an average of 3.41 inches of rainfall, equivalent to the 84th percentile of the historical November record. The central region received an average of 1.76 inches of rainfall, equivalent to the 62nd percentile, while the southern region received an average of 1.08 inches of rainfall, equivalent to the 41st percentile of the historical November record. The District-wide rainfall average of 1.98 inches was equivalent to the 64th percentile of the historical November record.

During the 12-month period from December 1, 2012 through November 30, 2013, the average rainfall totals in the northern, central and southern regions were classified as “normal.” The northern region received an average of 50.16 inches of rainfall, equivalent to the 34th percentile of the historical annual record. The central region received an average of 49.28 inches of rainfall, equivalent to the 39th percentile, while the southern region received an average of 54.54 inches of rainfall, equivalent to the 62nd percentile. The District-wide rainfall average of 51.34 inches was equivalent to the 44th percentile of the historical annual record.

Average lake levels in November were below the annual normal range in the Northern, Polk Uplands and Lake Wales Ridge regions of the District, while they were within the annual normal range in the Tampa Bay 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 0.17 foot and were 1.09 feet below the base of the annual normal range. Lake levels in the Tampa Bay region decreased an average of 0.06 foot and were 1.33 feet above the base of the annual normal range. Lake levels in the Polk Uplands region decreased 0.18 foot and were 0.49 foot below the base of the annual normal range. Average lake levels in the Lake Wales Ridge region decreased 0.25 foot and ended the month 1.26 feet below the base of the annual normal range.

Total streamflow in regional index streams was within the normal range in all three regions of the District, in November. Normal streamflow is defined as the flow that falls on or between the 25th and 75th percentiles. Streamflow measured at the Withlacoochee River near Holder station in the northern region was in the 34th percentile. Streamflow in the Hillsborough River near Zephyrhills station in the central region was in the 54th percentile, while total streamflow measured at the Peace River at Arcadia station in the southern region was in the 42nd percentile during November.

In November, groundwater data showed that levels in the intermediate and Floridan aquifers were in the normal range in all three regions of the District. The normal range is defined as the level that falls on or between the 25th and 75th percentiles. The groundwater level in the northern region was in the 55th percentile, while levels in the central and southern regions were in the 67th and 39th percentiles, respectively.

REGIONAL OVERVIEW OF HYDROLOGIC CONDITIONS

NOVEMBER 2013

Northern Region

In November, the northern region received an average of 3.41 inches of rainfall, equivalent to the 84th percentile of the historical November readings, which is considered "wetter than normal." Average lake levels decreased in the northern region and ended the month an average of 1.09 feet below the base of the annual normal range. Total streamflow measured in the Withlacoochee River near Holder station decreased and was in the 34th percentile. Regional groundwater levels indicated average surficial aquifer water levels decreased and were in the 52nd percentile; while levels in the intermediate and Floridan aquifer decreased and were in the 55th percentile.

Central Region

In November, the central region received an average of 1.76 inches of rainfall, equivalent to the 62nd percentile of historical November readings, which is considered "normal." Average lake levels decreased in the Tampa Bay region, ending the month 1.33 feet above the base of the normal range, while levels decreased in the Polk Uplands region, ending the month 0.49 foot below the base of the annual range. Total streamflow measured at the Hillsborough River near Zephyrhills station decreased and was in the 54th percentile. Regional groundwater levels indicated average surficial aquifer water levels decreased and were in the 61st percentile; while levels in the intermediate and Floridan aquifer decreased and were in the 67th percentile.

Southern Region

In November, the southern region received an average of 1.08 inches of rainfall, equivalent to the 41st percentile of historical November readings, which is considered "normal." Average lake levels decreased in the Lake Wales Ridge region and ended the month 1.26 feet below the base of the annual normal range. Total streamflow measured at the Peace River at Arcadia station decreased and was in the 42nd percentile. Regional groundwater levels indicated average surficial aquifer water levels decreased and were in the 66th percentile; while levels in the intermediate and Floridan aquifer decreased and were in the 39th 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 90th 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 10th (P10), the 25th (P25), the 75th (P75) and the 90th (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 November, rainfall totals were above-normal in the northern region of the District, while they were within the normal range in the central and southern regions. The normal range for rainfall is defined by totals that fall on or between the 25th to 75th percentiles of the historical monthly average for each region and where the 50th percentile represents the historical mean. The northern region received an average of 3.41 inches of rainfall, equivalent to the 84th percentile of the historical November record. The central region received an average of 1.76 inches, equivalent to the 62nd percentile; while the southern region received an average of 1.08 inches, equivalent to the 41st percentile. District-wide, rainfall averaged 1.98 inches, which is equivalent to the 64th percentile of the historical November record.

During the 12-month period from December 1, 2012 through November 30, 2013, the average rainfall totals in all three regions of the District were classified as "normal." The northern region received an average of 50.16 inches of rainfall, equivalent to the 34th percentile of the historical record. The central region received an average of 49.28 inches of rainfall, equivalent to the 39th percentile. The southern region received an average of 54.54 inches of rainfall, equivalent to the 62nd percentile. The District-wide rainfall average was 51.34 inches, which is equivalent to the 44th percentile of the historical annual record.

Tampa Monthly Climate Summary for November 2013

According to the National Weather Service, the monthly average temperature (°F) for Tampa was 70.2 degrees, which was 1.1 degrees above normal. The highest temperature recorded during the month was 86 degrees, while the lowest temperature recorded during the month was 38 degrees.

Temperature and Precipitation Outlook

The Climate Prediction Center's (CPC) three-month weather forecast, as of November 21, 2013, indicates below-normal chances for rainfall for all three regions of the District from December through February. The temperature forecast for this same time-period indicates equal chances for normal, below-normal or above-normal temperatures in all three regions of the District. [Note: Due to the publication date of this report on December 17, 2013, the CPC's December 19, 2013 forecast was unavailable].

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

http://www.cpc.ncep.noaa.gov/products/OUTLOOKS_index.html

RELATIONSHIP OF NOVEMBER 2013 RAINFALL TO HISTORICAL RAINFALL AVERAGES

Regional Summary:

<i>Region</i>	<i>NOV 2013 Average Rainfall</i>	<i>Historical Average for NOV</i>	<i>Departure from Historical Average</i>	<i>Calendar Year 2013 Cumulative Rainfall JAN-NOV</i>	<i>Calendar Year Historical Cumulative Rainfall JAN-NOV</i>	<i>Departure from Historical Cumulative NOV 2013</i>	<i>Cumulative 12-month Rainfall DEC 2012- NOV 2013</i>	<i>Historical 12-month Cumulative Rainfall</i>	<i>Departure from Historical 12-month Cumulative</i>
Northern Counties	3.41	1.93	1.48	47.85	50.90	-3.05	50.16	53.47	-3.31
Central Counties	1.76	1.81	-0.05	47.24	49.87	-2.63	49.28	52.26	-2.98
Southern Counties	1.08	1.76	-0.68	52.25	50.39	1.86	54.54	52.29	2.25
District All Counties	1.98	1.83	0.15	49.14	50.34	-1.20	51.34	52.60	-1.26

Regional Counties Summary:

<i>NORTHERN COUNTIES</i>	<i>NOV 2013 Average Rainfall</i>	<i>Historical Average for NOV</i>	<i>Departure from Historical Average</i>	<i>Calendar Year 2013 Cumulative Rainfall JAN-NOV</i>	<i>Calendar Year Historical Cumulative Rainfall JAN-NOV</i>	<i>Departure from Historical Cumulative NOV 2013</i>	<i>Cumulative 12-month Rainfall DEC 2012- NOV 2013</i>	<i>Historical 12-month Cumulative Rainfall</i>	<i>Departure from Historical 12-month Cumulative</i>
Levy County	4.98	2.09	2.89	50.24	50.79	-0.55	54.08	53.71	0.37
Marion County	4.20	2.05	2.15	49.60	51.47	-1.87	52.61	54.19	-1.58
Citrus County	3.56	1.89	1.67	48.04	51.33	-3.29	49.93	53.94	-4.01
Sumter County	2.47	1.86	0.61	43.48	49.44	-5.96	45.21	51.94	-6.73
Hernando County	2.63	1.92	0.71	49.64	52.39	-2.75	51.37	54.94	-3.57
<i>CENTRAL COUNTIES</i>									
Pasco County	2.43	1.89	0.54	50.84	51.50	-0.66	52.75	53.93	-1.18
Pinellas County	2.16	1.85	0.31	48.71	49.16	-0.45	50.87	51.57	-0.70
Hillsborough County	1.62	1.77	-0.15	47.99	50.20	-2.21	50.10	52.48	-2.38
Polk County	1.46	1.75	-0.29	44.77	49.82	-5.05	46.81	51.91	-5.10
<i>SOUTHERN COUNTIES</i>									
Manatee County	0.95	1.84	-0.89	51.47	51.43	0.04	53.21	53.43	-0.22
Hardee County	1.27	1.67	-0.40	46.30	50.24	-3.94	48.51	52.07	-3.56
Highlands County	1.24	1.71	-0.47	50.98	50.23	0.75	54.54	51.85	2.69
Sarasota County	1.39	1.84	-0.45	55.24	50.63	4.61	57.29	52.55	4.74
DeSoto County	0.82	1.70	-0.88	51.75	50.00	1.75	54.44	51.76	2.68
Charlotte County	0.88	1.68	-0.80	60.00	50.55	9.45	62.11	52.28	9.83

NOVEMBER 2013 RAINFALL CHARACTERIZATION

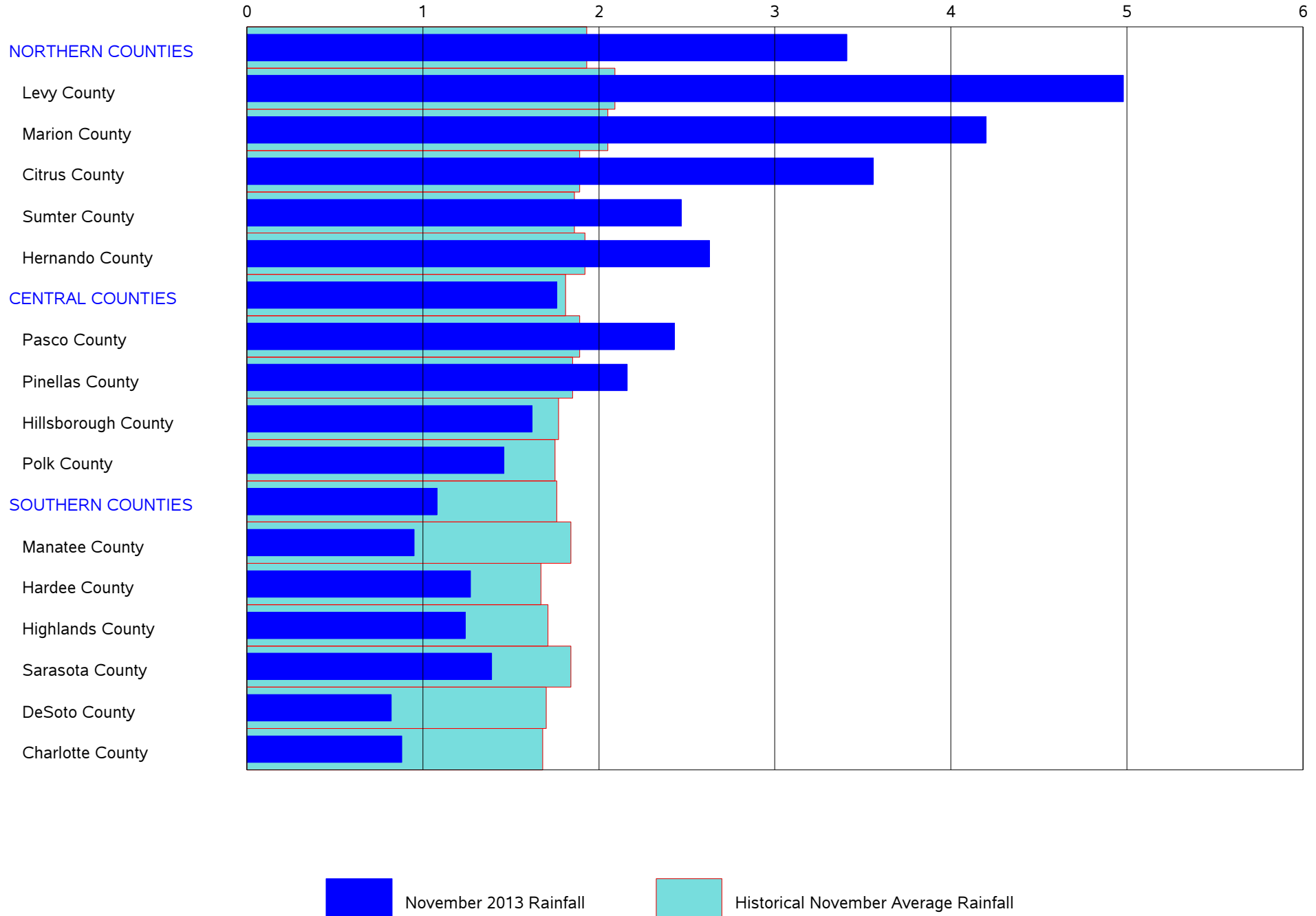
Regional Characterization:

<i>Region</i>	<i>NOV 2013 Average Rainfall</i>	<i>Historical NOV Percentile</i>	<i>NOV Rainfall Characterization</i>	<i>Cumulative 12-month Rainfall DEC 2012- NOV 2013</i>	<i>Historical 12-month Cumulative Percentile</i>	<i>12-month Cumulative Rainfall Characterization</i>
Northern Counties	3.41	84	Wetter than normal	50.16	34	Normal
Central Counties	1.76	62	Normal	49.28	39	Normal
Southern Counties	1.08	41	Normal	54.54	62	Normal
District Counties	1.98	64	Normal	51.34	44	Normal

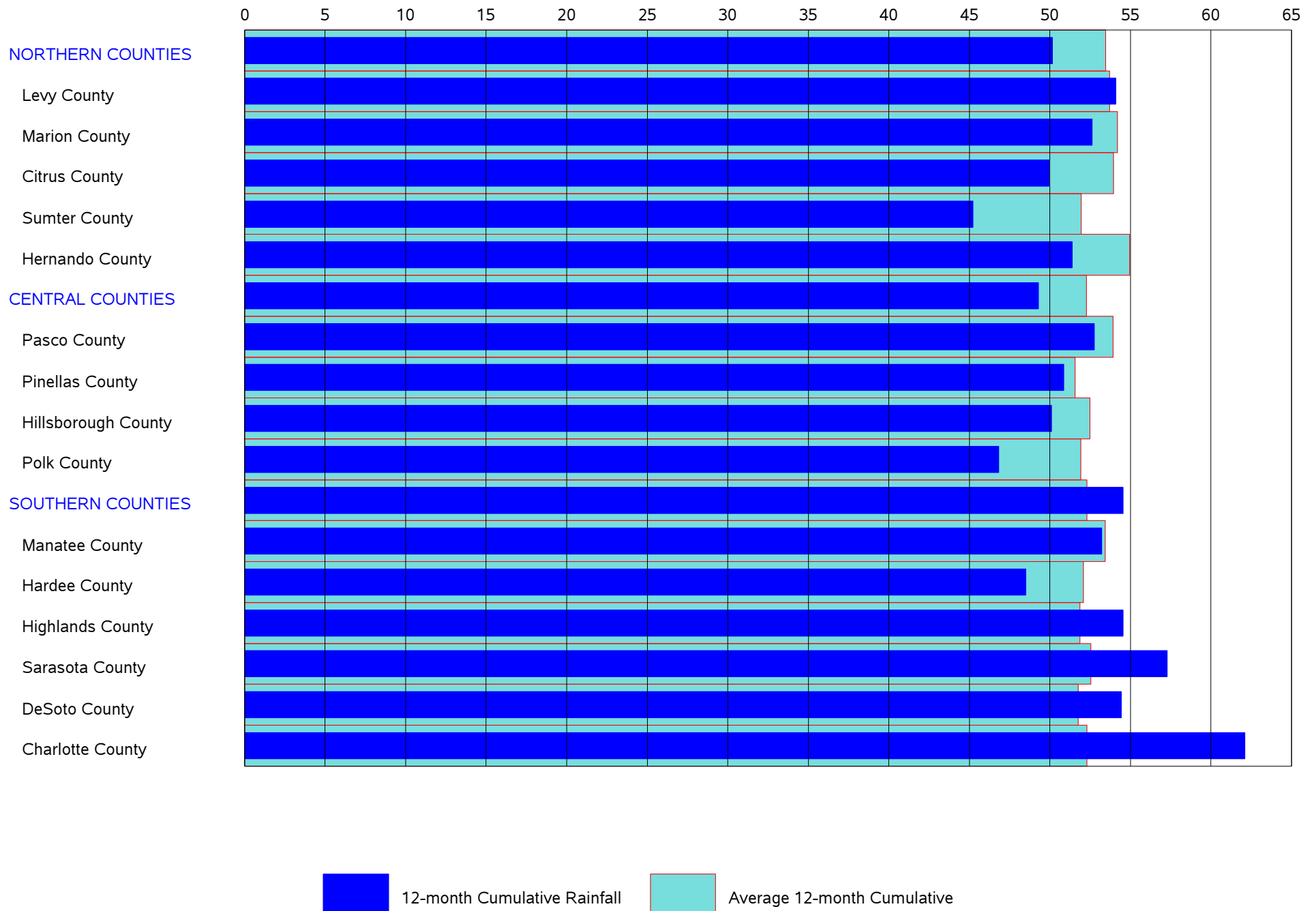
Regional Counties Characterization:

<i>NORTHERN COUNTIES</i>	<i>NOV 2013 Average Rainfall</i>	<i>Historical NOV Percentile</i>	<i>NOV Rainfall Characterization</i>	<i>Cumulative 12-month Rainfall DEC 2012- NOV 2013</i>	<i>Historical 12-month Cumulative Percentile</i>	<i>12-month Cumulative Rainfall Characterization</i>
Levy County	4.98	93	Very wet	54.08	55	Normal
Marion County	4.20	88	Wetter than normal	52.61	42	Normal
Citrus County	3.56	81	Wetter than normal	49.93	33	Normal
Sumter County	2.47	73	Normal	45.21	22	Drier than normal
Hernando County	2.63	77	Wetter than normal	51.37	37	Normal
<i>CENTRAL COUNTIES</i>						
Pasco County	2.43	76	Wetter than normal	52.75	48	Normal
Pinellas County	2.16	71	Normal	50.87	50	Normal
Hillsborough County	1.62	55	Normal	50.10	42	Normal
Polk County	1.46	54	Normal	46.81	30	Normal
<i>SOUTHERN COUNTIES</i>						
Manatee County	0.95	36	Normal	53.21	51	Normal
Hardee County	1.27	53	Normal	48.51	37	Normal
Highlands County	1.24	52	Normal	54.54	63	Normal
Sarasota County	1.39	50	Normal	57.29	71	Normal
DeSoto County	0.82	37	Normal	54.44	61	Normal
Charlotte County	0.88	41	Normal	62.11	86	Wetter than normal

NOVEMBER 2013 RAINFALL HISTORIC AVERAGE VS HISTORICAL NOVEMBER AVERAGE (INCHES)

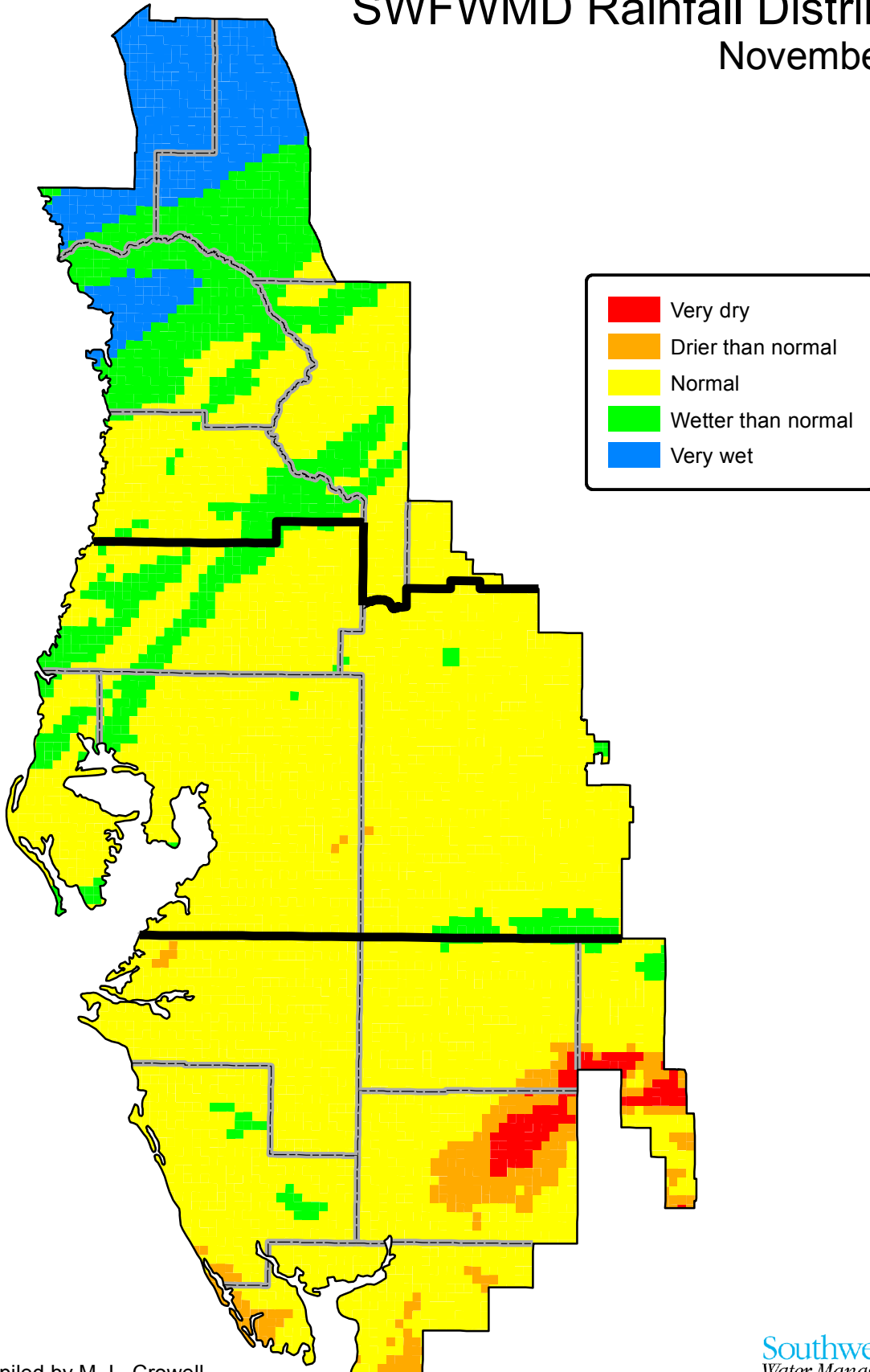


NOVEMBER 2013 12-MONTH CUMULATIVE RAINFALL VS AVERAGE ANNUAL CUMULATIVE (INCHES)



SWFWMD Rainfall Distribution

November 2013

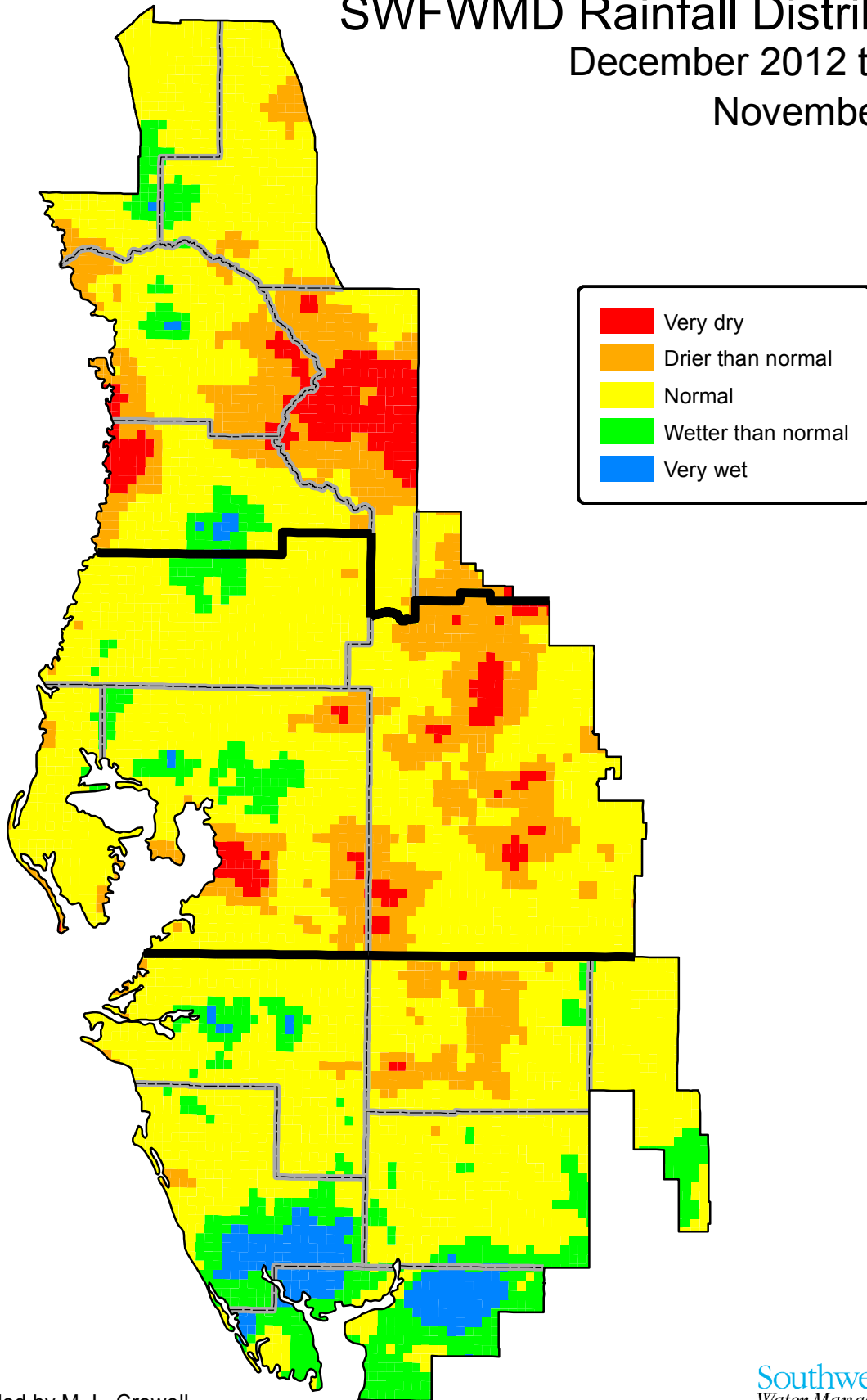


Compiled by M. L. Crowell
Data source: Vieux, Inc.

Southwest Florida
Water Management District

SWFWMD Rainfall Distribution

December 2012 through
November 2013



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

Southwest Florida
Water Management District

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 November, 66 of the 76 lakes monitored for this report recorded water level decreases, eight reported increases, while two reported no change, compared to last month. Water levels decreased in the Northern, Tampa Bay, Polk Uplands and Lake Wales Ridge regions of the District by 0.17, 0.06, 0.18 and 0.25 foot, respectively. District-wide, average water levels decreased by 0.13 foot, compared to last month.

In November, 57 of the 76 lakes monitored for this report recorded water level increases, 17 recorded decreases, while data was unavailable for two lakes, compared to last year's data. In the Northern, Tampa Bay, and Polk Uplands regions, average lake levels were higher by 0.53, 0.38 and 0.16 foot, respectively, compared to last year's levels. In the Lake Wales Ridge region, average lake levels were higher by 1.62 feet, than last year's levels. District-wide, average lake levels were higher by 0.47 foot.

For November, water levels in 52 of the 76 lakes were above the base of the annual normal range. Average lake levels in the Northern, Polk Uplands, and Lake Wales Ridge regions were 1.09 feet, 0.49 foot and 1.26 feet, respectively, below the base of the annual normal range. The Tampa Bay region was 1.33 feet above the base of the normal range. District-wide, average lake levels were 0.09 foot above the base of the annual normal range. Water levels in 63 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	OCT 2013	NOV 2013	NOV 2012	Change from OCT 2013	Change from NOV 2012	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	72.68	72.66	70.64	-0.02	2.02	0.91	71.75	73.05	76.05	65.45	JUN 1997	77.40	SEP 2004
Crews Lake	Pasco	1981	50.30	50.02	51.04	-0.28	-1.02	0.02	50.00	52.00	55.00	42.63	APR 2001	55.40	SEP 1982
Hancock Lake	Pasco	1978	103.08	102.60	100.92	-0.48	1.68	0.60	102.00	104.00	106.50	90.00	MAR 2009	108.90	MAR 1998
Hunters Lake	Hernando	1965	17.26	17.16	17.48	-0.10	-0.32	1.16	16.00	17.50	20.50	11.70	JUN 2001	20.50	MAR 1970
Lake Iola	Pasco	1965	136.95	136.95	133.66	0.00	3.29	-5.55	142.50	145.00	147.50	128.96	MAY 2012	148.70	JAN 1989
Lake Lindsey	Hernando	1965	62.44	62.24	62.46	-0.20	-0.22	-2.26	64.50	66.00	69.00	59.27	MAY 2012	70.14	AUG 1965
Little Lake (Consu	Citrus	1985	39.70	39.42	40.24	-0.28	-0.82	2.17	37.25	39.00	41.50	31.10	MAY 2001	42.84	SEP 2004
Lake Miona	Sumter	1978	49.78	49.76	49.78	-0.02	-0.02	-1.24	51.00	53.00	55.00	47.88	AUG 1992	56.60	OCT 1982
Moon Lake	Pasco	1990	39.86	39.67	39.34	-0.19	0.33	4.17	35.50	37.50	40.50	32.98	APR 2009	41.26	SEP 2004
Lake Panasoffkee	Sumter	1955	39.61	39.36	38.42	-0.25	0.94	0.86	38.50	39.50	42.50	36.92	JUN 2007	44.28	APR 1960
Lake Pasadena	Pasco	1984	88.41	88.36	87.04	-0.05	1.32	-1.64	90.00	91.50	94.50	81.56	MAY 2001	94.86	OCT 2004
Spring Lake	Hernando	1965	181.34	181.26	180.52	-0.08	0.74	3.01	178.25	181.25	184.25	174.75	APR 2009	183.57	OCT 1984
Floral City Pool	Citrus	1957	40.67	40.42	40.87	-0.25	-0.45	2.17	38.25	40.25	42.50	30.35	JUN 2001	44.22	MAR 1960
Inverness Pool	Citrus	1958	39.98	39.73	39.47	-0.25	0.26	3.48	36.25	38.25	40.50	31.46	MAY 2001	42.94	APR 1960
Hernando Pool	Citrus	1958	38.71	38.57	38.37	-0.14	0.20	3.82	34.75	36.75	39.00	31.09	JUL 2001	41.74	APR 1960

TAMPA BAY LAKES															
Lake Name	County	Beginning of Record	OCT 2013	NOV 2013	NOV 2012	Change from OCT 2013	Change from NOV 2012	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	41.08	41.06	40.68	-0.02	0.38	3.56	37.50	40.25	42.25	33.24	MAY 2002	42.42	SEP 2004
Lake Ann-Parker	Pasco	1969	47.49	47.41	47.06	-0.08	0.35	2.41	45.00	45.75	48.75	43.28	JUN 2002	49.29	SEP 1979
Bay Lake	Hillsborough	1982	45.53	45.54	45.10	0.01	0.44	3.04	42.50	44.00	46.75	41.86	APR 1985	46.46	DEC 1997
Lake Brant	Hillsborough	1971	57.90	57.81	57.48	-0.09	0.33	3.31	54.50	56.50	58.75	51.65	JUN 1994	60.04	AUG 1979
Brooker Lake	Hillsborough	1977	62.70	62.73	62.45	0.03	0.28	3.73	59.00	61.00	64.25	56.49	MAY 2002	64.08	DEC 1997
Calm Lake	Hillsborough	1965	50.13	50.10	49.70	-0.03	0.40	5.10	45.00	47.50	50.50	41.88	JUN 2002	50.73	SEP 2004
Camp Lake	Pasco	1968	63.10	63.03	62.74	-0.07	0.29	4.03	59.00	61.75	64.00	50.82	MAY 2002	64.00	SEP 1979
Carlton Lake	Hillsborough	1976	92.69	92.64	91.79	-0.05	0.85	4.64	88.00	90.50	93.50	86.82	MAY 2001	94.60	FEB 1998
Lake Carroll	Hillsborough	1985	36.46	36.32	36.29	-0.14	0.03	3.82	32.50	34.50	37.00	30.87	MAY 2002	38.06	DEC 1997
Church Lake	Hillsborough	1931	35.58	35.56	35.38	-0.02	0.18	4.06	31.50	34.00	36.25	27.94	MAY 2002	38.60	FEB 1936
Lake Cooper	Hillsborough	1946	60.16	60.13	60.16	-0.03	-0.03	3.13	57.00	59.75	61.75	55.60	JUN 2001	62.54	SEP 1947
Crescent Lake	Hillsborough	1981	42.18	42.28	41.80	0.10	0.48	3.78	38.50	40.00	42.50	35.34	JUN 2001	42.48	SEP 2009
Deer Lake	Hillsborough	1977	66.34	66.22	66.00	-0.12	0.22	3.72	62.50	64.50	67.25	60.72	MAY 2002	67.42	DEC 1997
Egypt Lake	Hillsborough	1978	36.38	36.28	36.09	-0.10	0.19	3.78	32.50	35.00	37.50	33.06	MAY 2000	38.15	SEP 1985
Gornto Lake	Hillsborough	1979	37.93	37.70	35.97	-0.23	1.73	3.70	34.00	36.00	38.50	29.86	MAR 1979	39.48	FEB 1998
Lake Harvey	Hillsborough	1970	60.94	60.90	60.63	-0.04	0.27	2.90	58.00	60.25	62.50	53.94	MAY 2002	63.90	DEC 1997
Lake Hiawatha	Hillsborough	1981	49.91	49.89	49.52	-0.02	0.37	4.89	45.00	48.00	50.50	46.14	JUN 2000	51.12	APR 2010
Horse Lake	Hillsborough	1930	47.16	46.97	46.57	-0.19	0.40	4.97	42.00	44.00	46.50	36.33	JUN 2002	50.00	AUG 1959
Lake Keene	Hillsborough	1948	62.61	62.54	62.24	-0.07	0.30	3.54	59.00	60.50	63.00	56.92	MAY 1994	63.30	SEP 1953
Keystone Lake	Hillsborough	1984	41.69	41.79	41.54	0.10	0.25	2.79	39.00	39.75	42.00	37.89	JUN 1994	43.26	SEP 1988
King Lake	Pasco	1978	103.05	102.84	102.22	-0.21	0.62	2.84	100.00	102.50	105.25	94.20	APR 2009	104.88	SEP 1983
Lake Leclare	Hillsborough	1977	50.91	50.84	50.90	-0.07	-0.06	3.84	47.00	49.50	52.00	44.95	JUN 2001	52.59	JUL 2012
Lake Linda	Pasco	1969	65.70	65.63	65.36	-0.07	0.27	3.63	62.00	64.00	66.75	60.07	MAY 2001	67.13	AUG 1979
Little Lake	Hillsborough	1931	45.30	45.33	45.24	0.03	0.09	3.33	42.00	43.50	46.50	38.06	JUN 1994	48.65	AUG 1960
Long Pond	Hillsborough	1978	45.69	45.68	45.45	-0.01	0.23	3.68	42.00	44.00	46.50	36.33	MAY 1979	48.27	SEP 1998
Mud (Walden) Lake	Hillsborough	1978	112.84	112.84	112.80	0.00	0.04	2.34	110.50	112.50	115.00	111.68	MAY 2012	114.42	MAR 1978
Lake Padgett	Pasco	1965	69.49	69.30	69.16	-0.19	0.14	1.80	67.50	69.00	71.25	66.27	JUN 2001	71.90	SEP 1988
Platt Lake	Hillsborough	1946	49.48	49.50	48.97	0.02	0.53	3.50	46.00	47.75	50.50	42.53	JUN 2001	51.88	SEP 1979
Rainbow Lake	Hillsborough	1971	39.73	39.62	39.18	-0.11	0.44	4.62	35.00	37.50	40.50	29.82	JUN 2002	40.74	AUG 2003
Lake Stemper	Hillsborough	1946	60.98	61.00	60.77	0.02	0.23	3.00	58.00	59.50	62.00	53.36	JUN 2001	62.30	MAR 1960
Lake Thomas	Hillsborough	1971	62.78	62.72	62.40	-0.06	0.32	3.47	59.25	61.25	63.50	56.48	JUN 2002	64.48	SEP 1979
Turkey Ford Lake	Hillsborough	1970	50.98	50.82	50.50	-0.16	0.32	0.82	50.00	51.50	54.00	48.07	JUN 1985	55.28	SEP 1988
Lake Wimauma	Hillsborough	1985	80.14	79.92	78.20	-0.22	1.72	-1.08	81.00	83.00	86.75	70.12	MAY 2001	84.38	MAR 1998

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

Compiled by Ken Romie

SUMMARY OF LAKE ELEVATIONS OF REGIONAL LAKES (feet)

POLK UPLANDS LAKES															
Lake Name	County	Beginning of Record	OCT 2013	NOV 2013	NOV 2012	Change from OCT 2013	Change from NOV 2012	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 Alfred	Polk	1961	125.70	125.58	125.32	-0.12	0.26	-0.67	126.25	128.25	130.75	122.40	MAY 1977	132.76	MAR 1998
Lake Ariana	Polk	1945	135.47	135.27	134.90	-0.20	0.37	2.77	132.50	134.50	137.00	131.28	MAY 1976	137.90	AUG 1946
Lake Arietta	Polk	1970	139.67	139.38	140.00	-0.29	-0.62	1.38	138.00	141.00	144.00	136.50	MAY 1977	144.12	SEP 2004
Blue Lake South	Polk	1986	111.52	111.26	111.00	-0.26	0.26	-1.24	112.50	114.00	117.00	103.38	FEB 1991	119.19	DEC 2005
Lake Bonny	Polk	1954	129.95	129.66	129.70	-0.29	-0.04	3.66	126.00	128.00	130.50	122.34	MAY 2009	133.08	SEP 2004
Lake Buffum	Polk	1972	129.32	129.18	128.08	-0.14	1.10	2.43	126.75	129.25	132.25	123.90	JUN 1991	133.00	JUN 2005
Clearwater Lake	Polk	1979	142.42	142.31	142.80	-0.11	-0.49	3.31	139.00	141.00	143.50	137.93	MAY 2001	146.06	AUG 1984
Lake Conine	Polk	1989	127.90	127.70	126.18	-0.20	1.52	3.20	124.50	126.50	128.75	123.83	NOV 2009	129.95	SEP 2004
Eagle Lake	Polk	1965	125.58	125.41	124.99	-0.17	0.42	-1.09	126.50	128.50	130.75	118.76	MAY 1976	131.50	SEP 1996
Lake Fannie	Polk	1967	122.94	122.73	121.70	-0.21	1.03	2.73	120.00	123.50	125.75	118.67	MAY 1977	127.51	SEP 2004
Lake Garfield	Polk	1969	102.90	102.60	103.02	-0.30	-0.42	2.60	100.00	101.00	104.75	97.38	JUN 2001	105.91	SEP 1979
Lake Hamilton	Polk	1945	120.59	120.33	119.20	-0.26	1.13	3.08	117.25	119.00	121.50	116.61	JUN 2001	124.34	OCT 1948
Lake Helene	Polk	1961	137.66	137.52	139.10	-0.14	-1.58	-1.48	139.00	141.00	144.00	134.06	JUN 2008	146.48	MAR 1998
Lake Howard	Polk	1987	130.28	130.04	129.72	-0.24	0.32	3.04	127.00	129.50	132.00	127.69	MAY 2001	133.08	SEP 2004
Lake Juliana	Polk	1961	129.75	129.62	130.18	-0.13	-0.56	2.12	127.50	130.00	132.50	126.20	MAY 1976	134.10	MAR 1998
Lake Mcleod	Polk	1965	124.20	124.07	124.24	-0.13	-0.17	-3.93	128.00	129.50	132.00	115.11	MAY 1976	131.98	SEP 1998
Lake Otis	Polk	1954	125.25	125.10	124.78	-0.15	0.32	2.10	123.00	125.00	128.00	119.58	MAY 1976	129.12	SEP 1960
Lake Ruby	Polk	1971	124.24	124.20	124.25	-0.04	-0.05	3.20	121.00	123.00	125.25	117.41	MAY 1976	125.98	SEP 2004
Lake Gibson	Polk	1969	142.79	142.81	142.63	0.02	0.18	1.31	141.50	141.50	143.50	140.21	MAY 2009	145.40	SEP 1988

LK WALES RIDGE LAKES															
Lake Name	County	Beginning of Record	OCT 2013	NOV 2013	NOV 2012	Change from OCT 2013	Change from NOV 2012	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 Annie	Polk	1970	111.24	111.08	M	-0.16	M	-2.92	114.00	116.00	119.00	108.36	JUN 1990	117.56	OCT 2005
Lake Clay	Highlands	1983	78.10	77.86	78.03	-0.24	-0.17	2.86	75.00	76.00	78.75	74.34	MAY 2001	78.82	JUN 2013
Crooked Lake	Polk	1945	116.66	116.37	115.48	-0.29	0.89	-0.63	117.00	118.50	122.00	106.10	MAY 1991	123.98	OCT 1948
Lake Jackson	Highlands	1945	102.37	102.13	99.51	-0.24	2.62	4.13	98.00	100.00	103.00	96.37	JUN 2008	103.76	SEP 1947
Lake Letta	Highlands	1951	97.55	97.29	95.40	-0.26	1.89	2.29	95.00	97.00	100.00	90.27	JUN 2008	101.38	OCT 1953
Lake Lotela	Highlands	1950	105.64	105.38	103.04	-0.26	2.34	1.38	104.00	105.00	108.50	97.00	JUN 2008	109.38	JUL 1954
Lake Placid	Highlands	1984	93.57	93.23	90.90	-0.34	2.33	3.23	90.00	91.50	94.50	88.08	JUN 2008	94.24	SEP 2003
Starr Lake	Polk	1983	102.20	102.07	M	-0.13	M	-5.93	108.00	110.00	113.00	96.23	JUL 2001	109.80	DEC 2005
Trout Lake	Highlands	1981	95.58	95.29	93.84	-0.29	1.45	0.29	95.00	98.00	101.00	87.15	MAY 2001	98.90	MAR 1998

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

Compiled by Ken Romie

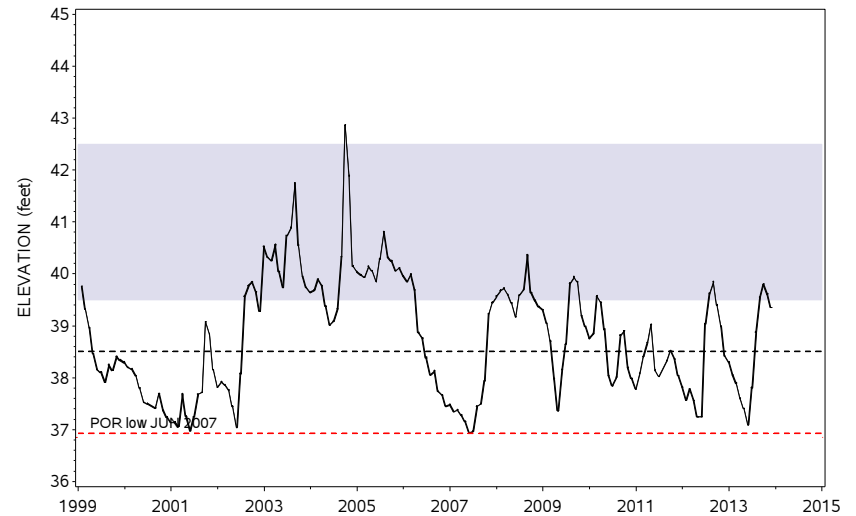
HYDROGRAPHS OF REGIONAL LAKES

15-yr Period of Record

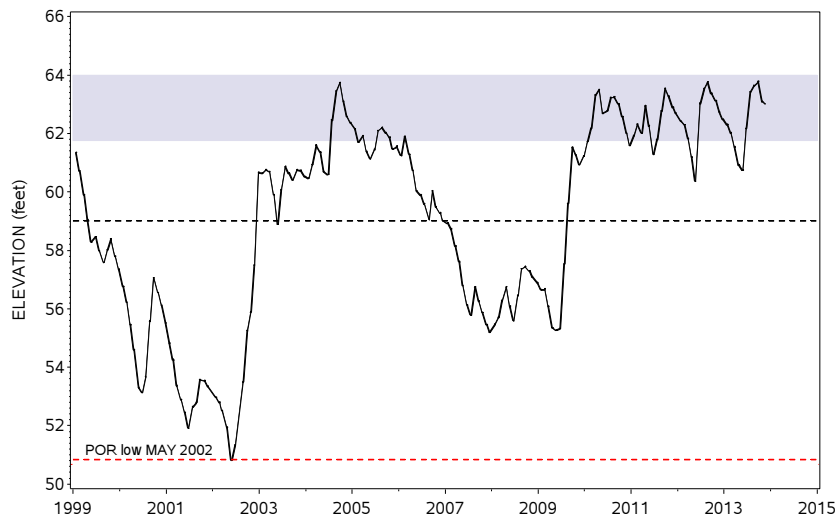
Hunters Lake
Northern Lakes



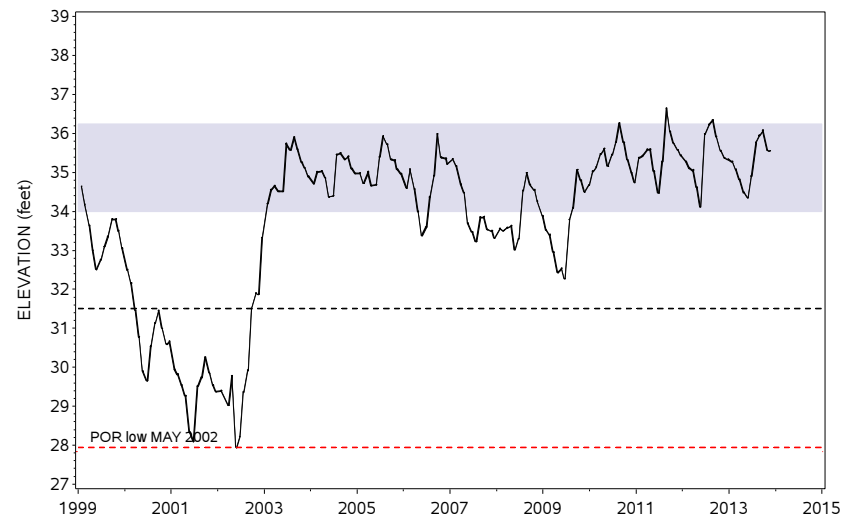
Lake Panasoffkee
Northern Lakes



Camp Lake
Tampa Bay Lakes



Church Lake
Tampa Bay Lakes



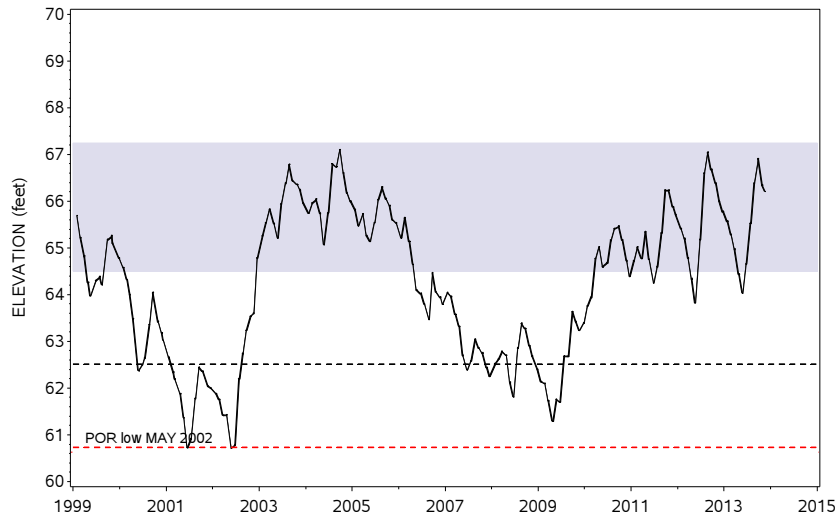
— Monthly Mean Elevation Drought Year Low Normal Range

Compiled by Ken Romie

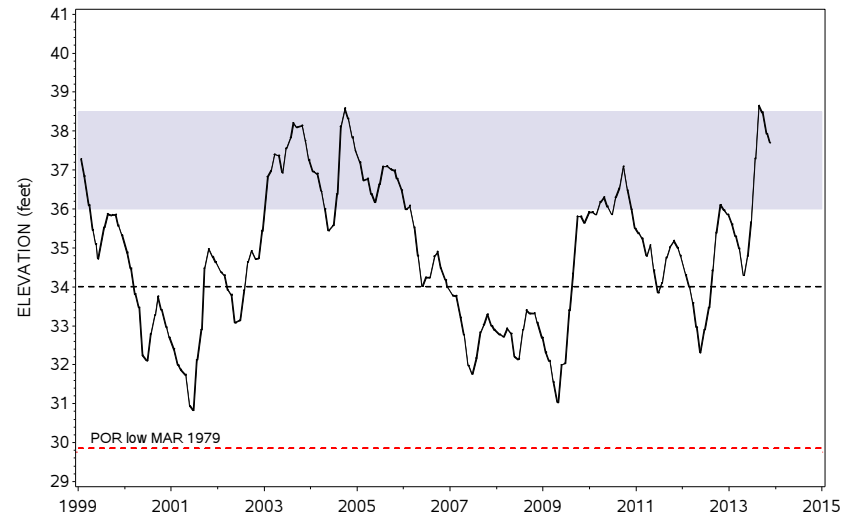
HYDROGRAPHS OF REGIONAL LAKES

15-yr Period of Record

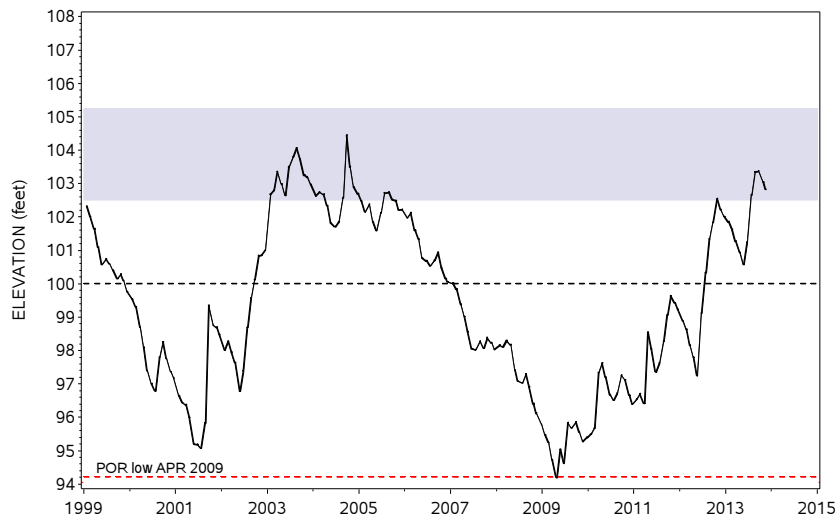
Deer Lake
Tampa Bay Lakes



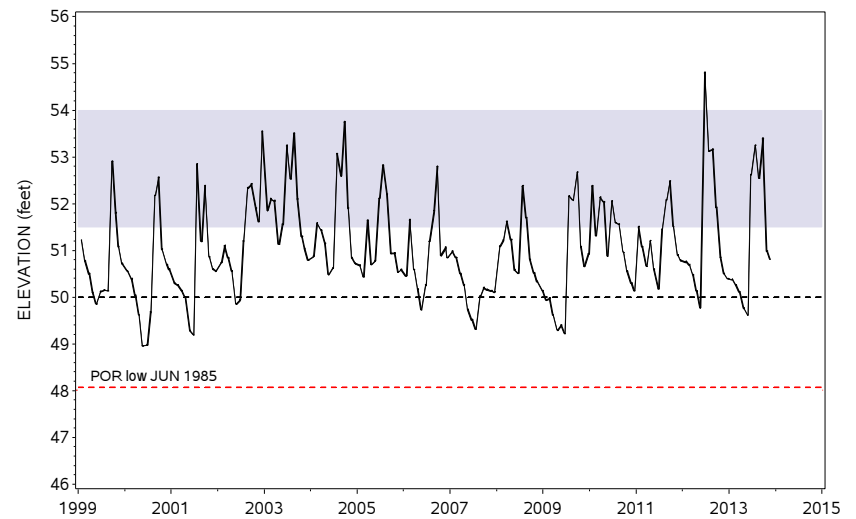
Goronto Lake
Tampa Bay Lakes



King Lake
Tampa Bay Lakes



Turkey Ford Lake
Tampa Bay Lakes



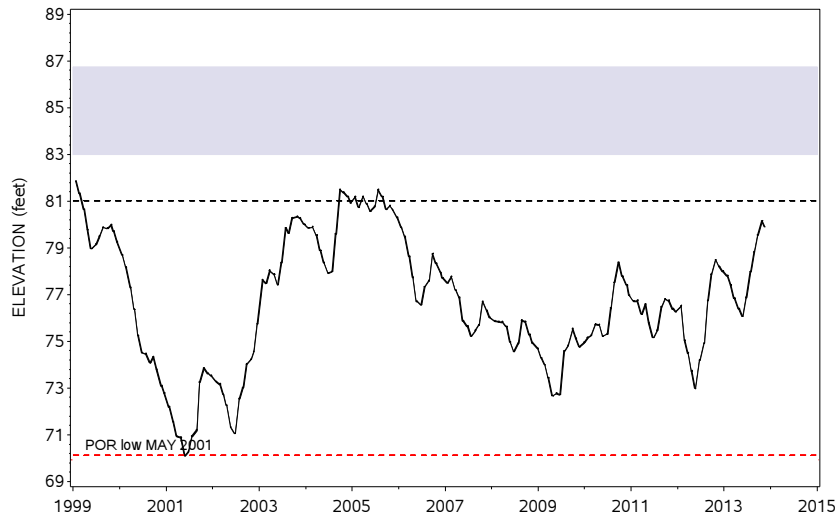
— Monthly Mean Elevation Drought Year Low Normal Range

Compiled by Ken Romie

HYDROGRAPHS OF REGIONAL LAKES

15-yr Period of Record

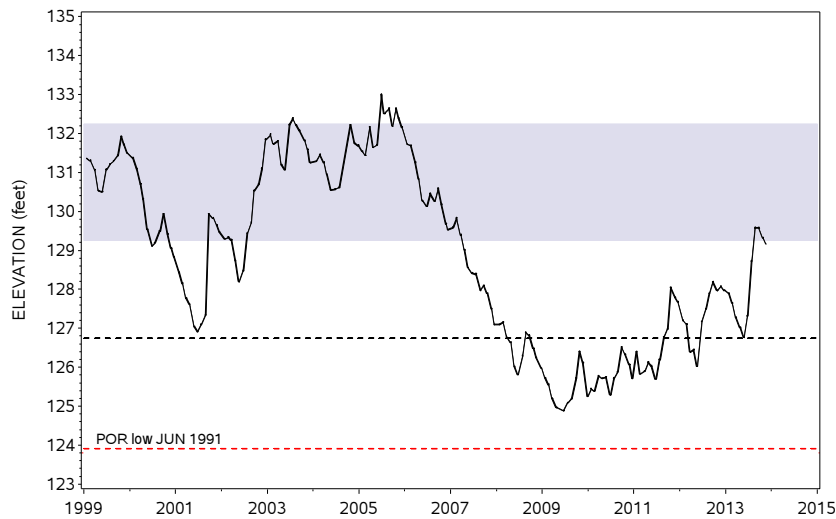
Lake Wimauma
Tampa Bay Lakes



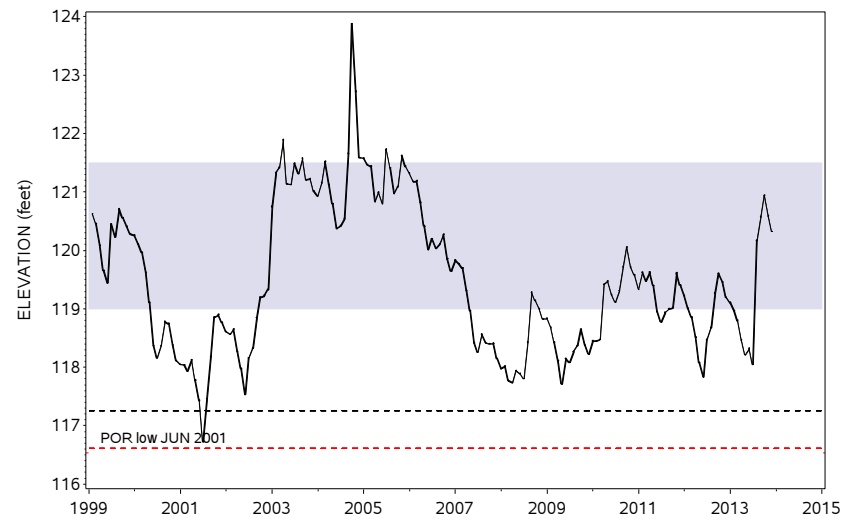
Lake Arietta
Polk Uplands Lakes



Lake Buffum
Polk Uplands Lakes



Lake Hamilton
Polk Uplands Lakes



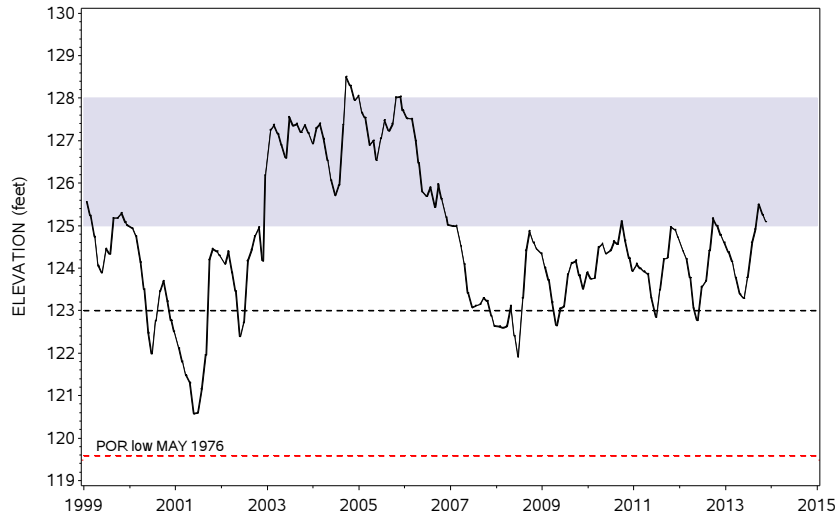
— Monthly Mean Elevation Drought Year Low Normal Range

Compiled by Ken Romie

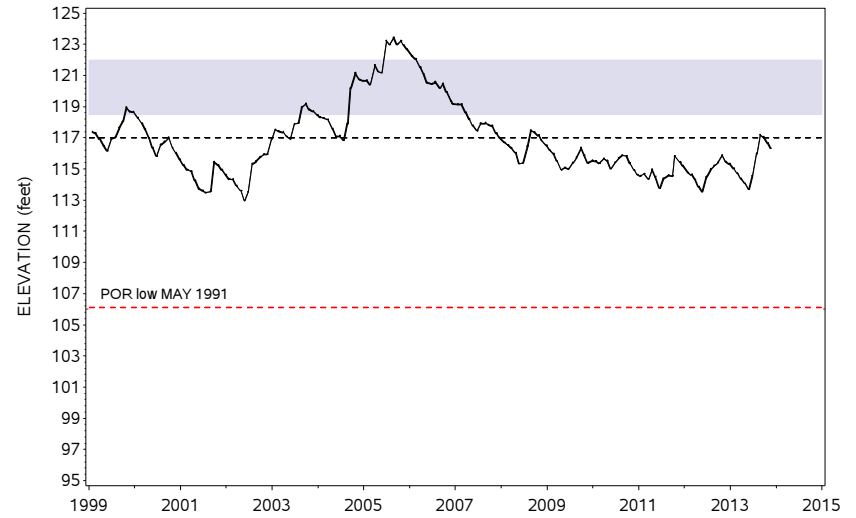
HYDROGRAPHS OF REGIONAL LAKES

15-yr Period of Record

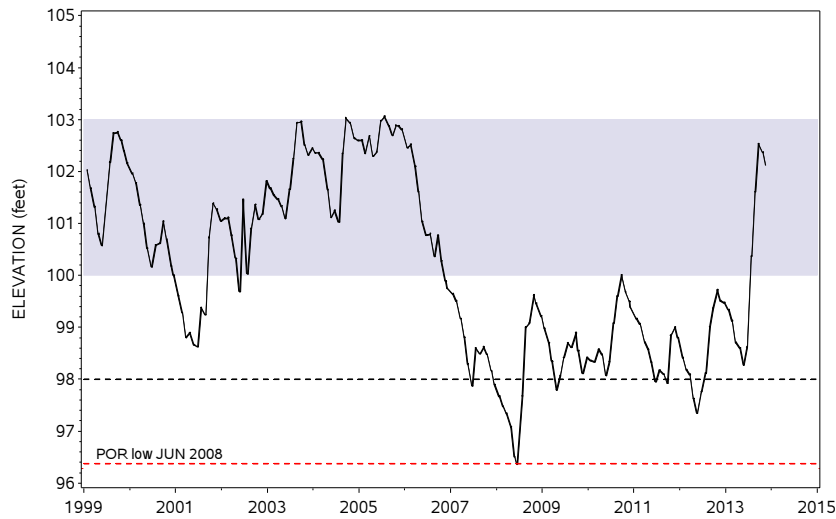
Lake Otis
Polk Uplands Lakes



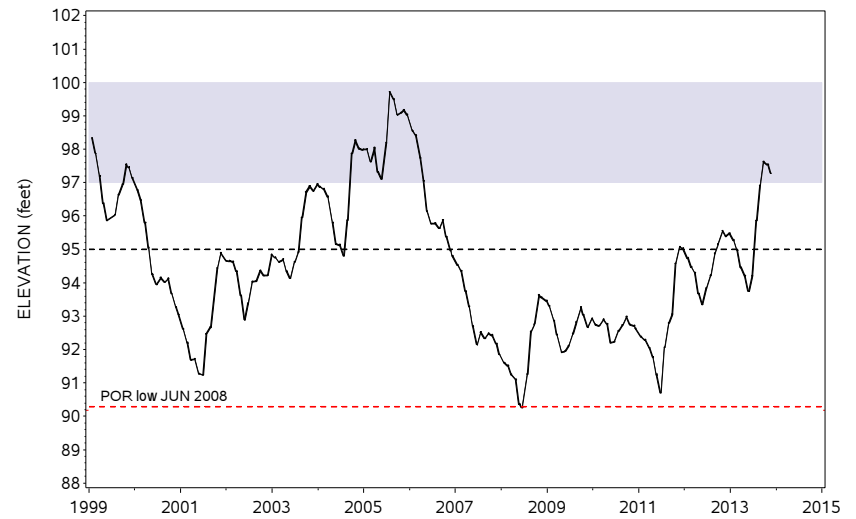
Crooked Lake
Lake Wales Ridge Lakes



Lake Jackson
Lake Wales Ridge Lakes



Lake Letta
Lake Wales Ridge Lakes



Monthly Mean Elevation
 Drought Year Low
 Normal Range

Compiled by Ken Romie

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 25th and 75th percentiles of the period-of-record monthly means.

During November, all 12 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 275.9 cfs (178.2 mgd), 452.4 cfs (292.3 mgd) and 951.8 cfs (614.9 mgd), respectively. District-wide, total streamflow decreased an average of 2155.4 cfs (1392.4 mgd).

In November, streamflow reported at eight of the twelve monitoring stations was below last year's levels. Streamflow was lower in the northern, central and southern regions by 283.0 cfs (182.8 mgd), 83.8 cfs (54.1 mgd) and 26.2 cfs (16.9 mgd), respectively. District-wide, total streamflow was lower, on average, by 445.8 cfs (288.0 mgd), than the November 2012 average.

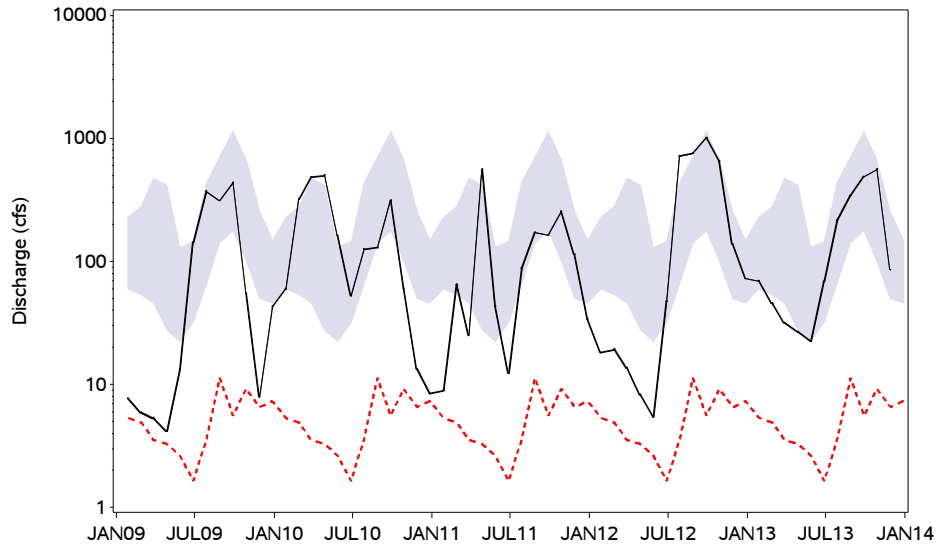
Compared to historical November discharge values, Withlacoochee River streamflow, measured at the Trilby station and the Holder station averaged in the 41st and 34th percentiles, respectively. Streamflow measured at the stations on the Anclote, Pithlachascotee and Hillsborough Rivers averaged in the 64th, 62nd and 54th percentiles of respective historical November readings. Streamflow measured at the Alafia River, Little Manatee River and Peace River at Bartow stations averaged in the 10th, 45th and 23rd percentiles of respective historical November readings. Additionally, streamflow measured at the Josephine Creek, Manatee River, Myakka River and Peace River at Arcadia stations averaged in the 33rd, 44th, 33rd and 42nd percentiles of respective historical November readings.

SUMMARY OF STREAM DISCHARGE FROM MAJOR STREAMS (CFS), NOVEMBER 2013

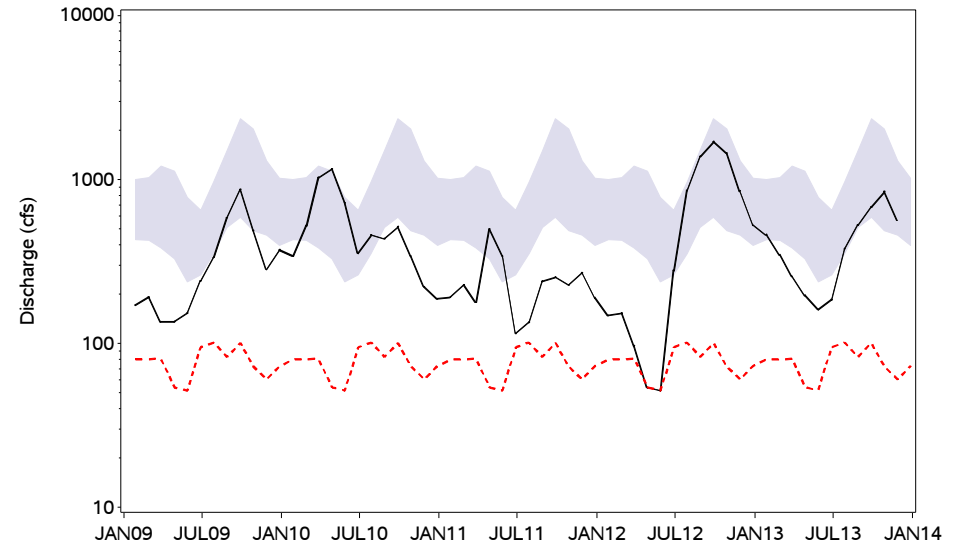
	<i>Beginning Year of Record</i>	<i>Mean Discharge NOV 2013</i>	<i>Mean Discharge OCT 2013</i>	<i>Mean Discharge NOV 2012</i>	<i>Change from OCT 2013</i>	<i>Change from NOV 2012</i>	<i>NOV 2013 Percentile Rank</i>	<i>Period of Record Low</i>	<i>Record Low Date</i>	<i>Period of Record High</i>	<i>Record High Date</i>
<i>NORTHERN COUNTIES</i>											
Withlacoochee R at Trilby	1930	86.3	561.6	139.1	-475.3	-52.8	41%	0.1	JUN2000	8840	JUN1934
Withlacoochee R near Holder	1931	564.6	840.5	847.6	-275.9	-283.0	34%	33.0	MAR2001	8660	APR1960
<i>CENTRAL COUNTIES</i>											
Anclote River near Elfers	1946	15.1	86.1	8.8	-71.0	6.3	64%	0.8	MAY1962	3710	JUL1960
Pithlachascotte R near New Port Richey	1963	7.2	29.9	3.3	-22.7	3.9	62%	0.0	MAY2013	2180	JUN2012
Hillsborough R near Zephyrhills	1939	107.8	202.4	107.1	-94.6	0.7	54%	27.0	MAY2001	9700	MAR1960
Alafia River at Lithia	1932	69.7	235.7	157.9	-166.0	-88.2	10%	4.1	JUN2000	9820	SEP2004
Little Manatee R near Wimauma	1939	41.3	103.8	48.5	-62.5	-7.2	45%	0.9	DEC1976	9720	SEP1988
Peace River at Bartow	1939	31.2	66.8	30.5	-35.6	0.7	23%	0.0	MAY2009	4100	SEP1947
<i>SOUTHERN COUNTIES</i>											
Josephine Cr near DeSoto City	1946	26.3	72.3	33.5	-46.0	-7.2	33%	0.5	MAY1956	1680	SEP1948
Manatee River near Myakka Head	1966	12.6	41.2	15.5	-28.6	-2.9	44%	0.1	MAY1975	6440	JUN2003
Myakka River near Sarasota	1936	40.1	351.6	49.4	-311.5	-9.3	33%	0.0	JUN2012	9540	JUN2003
Peace River at Arcadia	1931	282.2	847.9	289.0	-565.7	-6.8	42%	0.0	JUL1974	9990	OCT1953

HYDROGRAPHS OF MAJOR STREAMS JANUARY 2009 TO NOVEMBER 2013

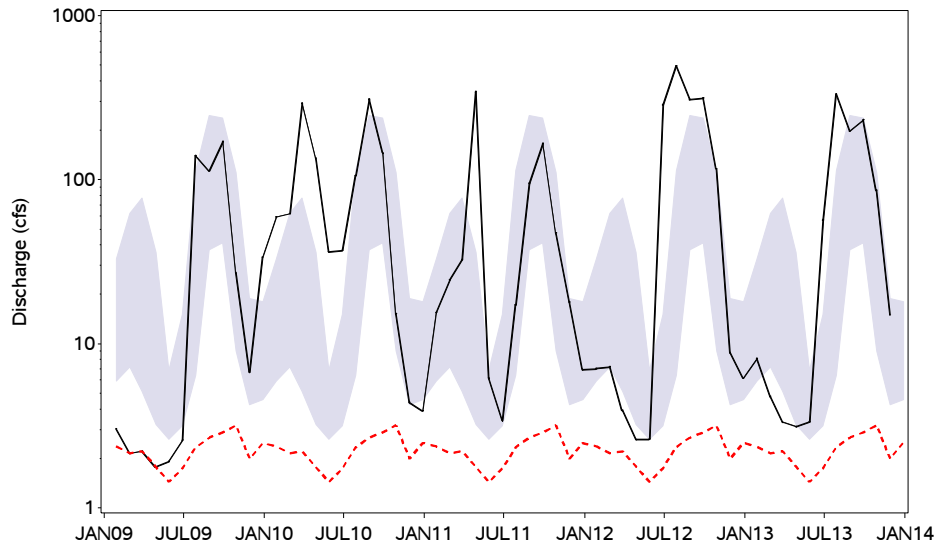
Withlacoochee R at Trilby
Northern Counties



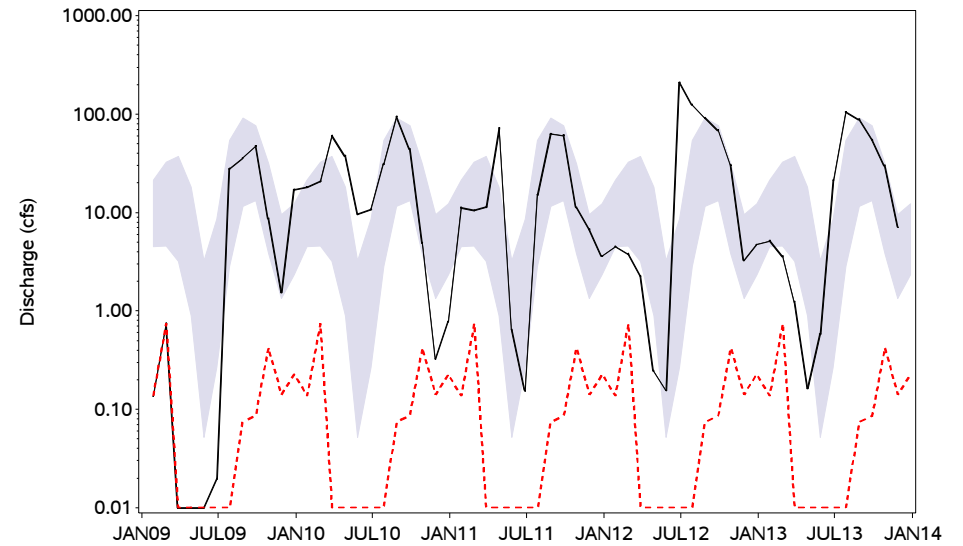
Withlacoochee R near Holder
Northern Counties



Anclole River near Elfers
Central Counties



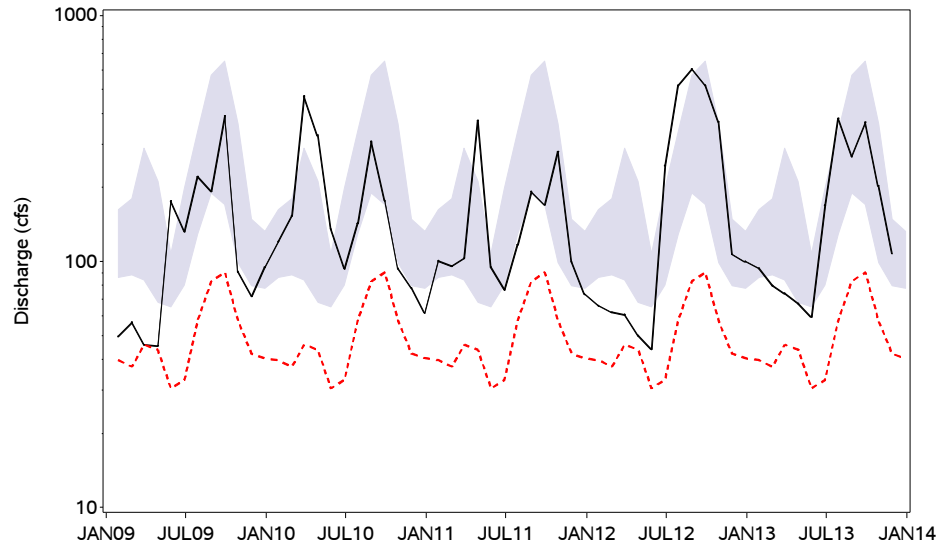
Pithlachascotte R near New Port Richey
Central Counties



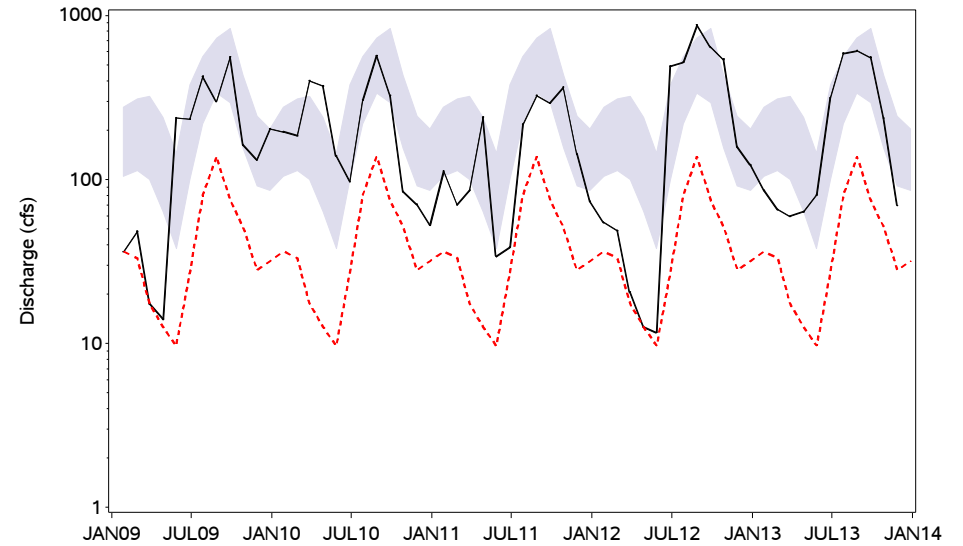
— Monthly Mean Discharge - - - - - POR Monthly Low Normal Range

HYDROGRAPHS OF MAJOR STREAMS JANUARY 2009 TO NOVEMBER 2013

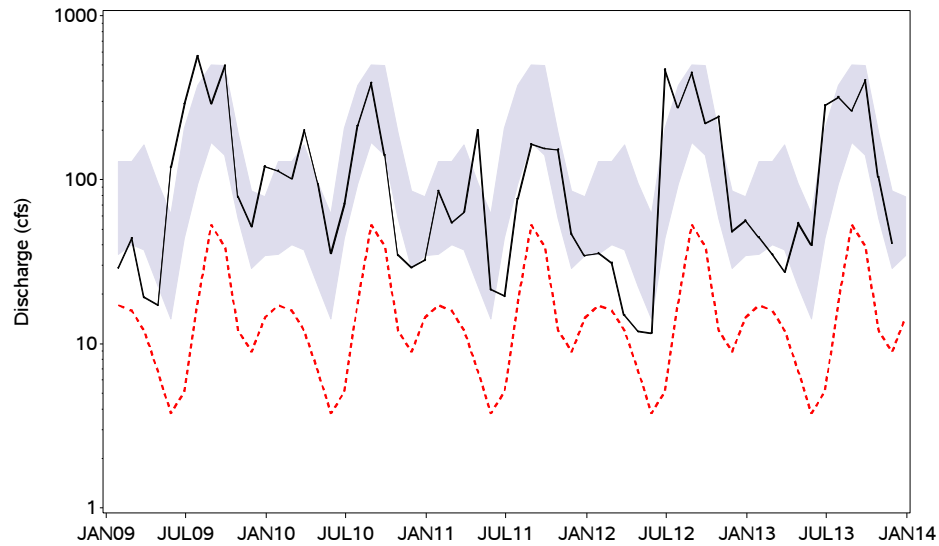
Hillsborough R near Zephyrhills
Central Counties



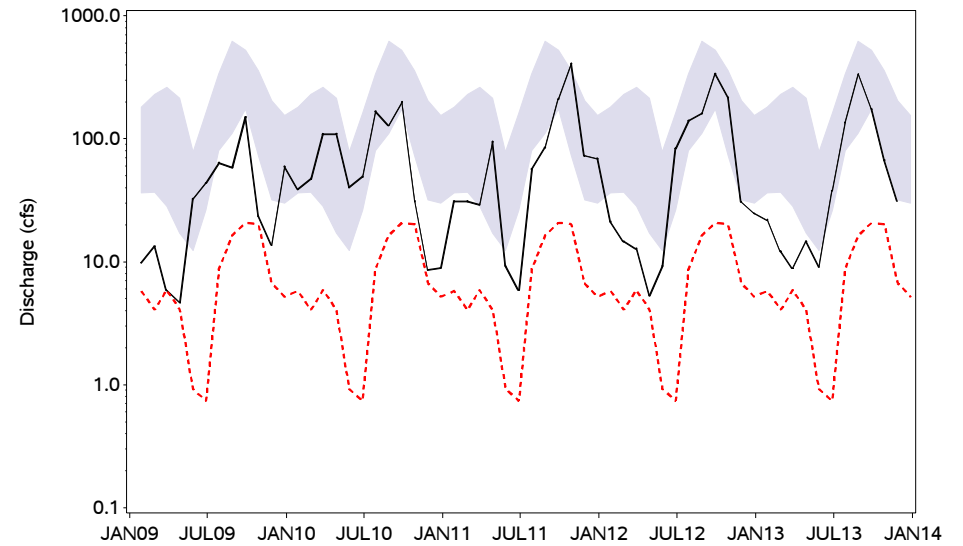
Alafia River at Lithia
Central Counties



Little Manatee R near Wimauma
Central Counties



Peace River at Bartow
Central Counties



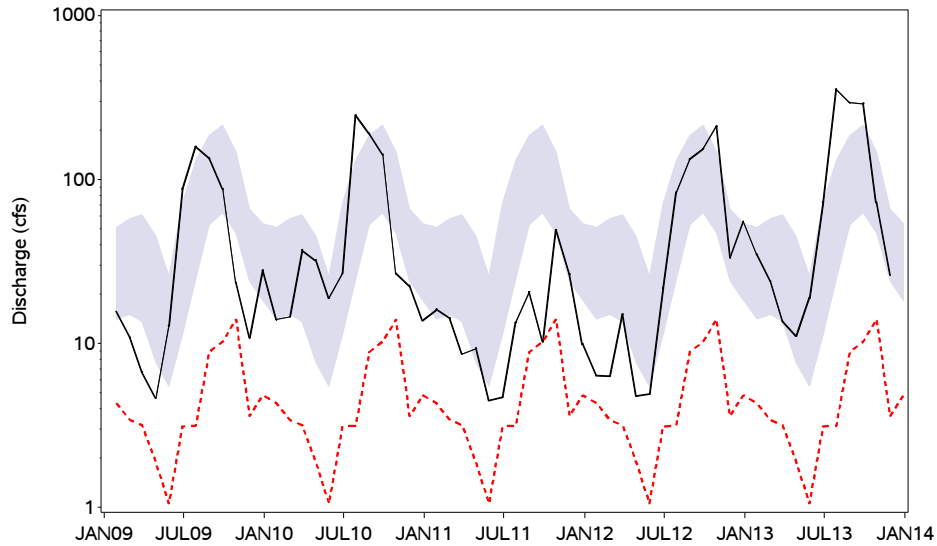
— Monthly Mean Discharge

- - - - - POR Monthly Low

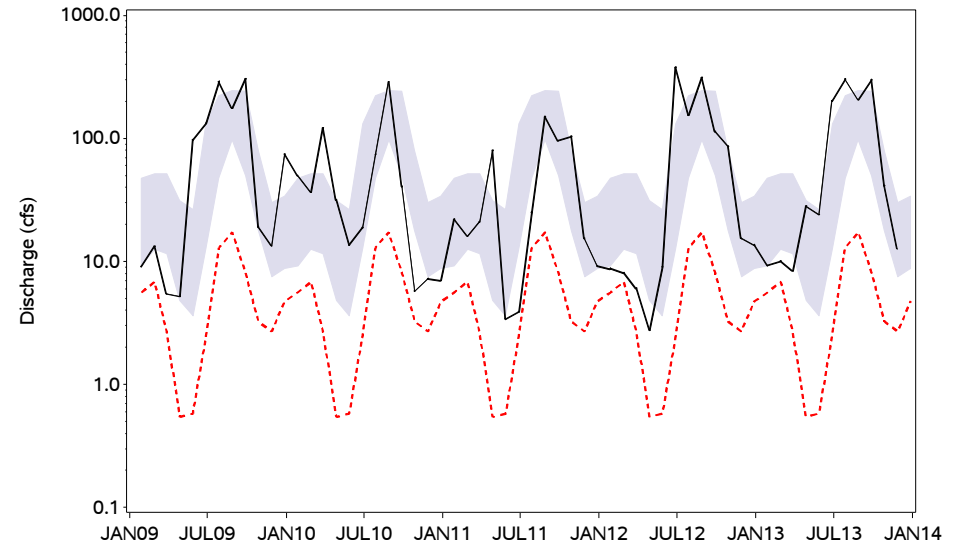
■ Normal Range

HYDROGRAPHS OF MAJOR STREAMS JANUARY 2009 TO NOVEMBER 2013

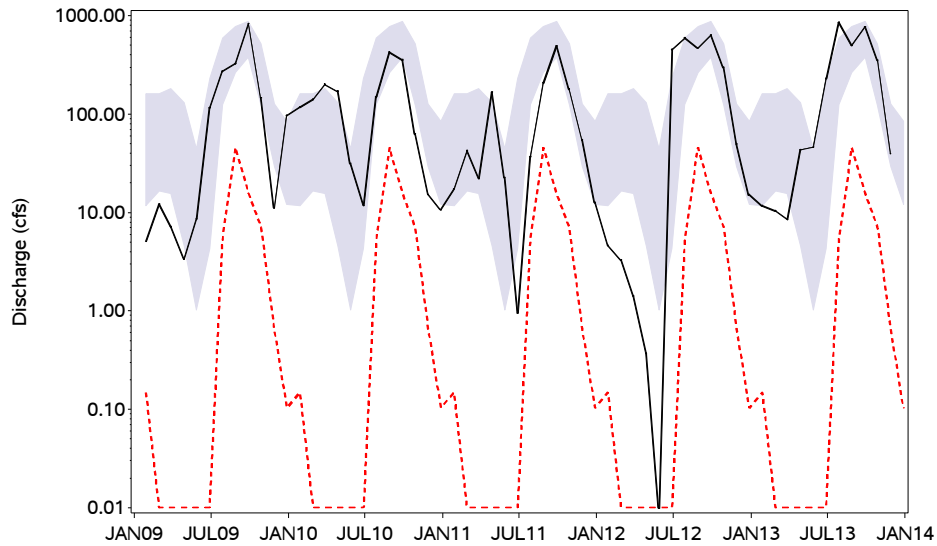
Josephine Cr near DeSoto City
Southern Counties



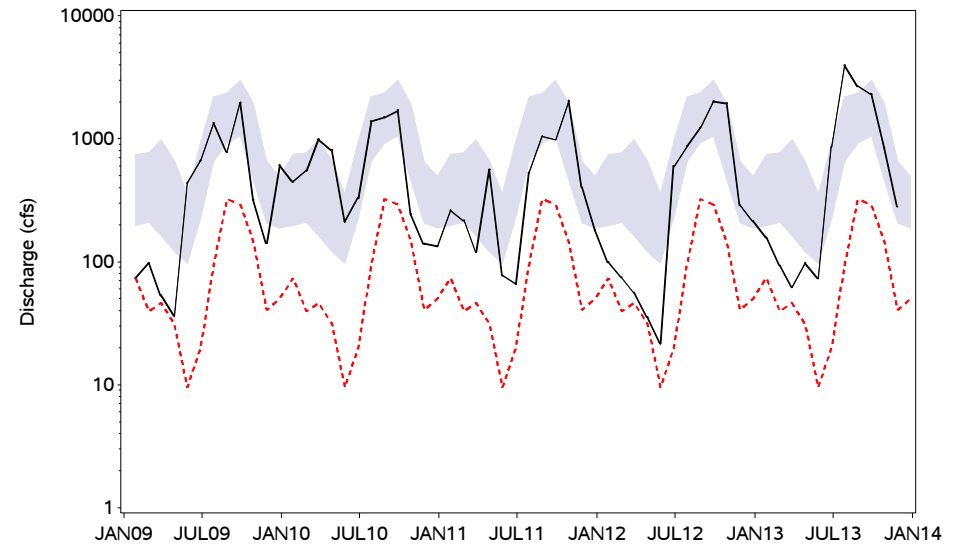
Manatee River near Myakka Head
Southern Counties



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 (50th 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 25th and 75th percentiles that are calculated from historical data. The 25th and 75th percentiles are calculated using the SASTM software system for data analysis using period-of-record monthly theoretical means for each springflow station analyzed.

During November, six of the seven stations reported decreased springflow, compared to the previous month. Total springflow decreased in the northern region of the District by 28.7 cfs (18.5 mgd), while it increased slightly in the central region by 1.7 cfs (1.1 mgd). District-wide, springflow decreased by 27.0 cfs (17.5 mgd).

In November, total springflow reported at three of the seven stations was below last year's levels. Total springflow for the northern and central regions were lower by 2.4 cfs (1.5 mgd) and 0.5 cfs (0.3 mgd), respectively. District-wide, springflow was lower by 2.9 cfs (1.9 mgd), compared to November 2012 rates.

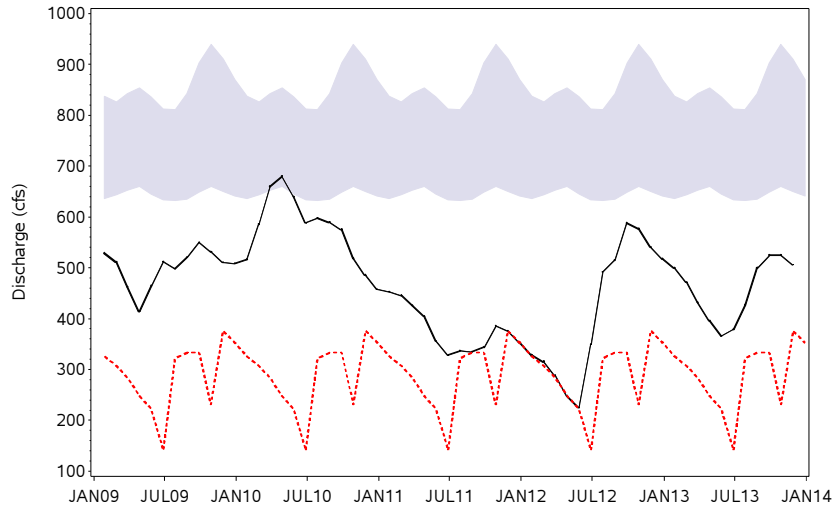
Compared to historical period-of-record values for November, total springflow measured in Rainbow, Silver and Weeki Wachee Springs, in the northern region, was in the 35th, 6th and 83rd percentiles of respective historical readings. Springflow measured in Crystal, Sulphur, Buckhorn and Lithia Springs in the central region was in the 27th, 19th, 72nd and 90th percentiles, respectively, of historical November readings.

SUMMARY OF SPRINGS DISCHARGE FROM MAJOR SPRINGS (CFS), NOVEMBER 2013

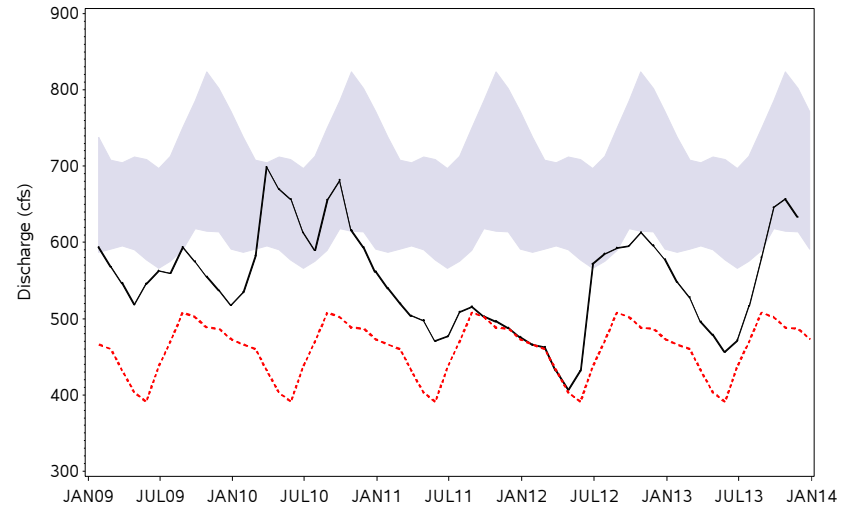
<i>NORTHERN COUNTIES</i>	<i>NOV 2013 Discharge</i>	<i>OCT 2013 Discharge</i>	<i>NOV 2012 Discharge</i>	<i>Change From OCT 2013</i>	<i>Change From NOV 2012</i>	<i>NOV 2013 Percentile Rank</i>	<i>Period of Record Low</i>	<i>Record Low Date</i>	<i>Period of Record High</i>	<i>Record High Date</i>
Rainbow Springs	645.8	661.1	604.8	-15.3	41.0	35%	391.0	MAY2012	1060.0	SEP1988
Silver Springs	514.6	527.3	557.3	-12.7	-42.7	6%	141.0	JUN2012	1290.0	OCT1960
Weeki Wachee Springs	193.1	199.6	193.8	-6.5	-0.7	83%	101.0	JUN1994	257.0	OCT2004
<i>CENTRAL COUNTIES</i>										
Crystal Springs	49.6	43.2	55.6	6.4	-6.0	27%	25.7	JUN2001	113.6	AUG1941
Sulphur Springs	23.6	26.5	22.4	-2.9	1.2	19%	0.0	NOV2011	145.0	MAR1960
Buckhorn Springs	13.2	13.7	11.3	-0.5	1.9	72%	2.2	MAY2006	32.7	AUG2004
Lithia Springs	58.7	60.0	56.3	-1.3	2.4	90%	9.1	MAY2000	91.5	NOV2004

HYDROGRAPHS OF REGIONAL SPRINGS JANUARY 2009 TO NOVEMBER 2013

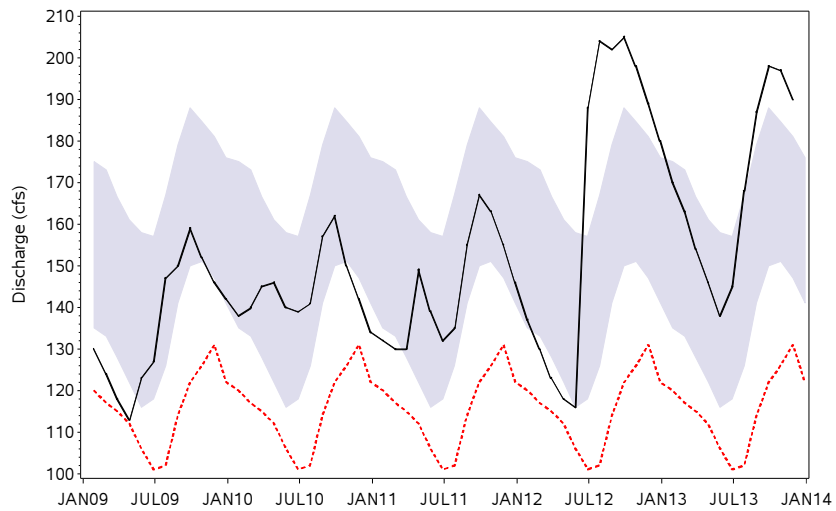
Silver Springs
Northern Counties



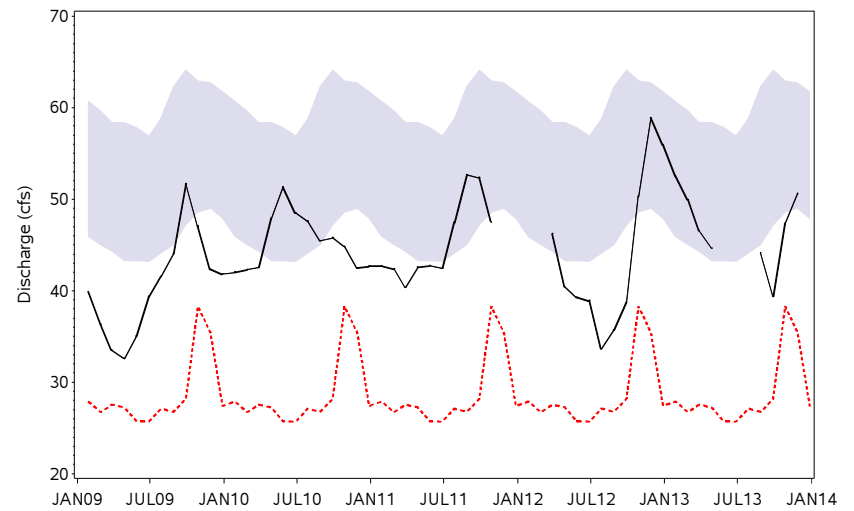
Rainbow Springs
Northern Counties



Weeki Wachee Springs
Northern Counties



Crystal Springs
Central Counties



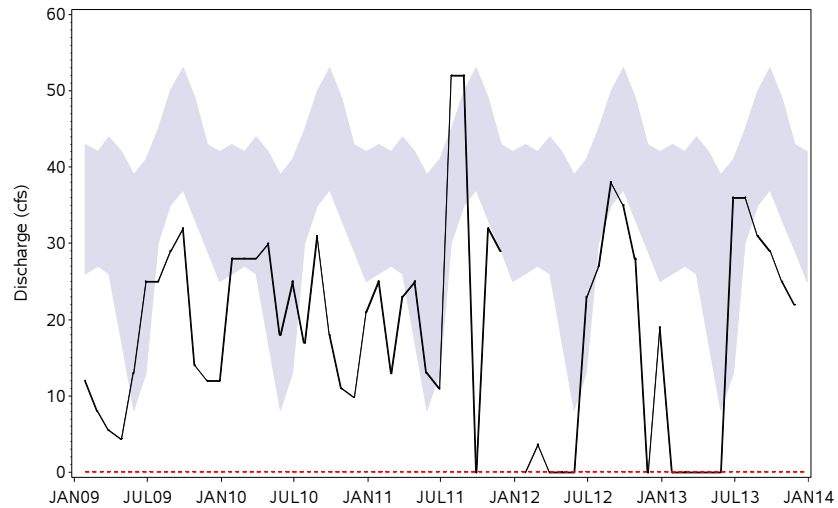
— Monthly Discharge

..... POR Monthly Low

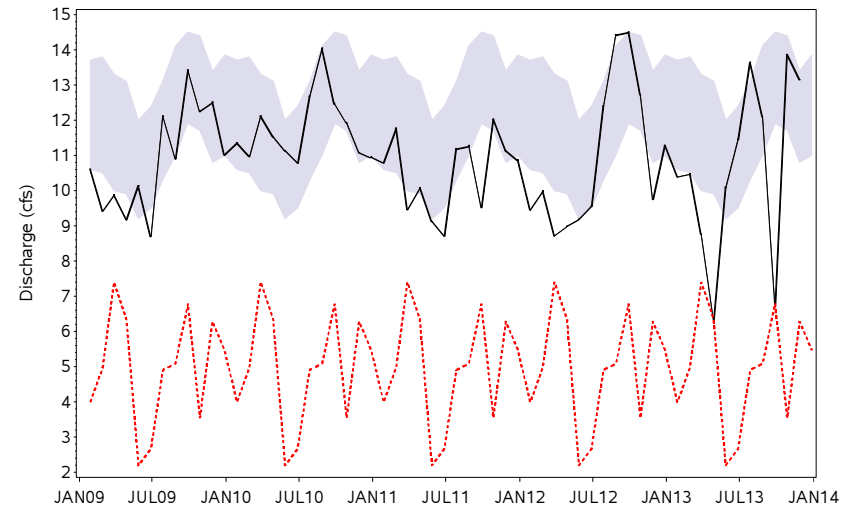
■ Normal Range

HYDROGRAPHS OF REGIONAL SPRINGS JANUARY 2009 TO NOVEMBER 2013

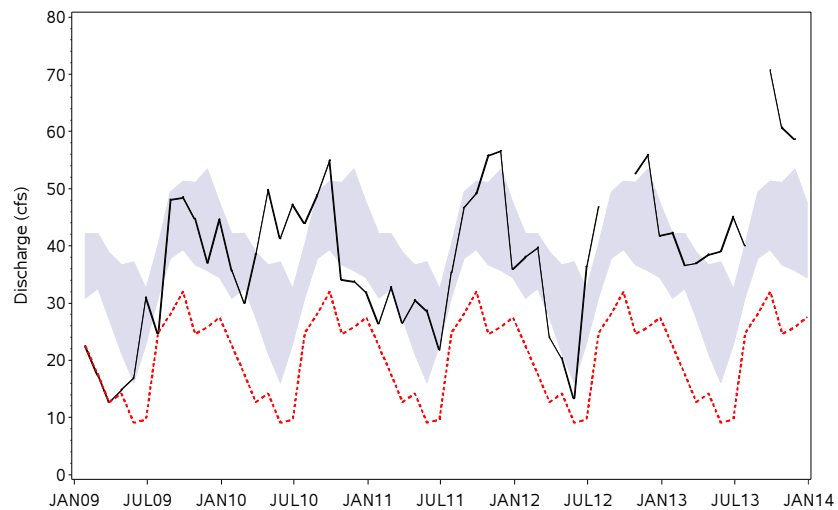
Sulphur Springs
Central Counties



Buckhorn Spring
Central Counties



Lithia Springs
Central Counties



— Monthly Discharge

..... POR Monthly Low

■ Normal Range

GROUND WATER

The ground-water section of this report has been revised and now provides ground-water level information within the District based on geographically delineated areas (regions) within the District, and no longer uses regional delineations based on hydrogeologic characteristics. The purpose for using geographical boundaries (only) has been to eliminate past confusion that resulted when regional ground-water data pertaining to the surficial aquifer and Intermediate/Floridan aquifer were reported based on hydrogeologic boundaries, while the Aquifer Resource Index section reported ground-water data based on geographic boundaries. This change should provide consistency in the review and reporting of all ground-water information.

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 51 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 25th and 75th percentiles ("low normal" and "high normal," respectively) were calculated for each week of the year using the period-of-record data. The 25th and 75th 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

During November, all 12 surficial aquifer wells recorded water level decreases, compared to last month. Regionally, average surficial aquifer water levels decreased in the northern, central and southern regions of the District by 0.18, 0.69 and 0.81 foot, respectively. District-wide, average surficial aquifer water levels decreased by 0.64 foot.

In November, average water levels recorded in nine of the 12 surficial aquifer wells were above last year's levels. Average surficial aquifer water levels were lower in the northern region by 0.10 foot, while they were higher in the central and southern regions by 0.08 and 0.59 foot, respectively. District-wide, average water levels in surficial wells were 0.18 foot higher than November 2012 levels.

For November, water levels were above the low normal level in all 12 surficial wells. Average surficial aquifer water levels in the northern, central and southern regions were 1.19, 1.49 and 1.12 feet, respectively, above the low normal level. District-wide, the average water level in surficial wells was 1.35 feet above the low normal level.

SUMMARY OF SURFICIAL AQUIFER LEVELS IN REPRESENTATIVE WELLS, NOVEMBER 2013

	NOV 2013 Elev	OCT 2013 Elev	NOV 2012 Elev	Change From OCT 2013	Change From NOV 2012	NOV Historical Low Normal	NOV Historical High Normal	Departure From Low Normal	Period of Record Low	Record Low Date	Period of Record High	Record High Date
<i>NORTHERN COUNTIES</i>												
Green Swamp	90.75	90.87	89.85	-0.12	0.90	89.46	91.35	1.29	82.95	MAY2000	93.07	SEP1985
Lecanto 2	8.67	8.91	9.78	-0.24	-1.11	7.59	9.96	1.08	5.76	MAY2001	13.92	SEP1974
<i>CENTRAL COUNTIES</i>												
Loughman	91.27	92.08	90.93	-0.81	0.34	91.14	92.55	0.13	88.40	JUN2001	95.79	SEP2004
Lutz-Lake Fern	57.13	57.44	57.05	-0.31	0.08	56.24	57.15	0.89	52.64	NOV2009	60.81	OCT1983
ROMP 50 Shallow	41.44	42.15	41.58	-0.71	-0.14	41.24	41.67	0.20	38.01	OCT2010	44.05	SEP2001
SR 33 & Combee Road	132.85	133.15	132.80	-0.30	0.05	132.74	134.08	0.11	129.16	FEB2001	136.97	OCT1995
SR 577 Shallow	125.56	126.77	125.52	-1.21	0.04	120.81	124.02	4.75	109.99	JAN2000	129.16	SEP2013
Tarpon Road Shallow	12.41	13.51	12.48	-1.10	-0.07	10.96	12.43	1.45	9.31	JUN1978	16.93	SEP1971
USGS P-48	101.46	101.85	101.19	-0.39	0.27	98.54	100.99	2.92	96.07	JUN2001	104.79	SEP2004
<i>SOUTHERN COUNTIES</i>												
Edgeville 4 Shallow	66.87	67.27	66.47	-0.40	0.40	66.75	67.95	0.12	63.85	MAY1975	69.93	SEP1971
ROMP 26 Shallow	70.19	71.35	69.29	-1.16	0.90	68.64	70.51	1.55	64.32	JUN1999	75.11	JUN1982
SR 74	16.55	17.42	16.09	-0.87	0.46	14.87	15.89	1.68	12.66	MAY2000	18.78	AUG2013

Intermediate and Floridan Aquifers

During November, 50 of the 51 intermediate and Floridan aquifer wells monitored for this report recorded water level decreases, while one well recorded no change, compared to last month. Regionally, average water levels decreased in the northern, central, and southern regions by 0.44 foot, 0.99 foot and 3.43 feet, respectively. District-wide, the average water level in the intermediate and Floridan aquifer decreased by 1.75 feet.

In November, water levels recorded in 26 of the 51 intermediate and Floridan aquifer wells were below last year's levels. Regionally, the mean water level in the northern and southern regions was 0.80 and 0.30 foot, respectively, below November 2012 levels, while in the central region it was 0.25 foot above last year's level. District-wide, average water levels in intermediate and Floridan aquifer wells were 0.24 foot lower than November 2012 levels.

For November, 46 of the 51 intermediate and Floridan aquifer wells had levels above the low normal level, compared to historical monthly levels. The average water levels in the northern, central and southern regions were 1.66, 4.21 and 1.15 feet, respectively, above the low normal level. District-wide, the average water level in intermediate and Floridan aquifer wells was 2.37 feet above the low normal level.

SUMMARY OF INTERMEDIATE AND FLORIDAN AQUIFER LEVELS IN REPRESENTATIVE WELLS, NOVEMBER 2013

Regional Summary:

<i>Region</i>	<i>NOV 2013 Mean Elevation</i>	<i>NOV 2013 Relation to POR Median</i>	<i>NOV 2013 Relation to 25th Percentile</i>	<i>NOV 2013 Mean Percentile Rank</i>	<i>OCT 2013 Mean Percentile Rank</i>	<i>NOV 2012 Mean Percentile Rank</i>
Northern Counties	37.99	0.32	1.93	55%	54%	60%
Central Counties	57.58	1.50	3.93	67%	70%	59%
Southern Counties	29.82	-1.53	1.55	39%	54%	34%

Regional Wells Summary:

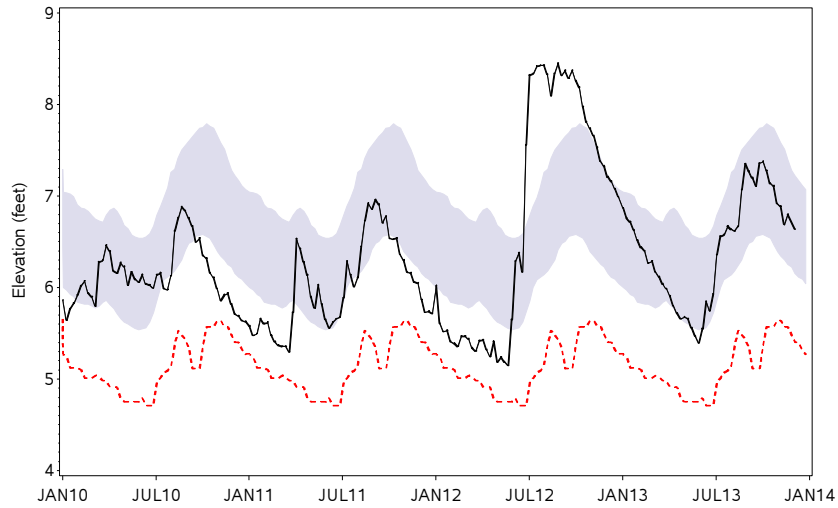
<i>NORTHERN COUNTIES</i>	<i>NOV 2013 Elev</i>	<i>OCT 2013 Elev</i>	<i>NOV 2012 Elev</i>	<i>Change From OCT 2013</i>	<i>Change From NOV 2012</i>	<i>NOV Historical Low Normal</i>	<i>NOV Historical High Normal</i>	<i>Departure From Low Normal</i>	<i>NOV 2013 Percentile Rank</i>	<i>Period of Record Low</i>	<i>Record Low Date</i>	<i>Period of Record High</i>	<i>Record High Date</i>
CE 14 Dunnellon Deep	37.74	38.44	39.32	-0.70	-1.58	36.85	42.57	0.89	33%	31.92	MAY2012	60.24	MAR1966
Chassahowitzka 1 Deep	6.69	6.96	7.42	-0.27	-0.73	6.23	7.32	0.46	50%	4.71	JUN2001	9.67	OCT1982
Inverness Dot Fldn	28.57	28.76	30.98	-0.19	-2.41	27.54	32.28	1.03	30%	21.67	JUN2001	37.80	OCT1982
Mascotte Deep	99.86	100.15	100.19	-0.29	-0.33	97.99	99.65	1.87	88%	93.94	JUN2000	102.66	SEP1988
ROMP 103 Suwannee/Ocala	42.65	43.51	44.66	-0.86	-2.01	37.94	42.56	4.71	76%	33.74	MAY2009	50.98	OCT2004
ROMP 107 Ocala/Avon Park	13.12	13.57	14.71	-0.45	-1.59	11.22	14.63	1.90	48%	8.06	AUG2007	19.78	NOV1982
ROMP 134 Ocala/Avon Park	44.53	44.57	43.73	-0.04	0.80	42.98	47.89	1.55	39%	37.78	JUN2012	57.33	APR1998
ROMP 89 Ocala	91.23	91.76	91.03	-0.53	0.20	88.89	91.62	2.34	63%	82.44	JUN2000	94.86	DEC1997
ROMP 97 Avon Park	18.94	19.65	19.52	-0.71	-0.58	16.06	21.16	2.88	59%	11.82	MAY2009	26.21	SEP2004
ROMP Tr 124 Avon Park	3.12	3.12	3.30	0.00	-0.18	2.28	2.96	0.84	87%	0.77	SEP2004	7.95	JUN1995
ROMP Tr 21-2 Ocala/Avon Pk	1.80	1.92	2.36	-0.12	-0.56	1.56	2.14	0.24	50%	-0.06	DEC1990	4.56	NOV1987
Sumter 13 JC 59 Up Fldn	41.08	41.55	41.69	-0.47	-0.61	39.91	43.01	1.17	42%	36.52	MAY2012	46.92	SEP2004
Webster City Fldn	81.27	82.17	82.94	-0.90	-1.67	80.15	83.91	1.12	44%	74.15	MAY2012	88.70	SEP2005
Weeki Wachee Deep Repl	17.39	18.03	17.38	-0.64	0.01	15.21	19.79	2.18	56%	10.37	MAY2009	23.61	AUG1984

Regional Wells Summary (continued):

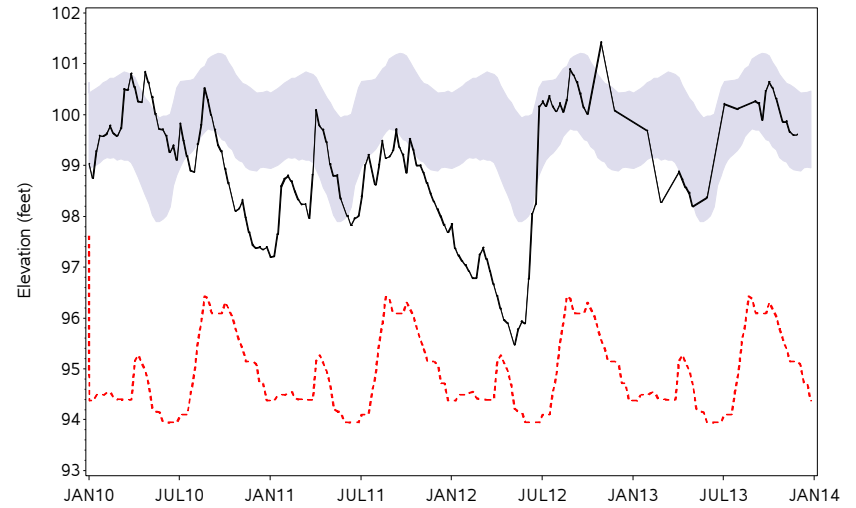
	NOV 2013 Elev	OCT 2013 Elev	NOV 2012 Elev	Change From OCT 2013	Change From NOV 2012	NOV Historical Low Normal	NOV Historical High Normal	Departure From Low Normal	NOV 2013 Percentile Rank	Period of Record Low	Record Low Date	Period of Record High	Record High Date
<i>CENTRAL COUNTIES</i>													
Bexley 2 Fldn	61.75	62.27	61.71	-0.52	0.04	60.09	61.79	1.66	74%	56.08	JUN2000	64.07	SEP1988
Hills State Pk Parking Deep	39.24	40.14	39.56	-0.90	-0.32	37.33	39.36	1.91	69%	35.35	JUN2000	47.40	DEC1997
Lk Alfred Deep nr Lake Alfre	127.24	127.53	126.63	-0.29	0.61	126.20	128.56	1.04	51%	119.85	MAY1974	131.62	OCT1960
Lykes Pasco Fldn	67.81	68.85	68.65	-1.04	-0.84	63.59	68.09	4.22	75%	56.94	JUN2000	75.78	OCT2004
Masaryktown Deep	38.22	38.76	35.98	-0.54	2.24	29.08	41.20	9.14	66%	21.89	AUG1994	50.32	SEP1984
Moon Lake Deep	31.45	31.85	30.83	-0.40	0.62	29.57	30.98	1.88	91%	25.27	AUG1990	34.38	MAR1998
Pasco Well 13 nr Drexel Fldn	72.11	72.74	72.13	-0.63	-0.02	71.77	73.46	0.34	36%	68.00	JUN2001	77.14	JUL1960
Pinellas 665 Fldn	8.95	9.18	8.52	-0.23	0.43	9.09	11.09	-0.14	19%	6.70	MAY2006	14.79	SEP1959
ROMP 45 Avon Park	71.27	73.94	71.09	-2.67	0.18	60.68	71.22	10.59	77%	31.75	MAY1981	84.41	OCT2004
ROMP 50 Avon Park	6.81	8.35	5.52	-1.54	1.29	2.68	6.66	4.13	77%	-32.77	FEB2004	14.95	AUG1982
ROMP 59 Swnn/AvPk	71.52	74.82	72.28	-3.30	-0.76	59.45	71.81	12.07	72%	33.33	MAY1981	85.92	OCT2004
ROMP 66 Tampa	18.95	19.87	19.69	-0.92	-0.74	16.68	18.57	2.27	79%	12.04	JUN1977	24.51	DEC1997
ROMP 87 Avon Park	102.76	102.99	102.22	-0.23	0.54	101.09	102.94	1.67	72%	94.88	JUN2000	105.82	DEC1997
ROMP 93 Swnn/AvPk	73.10	73.58	71.79	-0.48	1.31	66.25	72.86	6.85	82%	45.86	OCT2013	76.60	SEP1982
SR 52 Deep W nr Fivay Jct	52.86	53.32	52.73	-0.46	0.13	51.63	52.85	1.23	77%	48.08	JUN2000	59.53	AUG2010
SR 577 Deep	92.31	93.79	91.88	-1.48	0.43	84.71	92.58	7.60	74%	72.76	JUN2000	98.51	MAR1998
Sanlon Ranch Fldn	95.03	96.71	95.77	-1.68	-0.74	85.90	95.07	9.13	75%	66.38	MAY1975	105.27	OCT2004
Tarpon Rd Deep	10.05	10.49	9.87	-0.44	0.18	9.83	10.80	0.22	38%	7.41	MAY2007	13.06	SEP1971

	NOV 2013 Elev	OCT 2013 Elev	NOV 2012 Elev	Change From OCT 2013	Change From NOV 2012	NOV Historical Low Normal	NOV Historical High Normal	Departure From Low Normal	NOV 2013 Percentile Rank	Period of Record Low	Record Low Date	Period of Record High	Record High Date
<i>SOUTHERN COUNTIES</i>													
Big Slough Deep	33.34	34.79	33.10	-1.45	0.24	32.32	33.67	1.02	66%	26.84	MAY2006	36.12	OCT1995
Edgeville 3 Deep	25.30	30.82	25.44	-5.52	-0.14	25.13	36.08	0.17	26%	1.13	MAY2000	46.40	OCT1965
Englewood 14 Deep	6.28	7.16	5.11	-0.88	1.17	3.47	6.20	2.81	78%	-0.97	FEB2001	11.37	SEP1974
Florida Cities Test 1	3.46	7.73	1.52	-4.27	1.94	5.17	17.71	-1.71	14%	-18.63	MAY1976	25.89	SEP1977
Kibler Deep	5.90	10.91	4.18	-5.01	1.72	4.16	14.92	1.74	36%	-29.95	MAY2000	29.30	AUG1978
Manasota 14 Deep	18.67	19.37	18.46	-0.70	0.21	19.21	21.29	-0.54	20%	15.55	MAY2009	22.70	NOV1971
Marshall Deep	40.10	46.14	41.88	-6.04	-1.78	39.62	47.93	0.48	30%	8.96	JUN2000	55.24	MAR1964
ROMP 16 Ocala	45.82	47.81	46.74	-1.99	-0.92	45.74	48.46	0.08	26%	28.94	JAN2001	51.00	OCT1995
ROMP 26 Swnn/AvPk	42.69	46.68	43.58	-3.99	-0.89	42.07	46.73	0.62	38%	17.78	DEC2010	52.21	OCT1979
ROMP 28X Swnn/AvPk	69.11	70.84	70.07	-1.73	-0.96	67.57	70.20	1.54	57%	56.36	JAN2010	74.60	OCT1995
ROMP 30 Swnn/AvPk	43.40	49.85	47.50	-6.45	-4.10	41.19	50.08	2.21	42%	-0.20	JUN2000	60.52	MAR1998
ROMP 31 Swnn/AvPk	39.90	46.72	43.10	-6.82	-3.20	36.03	45.65	3.87	45%	-8.20	JUN2000	57.79	MAR1998
ROMP 32 L Ocala/Avon Park	25.06	31.97	26.25	-6.91	-1.19	20.07	31.87	4.99	47%	-17.76	JUN2000	44.70	FEB1998
ROMP 43XX Avon Park	88.17	88.85	88.04	-0.68	0.13	85.20	89.31	2.97	54%	67.27	JAN2010	94.60	MAR1998
ROMP Tr 5-1 Suwannee	19.33	20.81	15.89	-1.48	3.44	18.60	20.26	0.73	47%	13.16	JUN2000	23.00	SEP1983
ROMP Tr 7-1 Tampa	17.82	19.21	17.56	-1.39	0.26	17.47	19.43	0.35	45%	9.81	JUN2000	23.40	SEP2003
Sarasota 11th St Deep	6.42	8.48	6.32	-2.06	0.10	7.24	10.96	-0.82	13%	-0.60	APR2012	19.31	SEP1979
Sarasota Service Office Up F	14.72	18.07	17.55	-3.35	-2.83	14.99	25.94	-0.27	24%	-3.24	JUN2000	35.21	MAR1931
Verna Test 0-1	13.54	17.99	12.47	-4.45	1.07	11.87	20.91	1.67	39%	-16.79	MAY2000	33.32	JAN1984

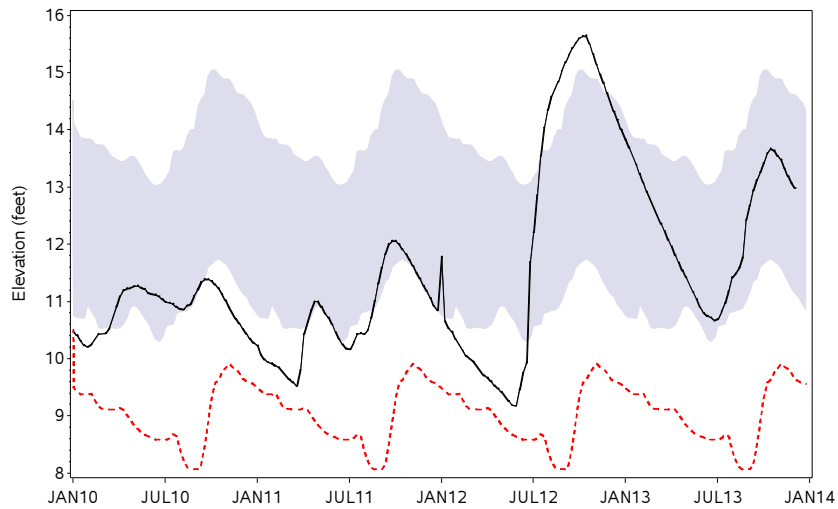
Chassahowitzka #1
Northern Region



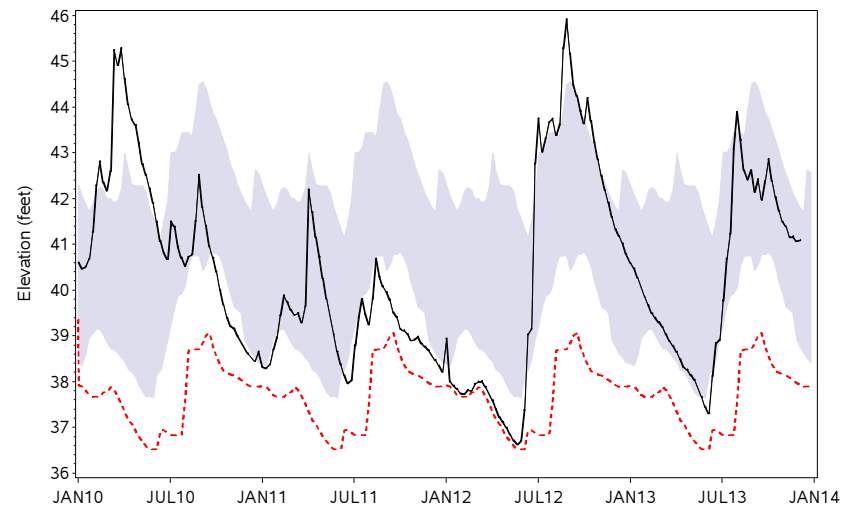
Mascotte Deep
Northern Region



ROMP 107 Ocala/Avon Park
Northern Region

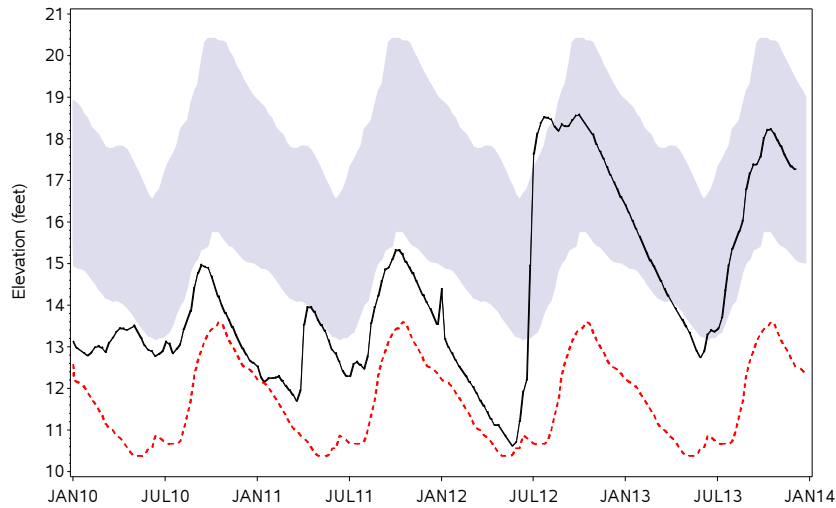


Sumter 13 Upper Fldn
Northern Region

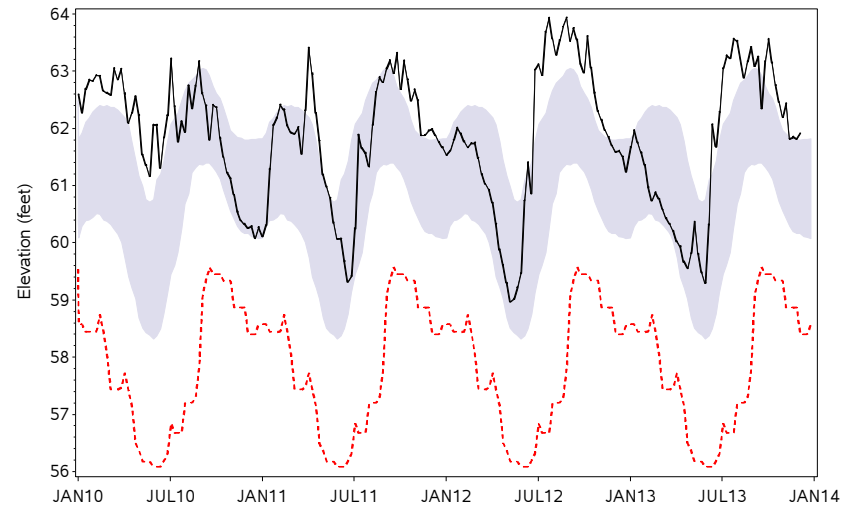


— Average Weekly Elevation - - - - - POR Weekly Low Normal Range

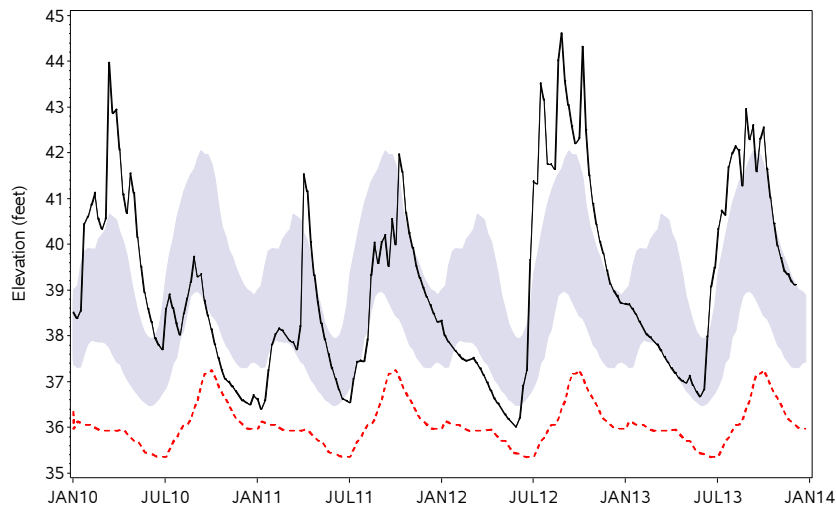
Weeki Wachee Deep
Northern Region



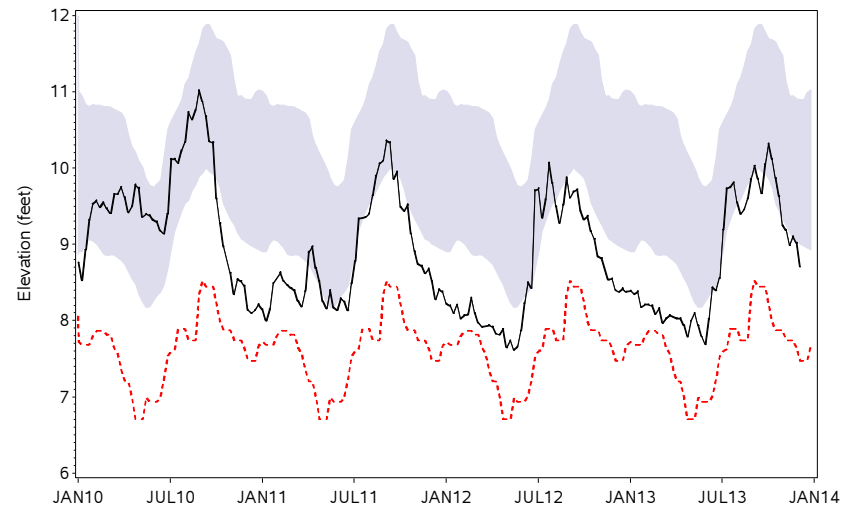
Bexley Well 2
Central Region



Hillsborough St Park Deep
Central Region

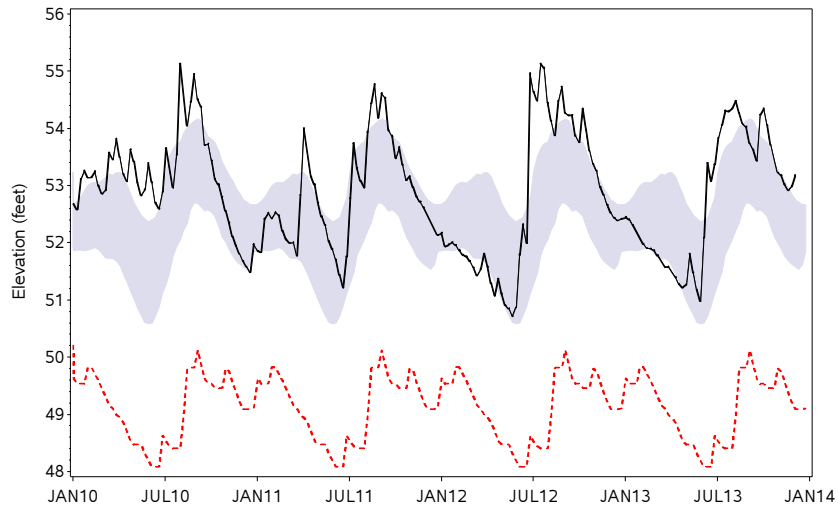


Pinellas 665
Central Region

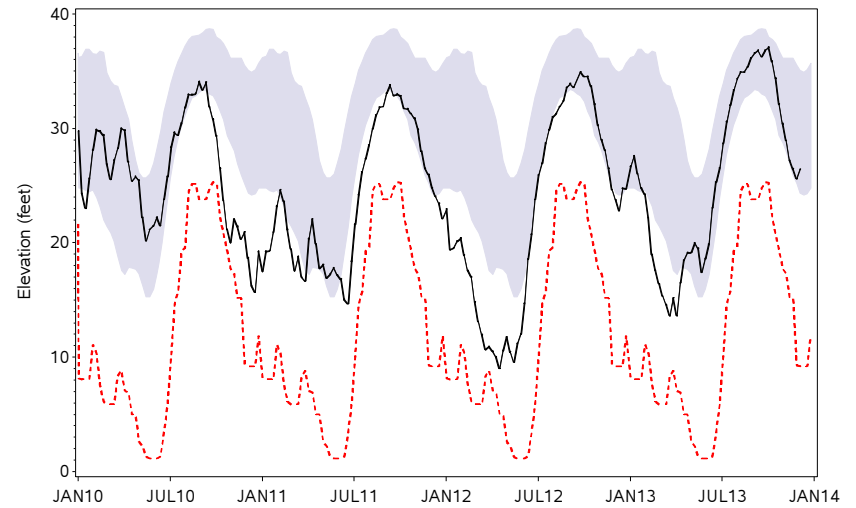


— Average Weekly Elevation - - - - - POR Weekly Low Normal Range

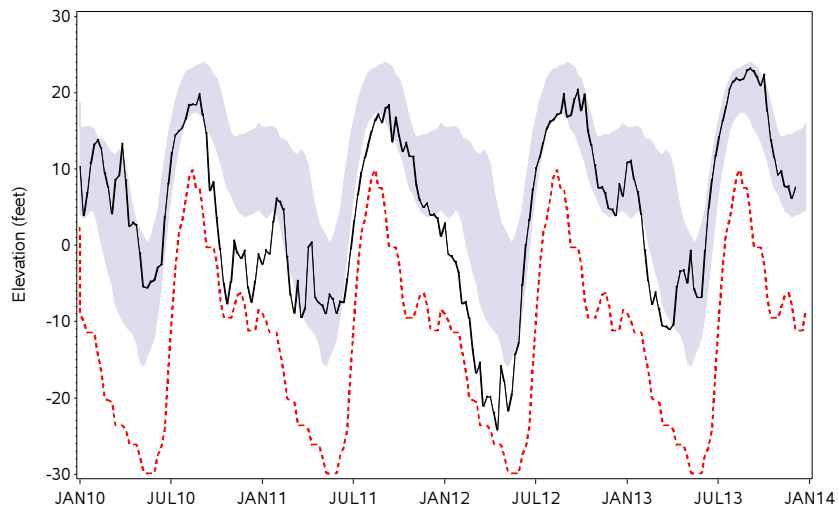
SR 52 Deep (West) near Fivay
Central Region



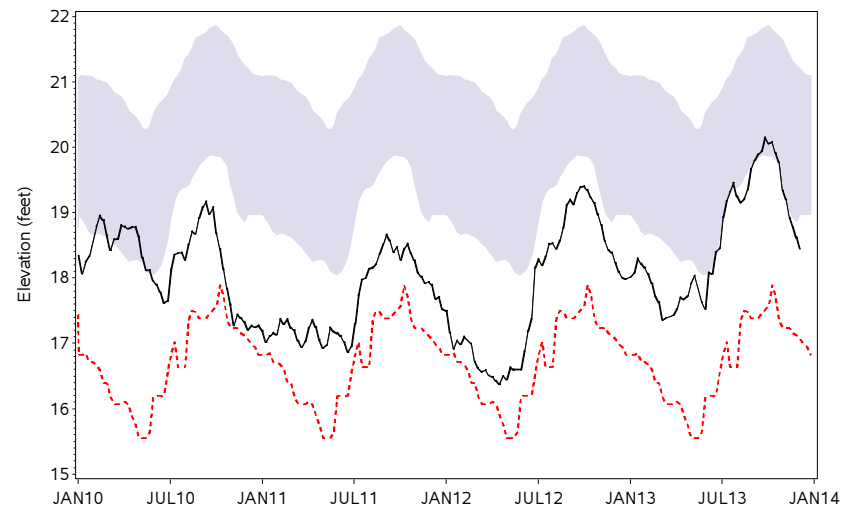
Edgeville 3 Deep
Southern Region



Kibler Deep
Southern Region

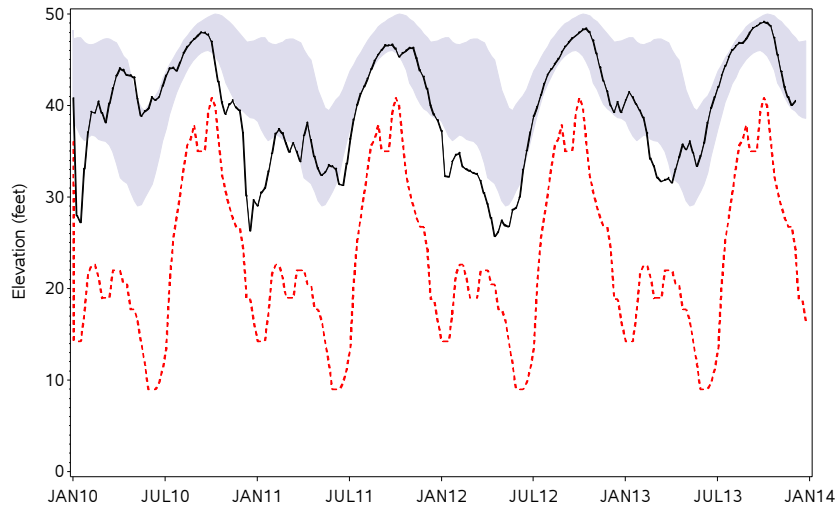


Manasota 14 Deep
Southern Region

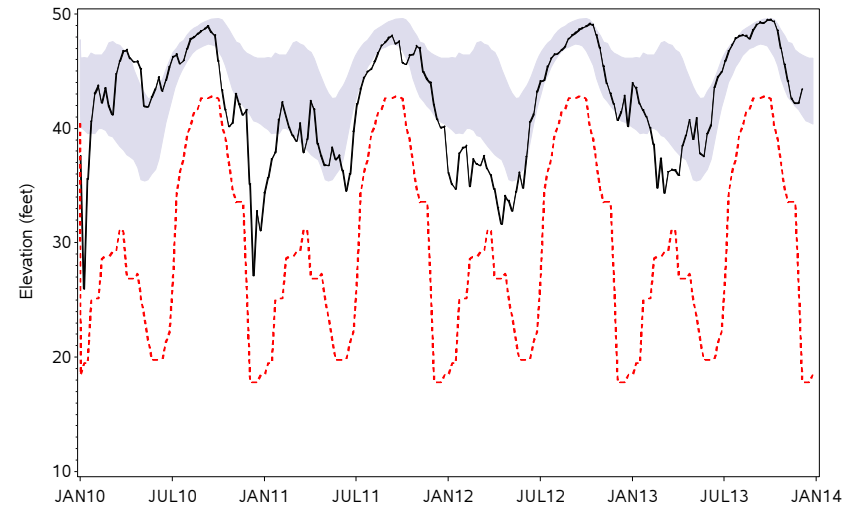


— Average Weekly Elevation POR Weekly Low Normal Range

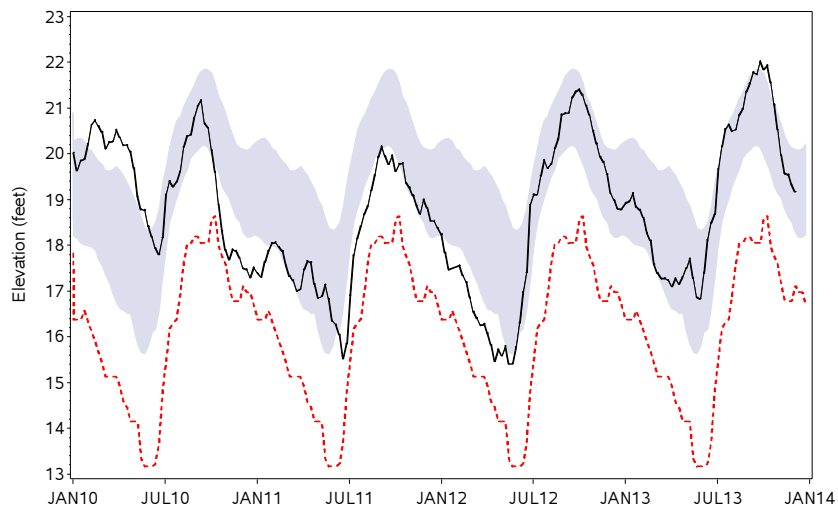
Marshall Deep
Southern Region



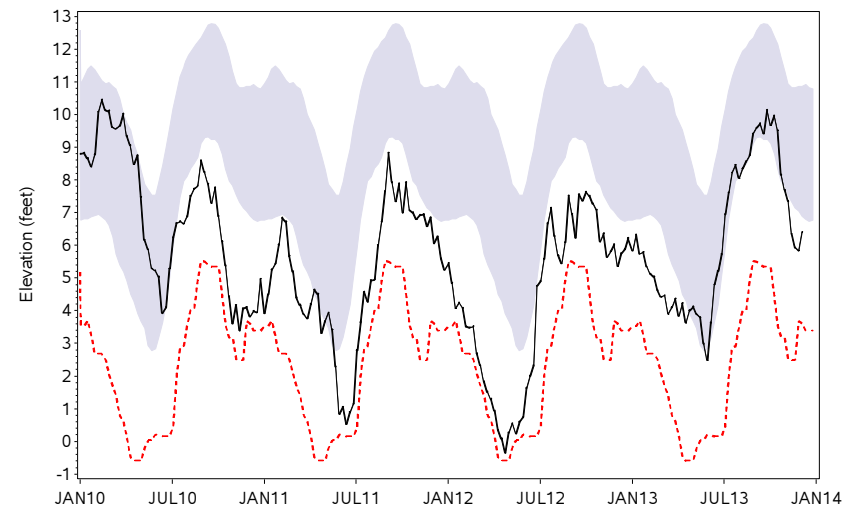
ROMP 26 Suwannee/Avon Park
Southern Region



ROMP TR 5-1 Suwannee
Southern Region

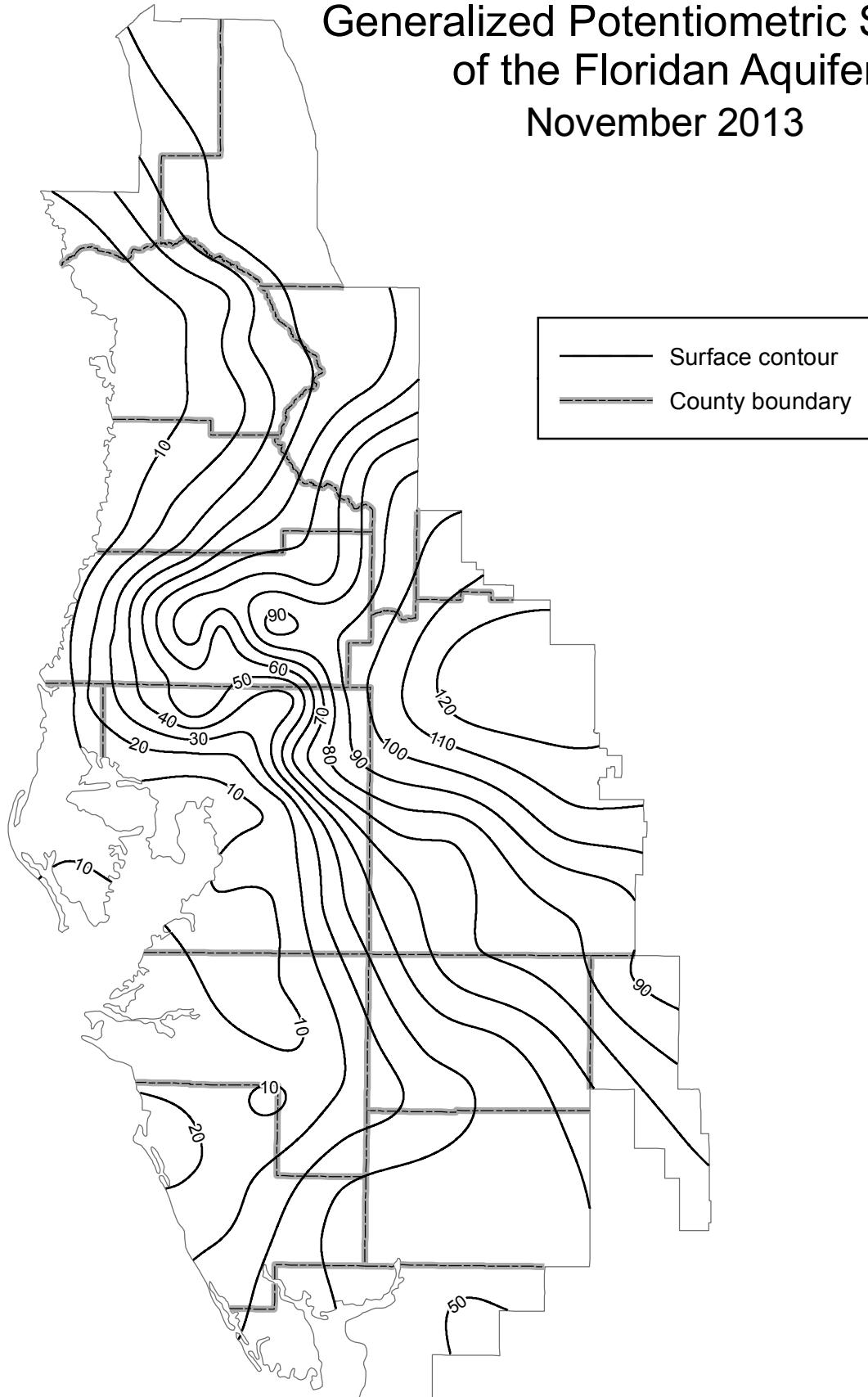


Sarasota 11th Street Deep
Southern Region



— Average Weekly Elevation POR Weekly Low Normal Range

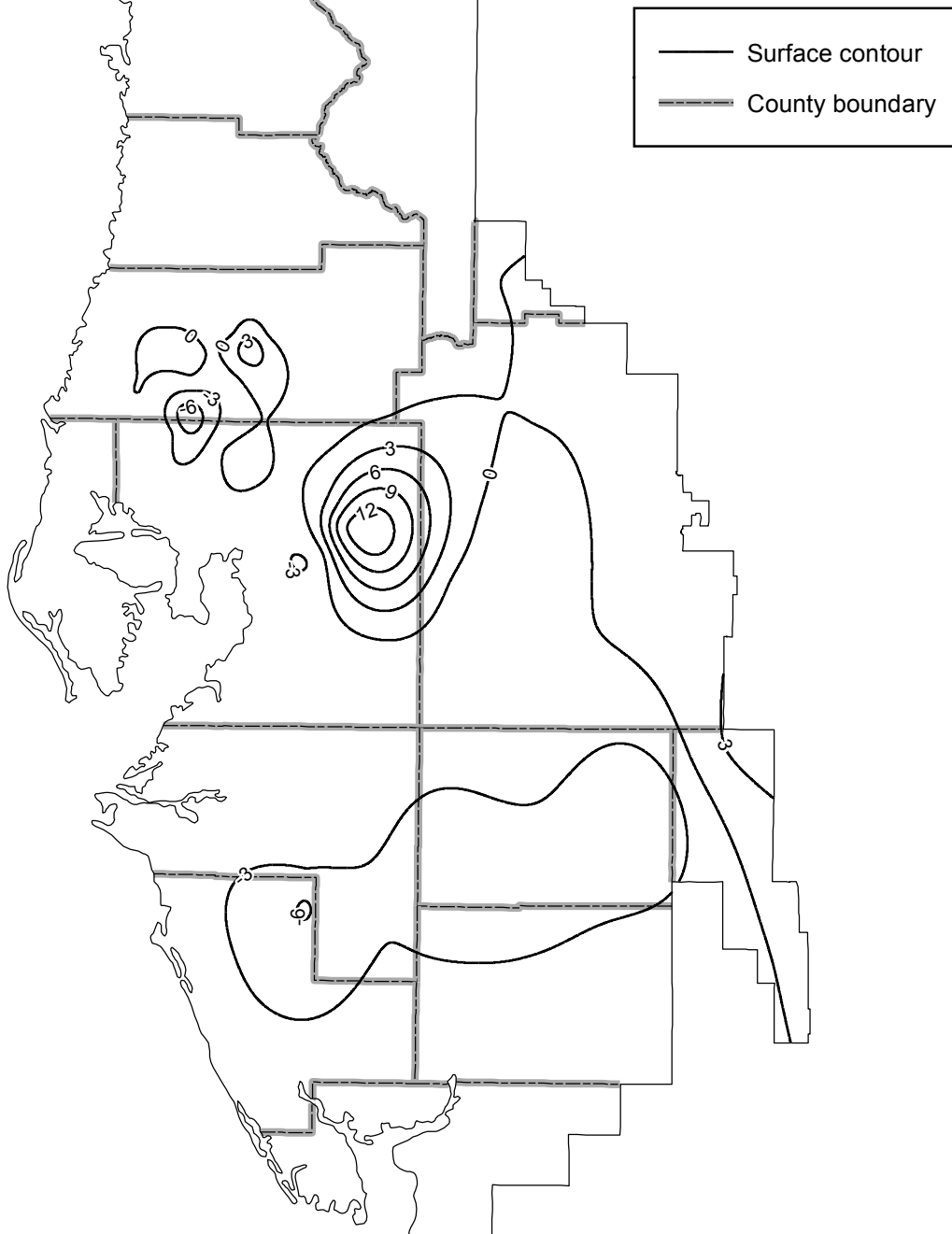
Generalized Potentiometric Surface of the Floridan Aquifer November 2013



Compiled by M. L. Crowell

Contour interval = 10 feet

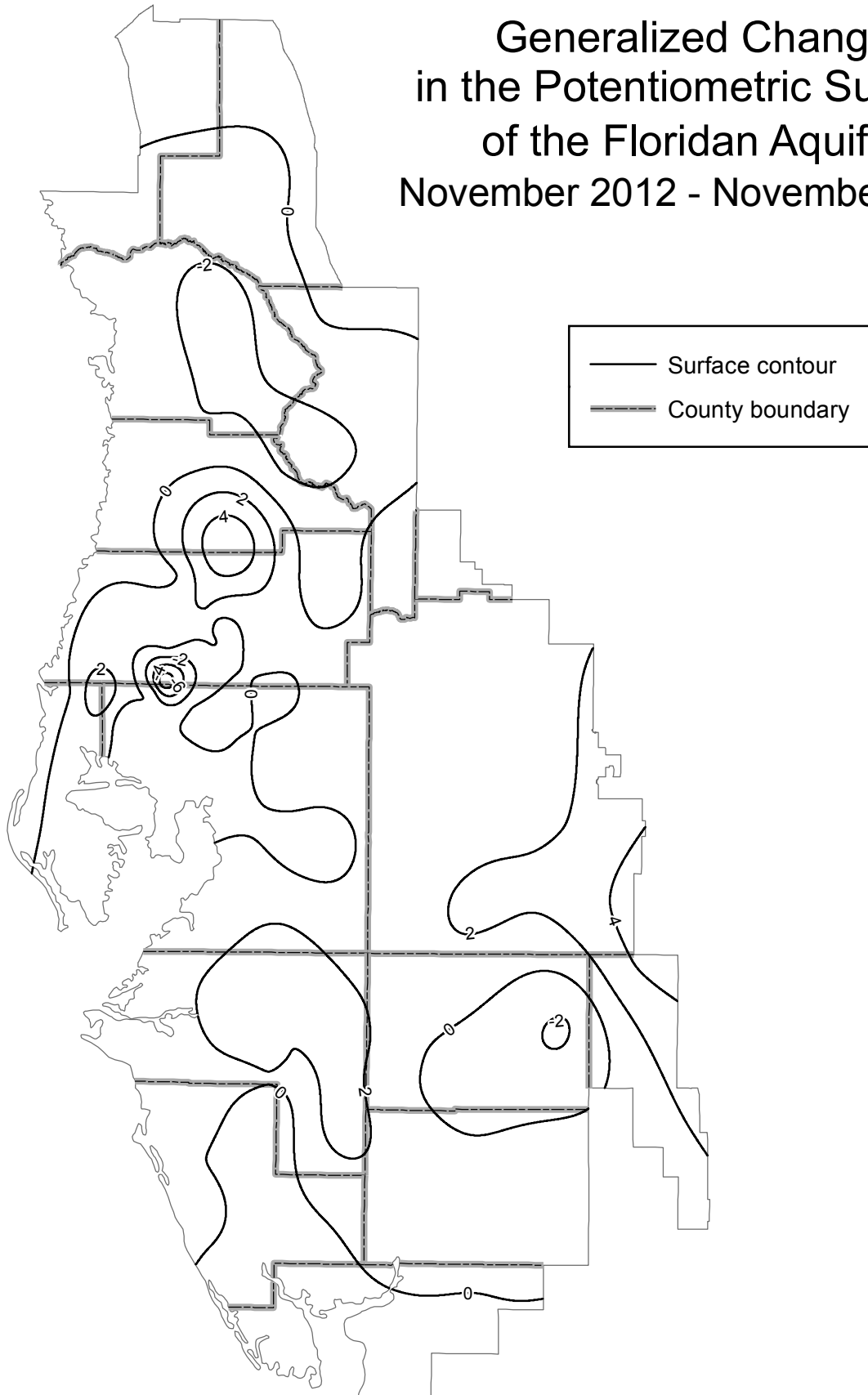
Generalized Change in the Potentiometric Surface of the Floridan Aquifer October 2013 - November 2013



Compiled by M. L. Crowell

Contour interval = 3 feet

Generalized Change in the Potentiometric Surface of the Floridan Aquifer November 2012 - November 2013



Compiled by M. L. Crowell

Contour interval = 2 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.

During November, average water levels decreased in eleven of the twelve intermediate and Floridan wells and eight of the nine surficial wells, compared to last month's data. Data was unavailable for the Morris Bridge 3A shallow and deep wells. Average water levels measured in the intermediate and Floridan wells decreased 2.34 feet, while levels measured in surficial wells decreased 0.89 foot.

In November, average water levels in five of the 12 intermediate and Floridan wells and seven of the nine surficial wells were above last year's levels. Water levels measured in the intermediate and Floridan wells averaged 0.80 foot below last year's levels, while surficial water levels averaged 0.24 foot above November 2012 levels.

For November, average water levels in all 12 intermediate and Floridan wells and all nine surficial wells were above the low normal level, compared to historical monthly levels. Water levels measured in the intermediate and Floridan wells averaged 7.88 feet above the low normal level, while levels in the surficial wells averaged 5.67 feet above the low normal level.

SUMMARY OF GROUNDWATER LEVELS IN REPRESENTATIVE WELLFIELD WELLS, NOVEMBER 2013

	NOV 2013 Elev	OCT 2013 Elev	NOV 2012 Elev	Change From OCT 2013	Change From NOV 2012	NOV Historical Low Normal	NOV 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	30.09	32.45	30.75	-2.36	-0.66	22.70	26.34	7.39	10.86	JUN2000	33.75	AUG2012
Cross Bar WRW	49.33	50.16	49.30	-0.83	0.03	40.89	53.90	8.44	33.93	DEC1993	61.65	AUG1984
Cypress Crk TMR-1 Deep	61.56	63.59	63.79	-2.04	-2.23	52.17	60.62	9.39	36.91	FEB2001	70.87	JUN1976
Cypress Crk TMR-3 Deep	57.48	58.24	61.15	-0.76	-3.67	50.95	57.10	6.53	34.19	FEB2001	68.74	JUL1976
Eldridge-Wilde 11 Deep	25.70	26.07	22.50	-0.37	3.20	11.61	18.14	14.09	0.31	SEP1990	64.70	NOV2009
Eldridge-Wilde 2S	23.84	24.52	21.07	-0.68	2.77	10.63	17.46	13.21	-1.36	JUN2000	25.43	SEP2013
Morris Bridge 3A Deep	30.15	.	31.49	.	-1.34	27.81	32.24	2.34	17.91	MAY2009	42.53	AUG2013
Section 21 Hills 13 Deep	44.71	47.78	44.75	-3.06	-0.03	35.12	44.87	9.59	21.43	JUN2002	52.08	JUL1944
South Pasco 42	50.73	56.64	55.38	-5.91	-4.66	41.93	47.62	8.80	27.38	MAY2002	58.35	AUG2012
South Pasco SR 54 Deep	53.20	57.56	56.48	-4.36	-3.27	45.89	53.87	7.31	33.19	MAY2002	59.20	AUG2012
Starkey Regional	35.53	36.29	35.29	-0.76	0.24	31.53	33.95	4.00	24.98	JUN2000	37.69	JUL2012
Verna 08	9.39	14.02	9.35	-4.63	0.04	5.92	14.15	3.47	-24.32	MAY1989	26.68	FEB1998
<i>SURFICIAL WELLS</i>												
Cosme-Odessa IC-6	37.70	38.78	37.29	-1.08	0.41	36.00	37.60	1.70	31.91	JUL1973	42.72	SEP1988
Cross Bar SERW	67.00	67.60	65.74	-0.60	1.26	59.21	68.00	7.79	53.08	JUL1994	72.53	JUL1984
Cypress Crk TMR-1 Shallow	62.67	64.79	64.38	-2.12	-1.71	55.56	63.74	7.11	39.89	DEC2000	69.06	AUG2003
Cypress Crk TMR-3 Shallow	58.24	60.49	59.49	-2.25	-1.25	53.76	58.76	4.48	53.55	MAY1997	64.66	AUG1978
Eldridge-Wilde 11 Shallow	27.77	28.07	26.42	-0.30	1.35	18.03	22.77	9.74	10.28	MAY1991	29.34	SEP2004
Morris Bridge 3A Shallow	34.36	.	33.31	.	1.06	31.20	33.78	3.16	24.02	MAY2009	39.20	DEC1997
Section 21 Hills 13 Shallow	52.02	52.17	51.57	-0.15	0.45	40.77	49.66	11.25	33.81	MAY2001	53.82	AUG2012
South Pasco SR 54 Shallow	58.90	59.03	58.87	-0.13	0.03	56.86	58.57	2.04	54.43	OCT1980	60.49	SEP1998
Starkey 707	31.11	31.64	30.58	-0.53	0.53	27.32	29.99	3.79	22.70	JUN2000	33.85	MAR1998

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 51 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.

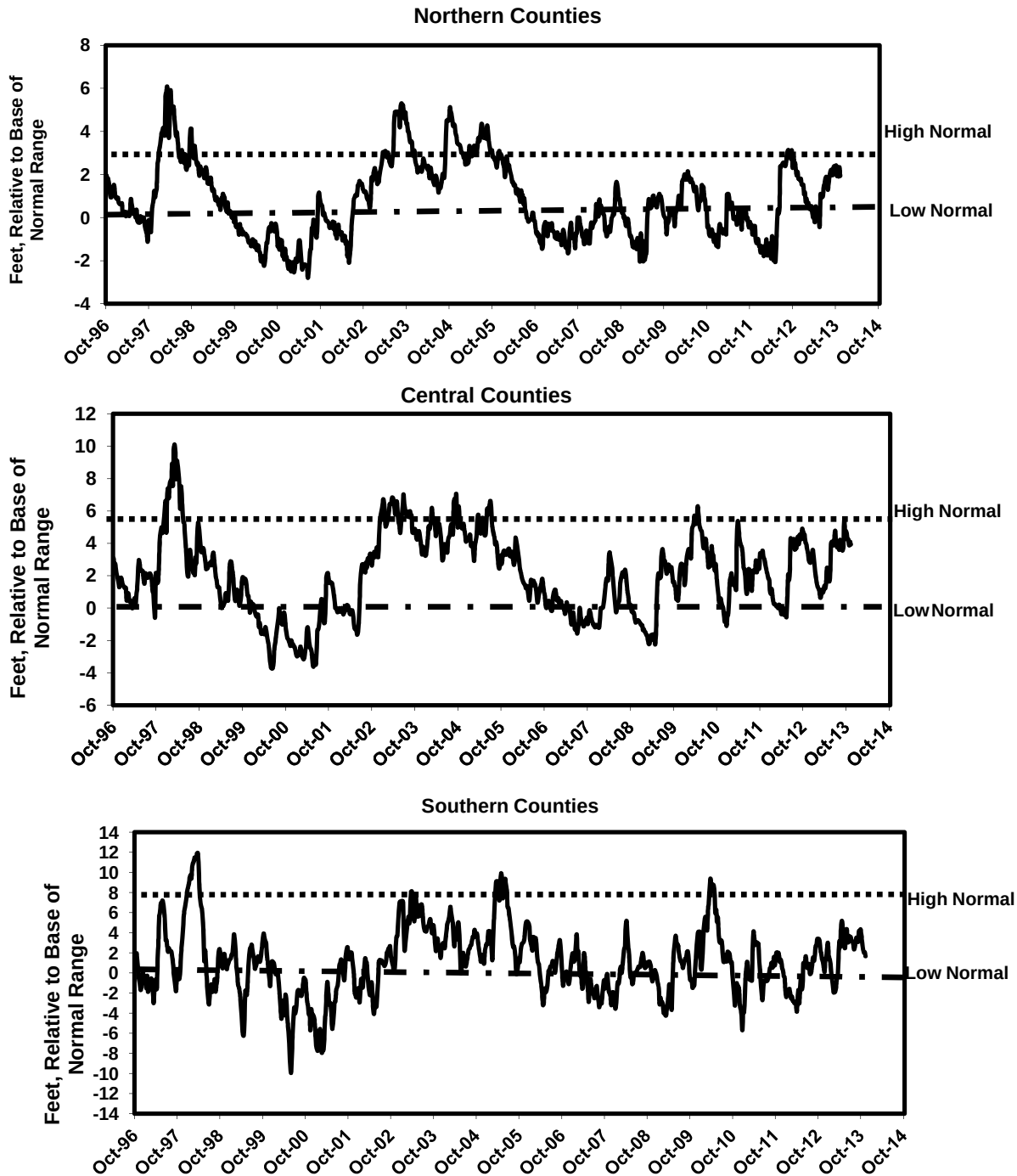
To determine the ARI value for a geographic area, each well is compared to its respective low-normal value weekly, and the difference is calculated. The weekly differences are used to determine the regional ARI value and the resulting ARI value represents how far water levels in the aquifer have to rise 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 25th Percentile)**

Report Date	Northern Counties	Central Counties	Southern Counties
11/04/2013	2.34	4.24	2.34
11/11/2013	1.91	3.87	2.02
11/18/2013	2.34	4.10	2.06
11/25/2013	1.93	3.93	1.55

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

AQUIFER RESOURCE INDEX*
November 2013



*Average Groundwater Level Relative to Low Normal

Compiled By Pam Green

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 November, three of the seven reservoirs monitored for this report recorded water-level decreases, three reported increases, while one reported no change, compared to last month. The Evers, Lake Manatee and Shell Creek reservoirs posted average water level decreases of 0.26, 0.64 and 0.05 foot, respectively. The Bill Young and Peace River Nos. 1 and 2 reservoirs reported water level increases of 0.48, 0.40 and 0.20 foot, respectively. The Hillsborough River reservoir reported no change in water-level from last month.

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

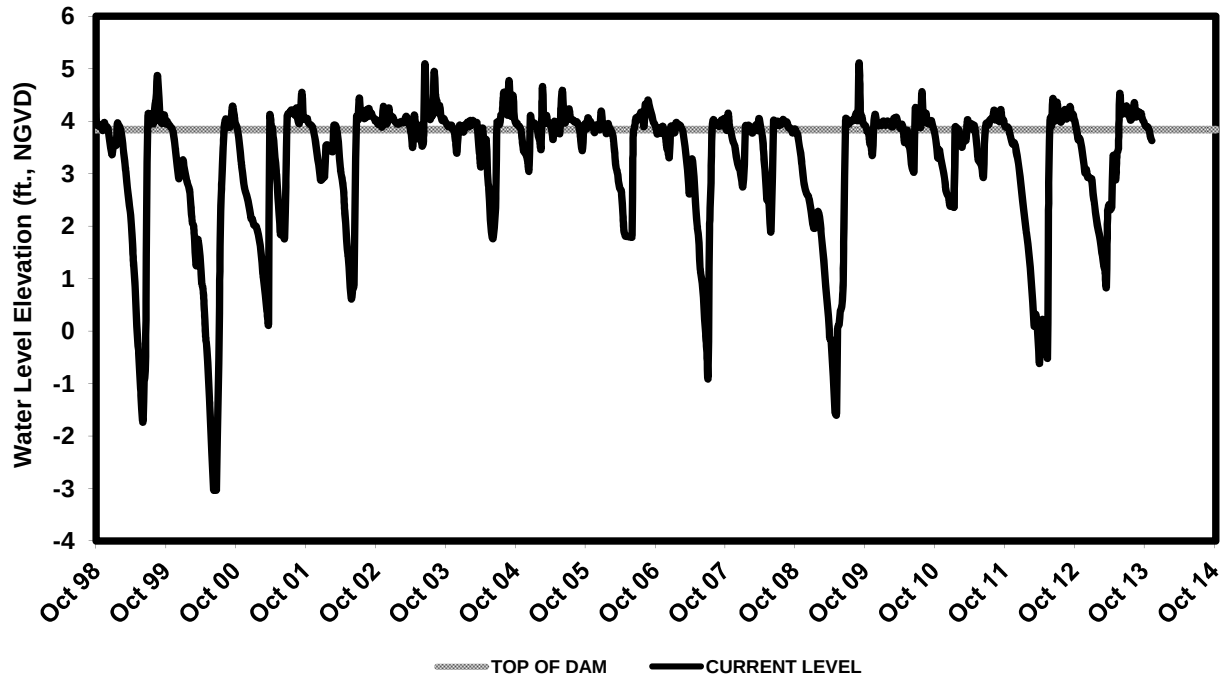
RESERVOIR	2013 Oct	2013 Nov	2012 Nov	Change from Prior Month	Change from Prior Year
Evers					
City of Bradenton	3.89	3.63	3.39	-0.26	0.24
Hillsborough					
City of Tampa	22.66	22.66	22.56	0.00	0.10
Lake Manatee					
Manatee County	40	39.36	39.78	-0.64	-0.42
C.W. Bill Young Regional					
Tampa Bay Water	66.51	66.99	85.87	0.48	-18.88
Peace River					
PRMRWSA Reservoir #1	24.4	24.8	24.8	0.40	0.00
PRMRWSA Reservoir #2	62.1	62.3	62.7	0.20	-0.40
Shell Creek					
City of Punta Gorda	5.17	5.12	5.13	-0.05	-0.01

NGVD - National Geodetic Vertical Datum

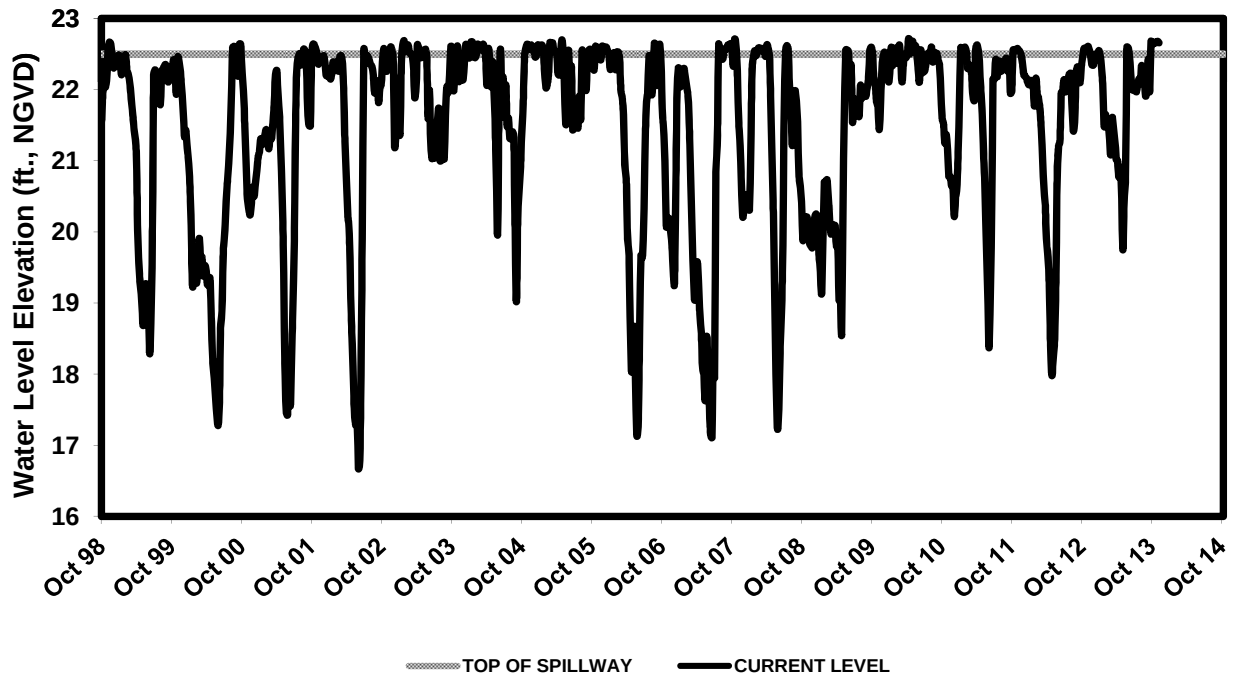
Reported data are provisional and subject to revision.

Compiled by Pam Green

EVERS RESERVOIR City of Bradenton

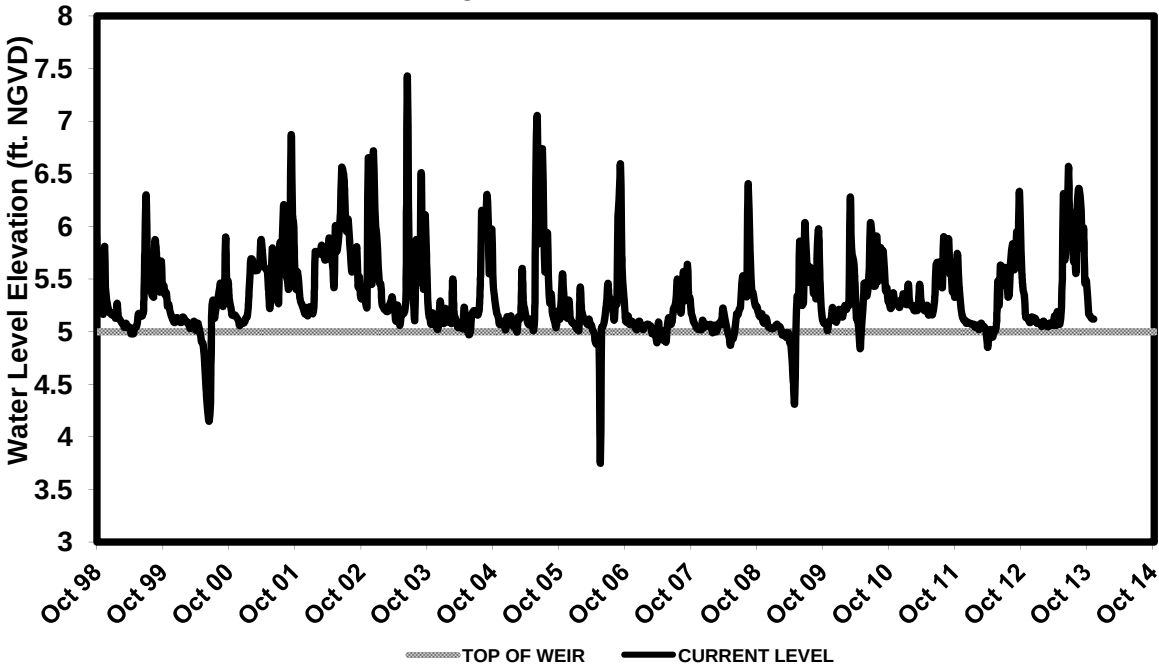


HILLSBOROUGH RESERVOIR City of Tampa

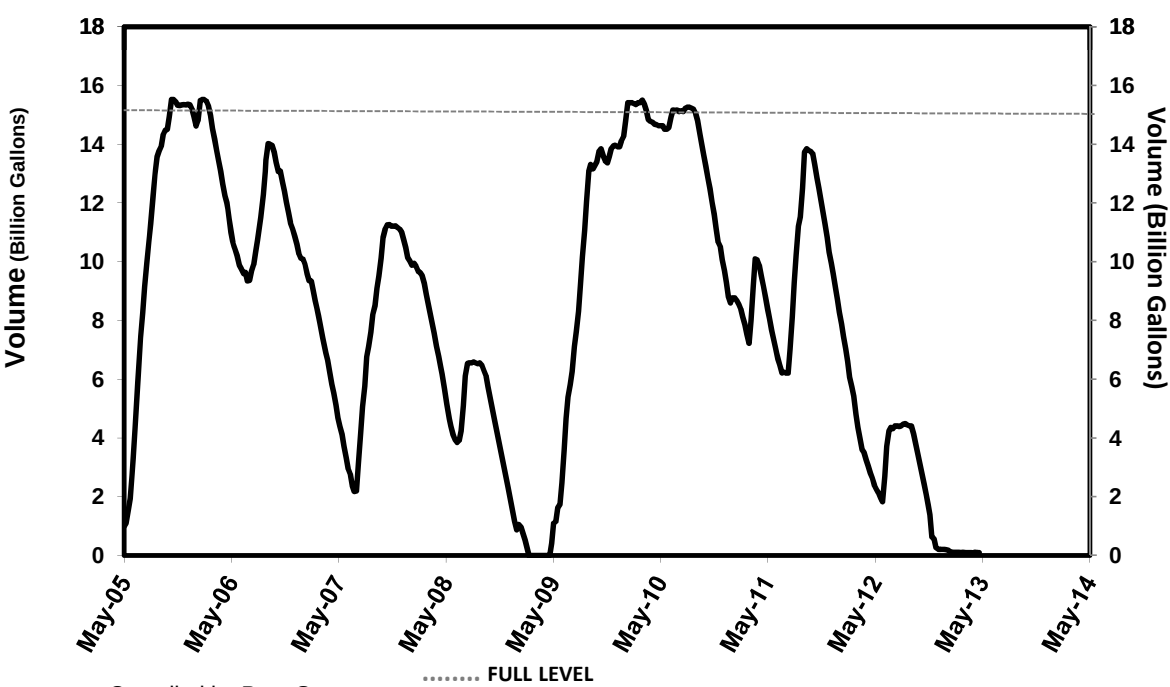


Compiled by Pam Green

SHELL CREEK RESERVOIR City of Punta Gorda

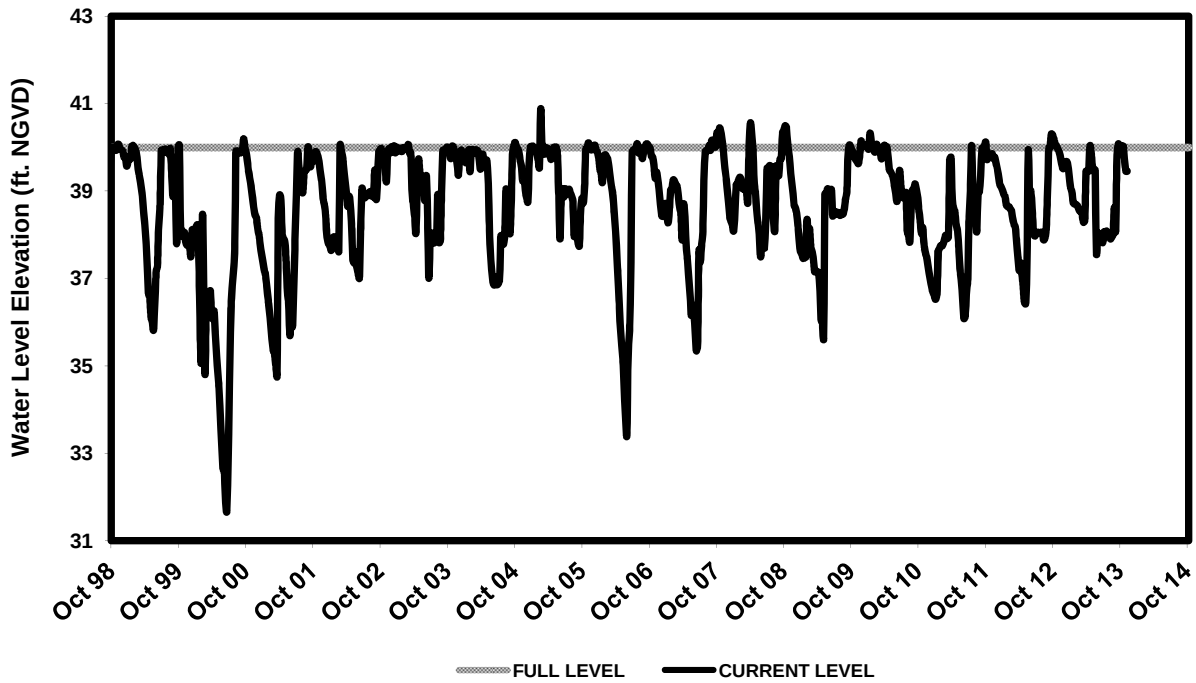


C.W. BILL YOUNG REGIONAL RESERVOIR Tampa Bay Water

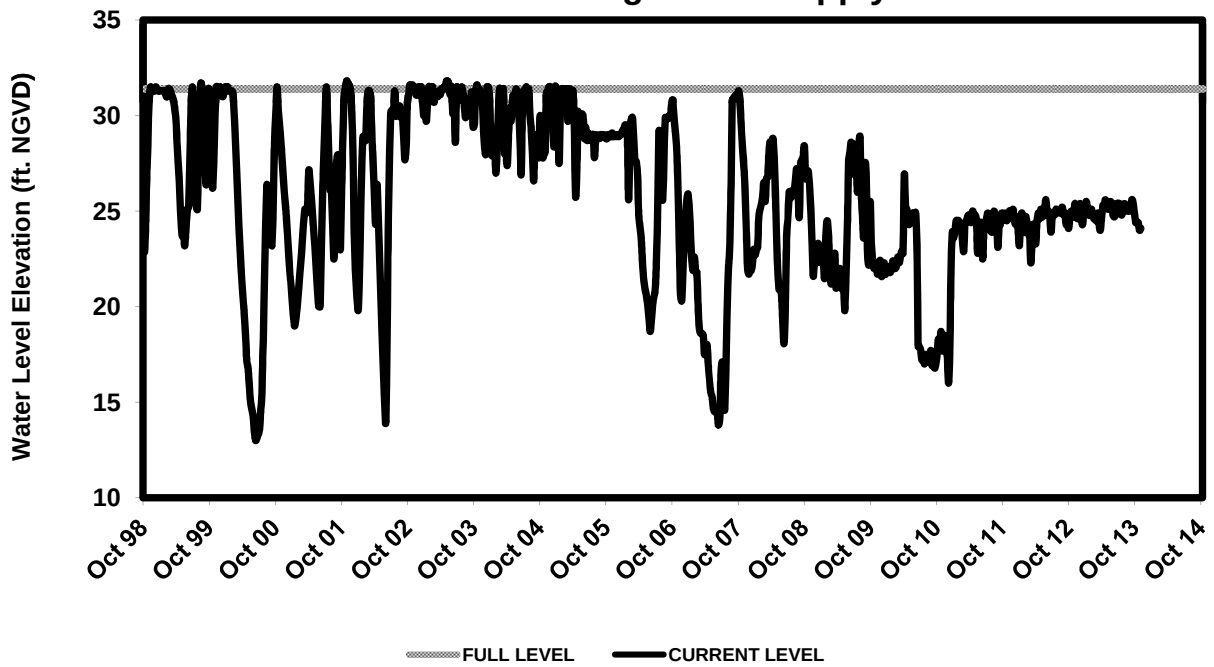


Compiled by Pam Green

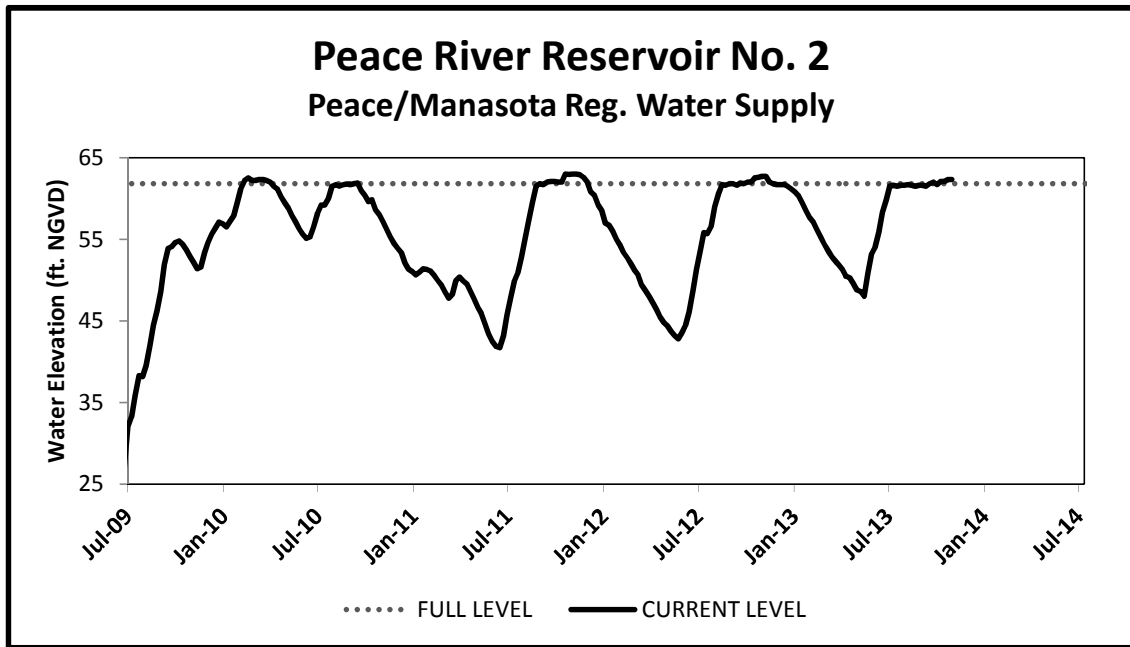
LAKE MANATEE RESERVOIR Manatee County



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



Compiled by Pam Green



Compiled by Pam Green

APPENDICES

Rainfall percentiles by interval and region, inches.

Rainfall Interval	Region	10TH Percentile (P10)	25th Percentile (P25)	50th Percentile (P50)	75th Percentile (P75)	90th Percentile (P90)
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

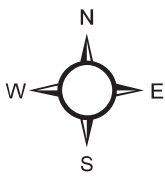
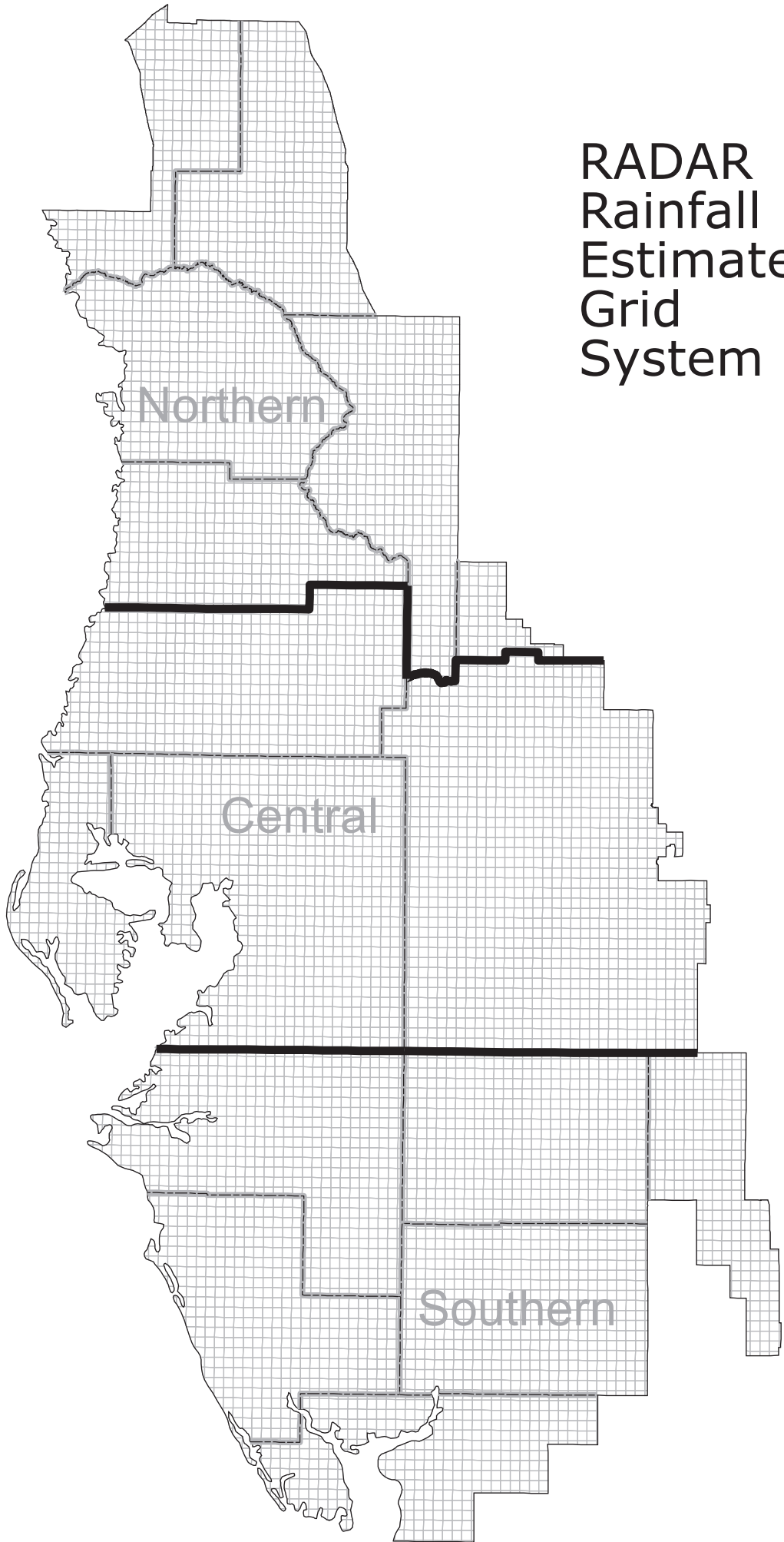
Rainfall percentiles by interval and region, inches (continued).

Rainfall Interval	Region	10TH Percentile (P10)	25th Percentile (P25)	50th Percentile (P50)	75th Percentile (P75)	90th Percentile (P90)
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

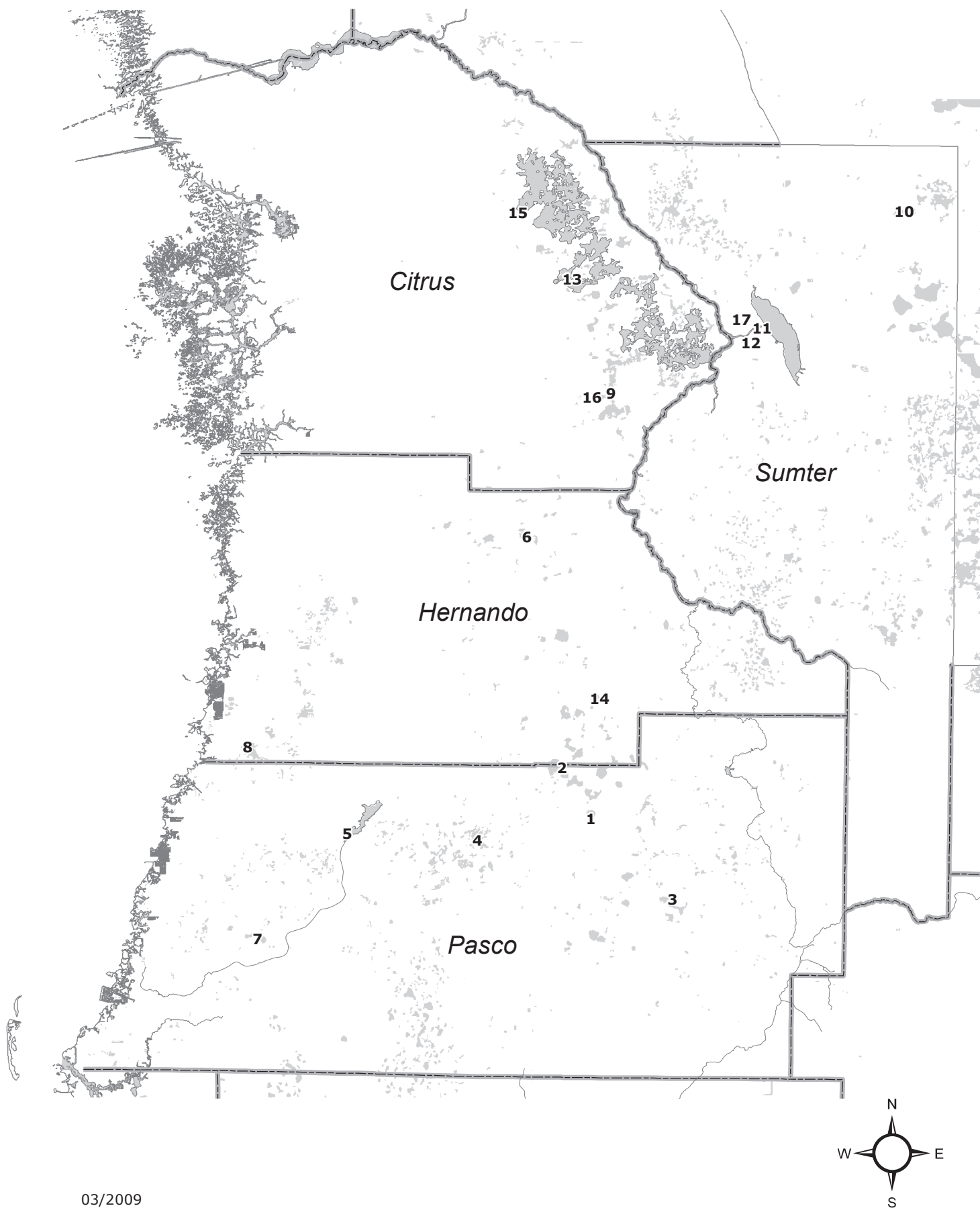
Rainfall characterization ranges

Characterization	Range	Corresponding Rainfall Percent of Normal (approximate)
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

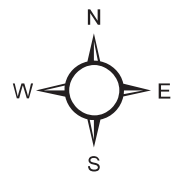
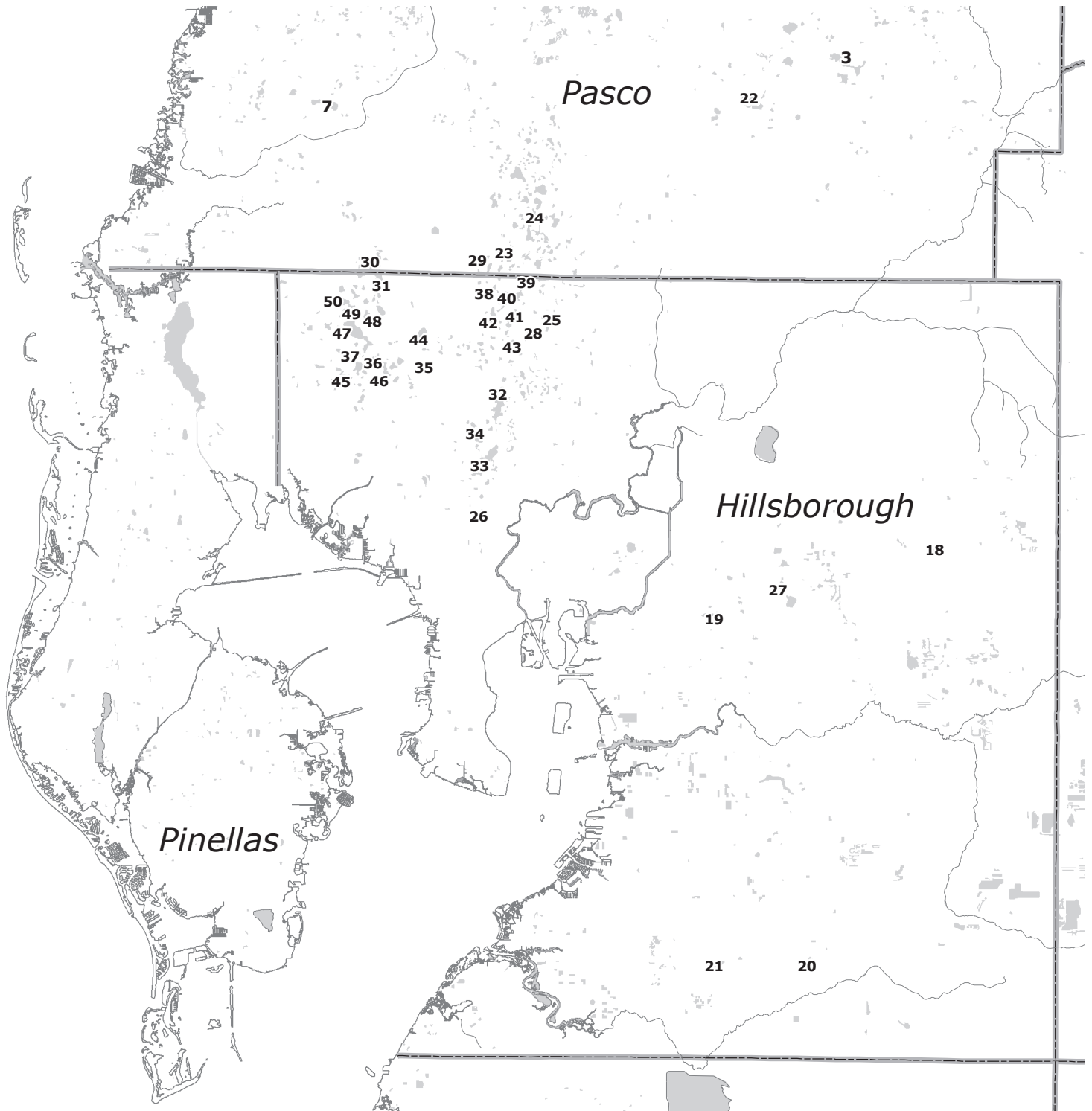
RADAR
Rainfall
Estimate
Grid
System



Selected Lake Monitoring Stations Northern Region

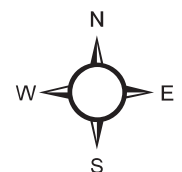
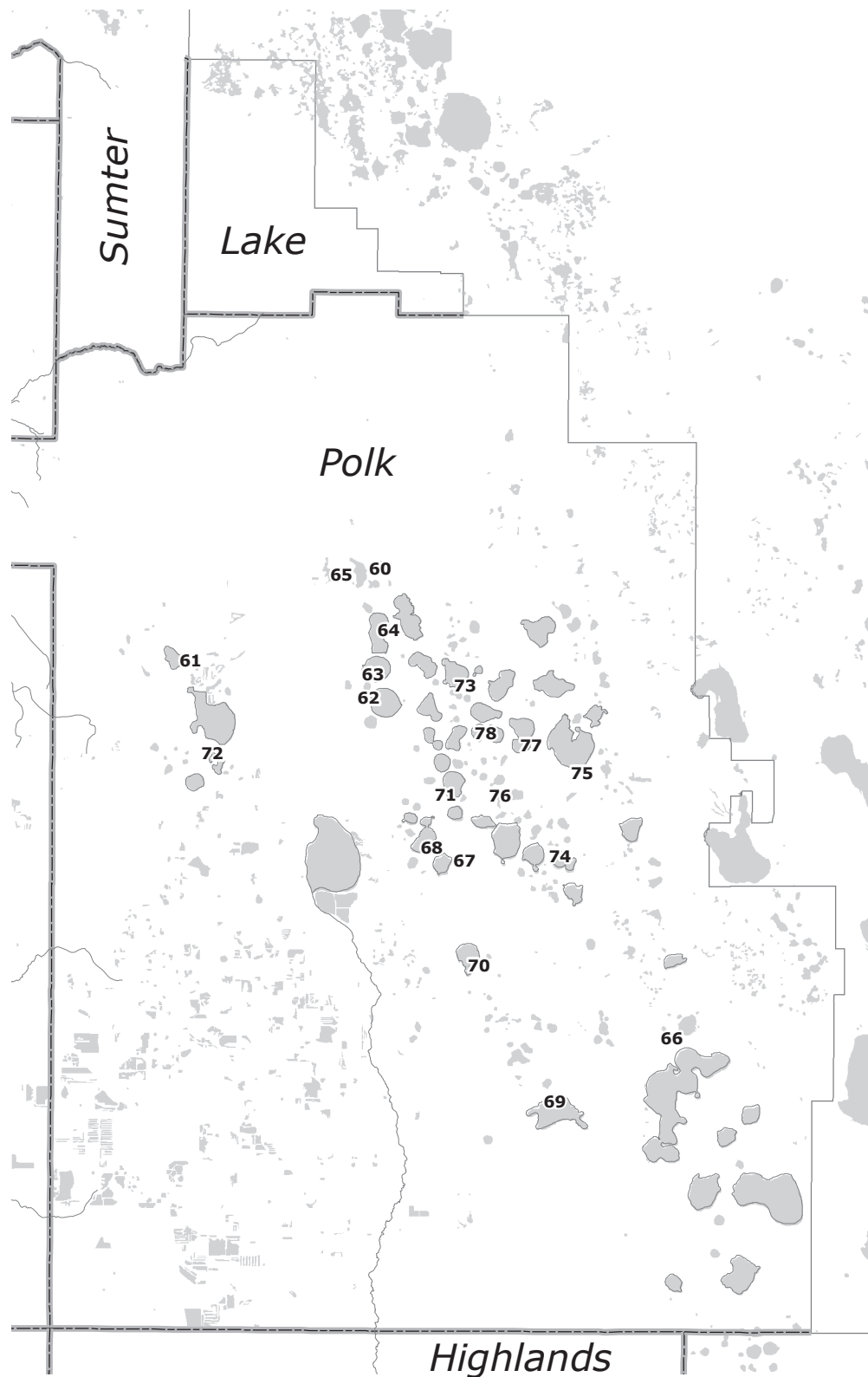


Selected Lake Monitoring Stations Tampa Bay Region



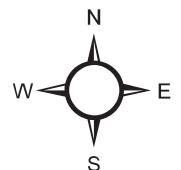
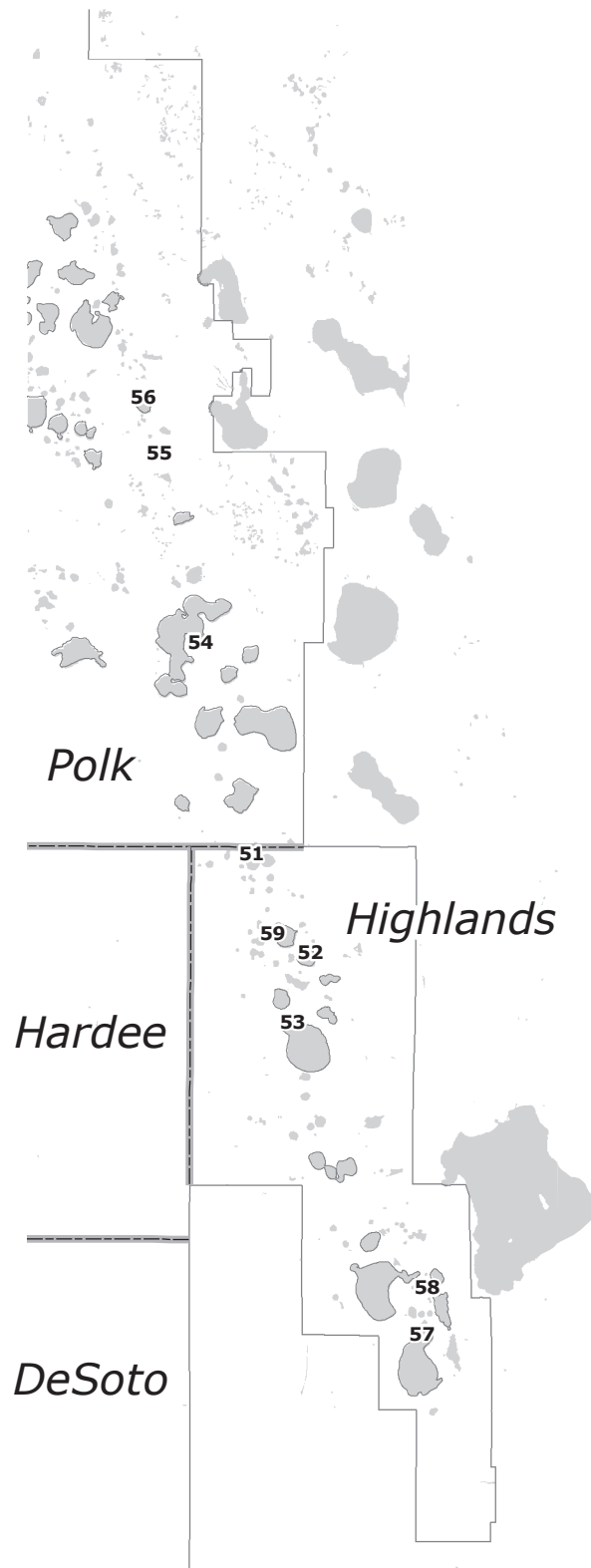
Selected Lake Monitoring Stations

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

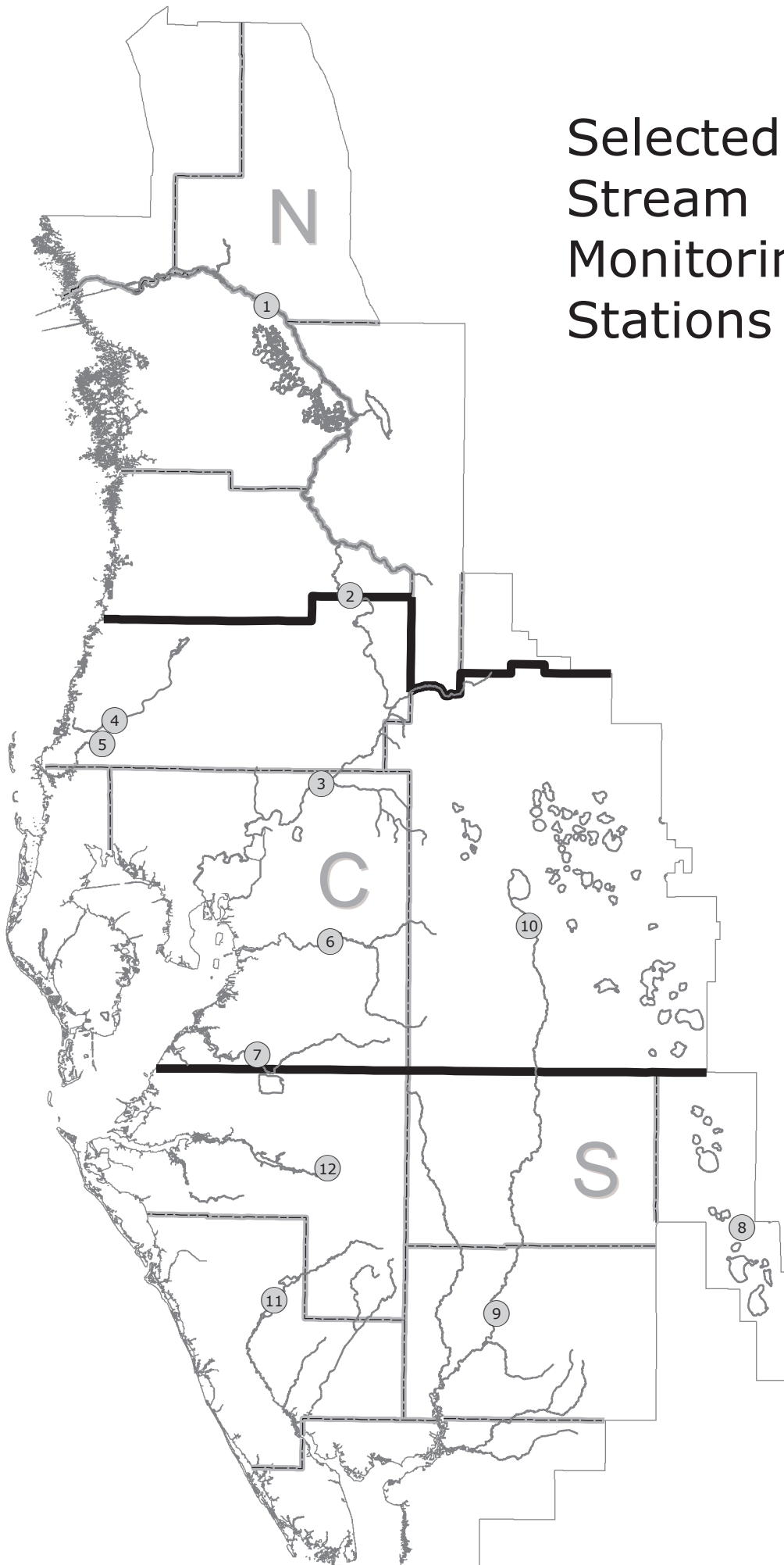
Lake Wales Ridge Region

<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

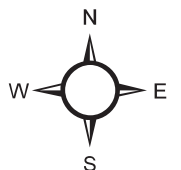
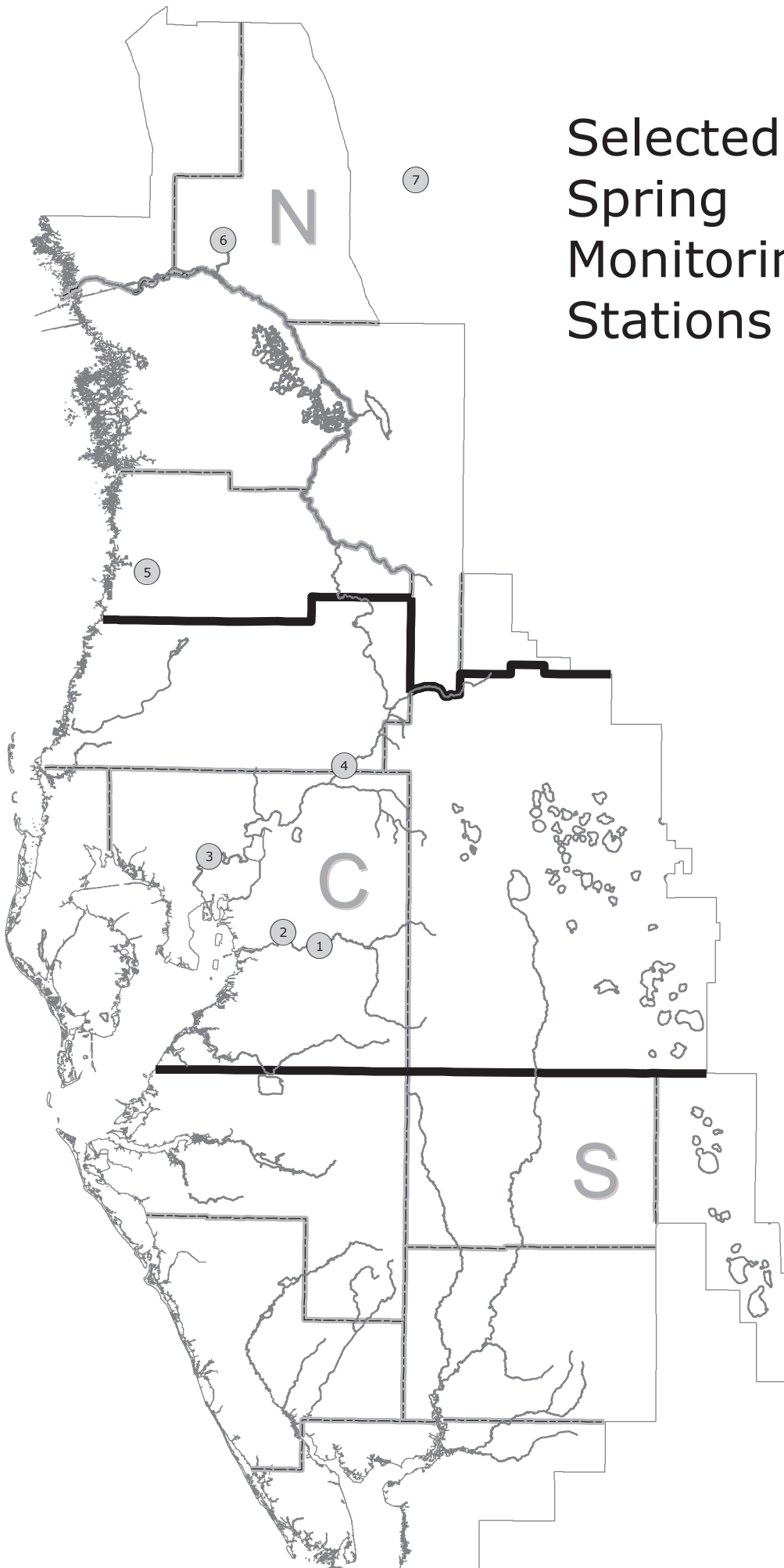
Arcadia Station (Southern Region):

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 st
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 st
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 st
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 nd
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 nd
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

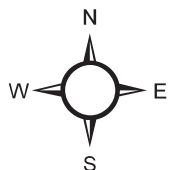
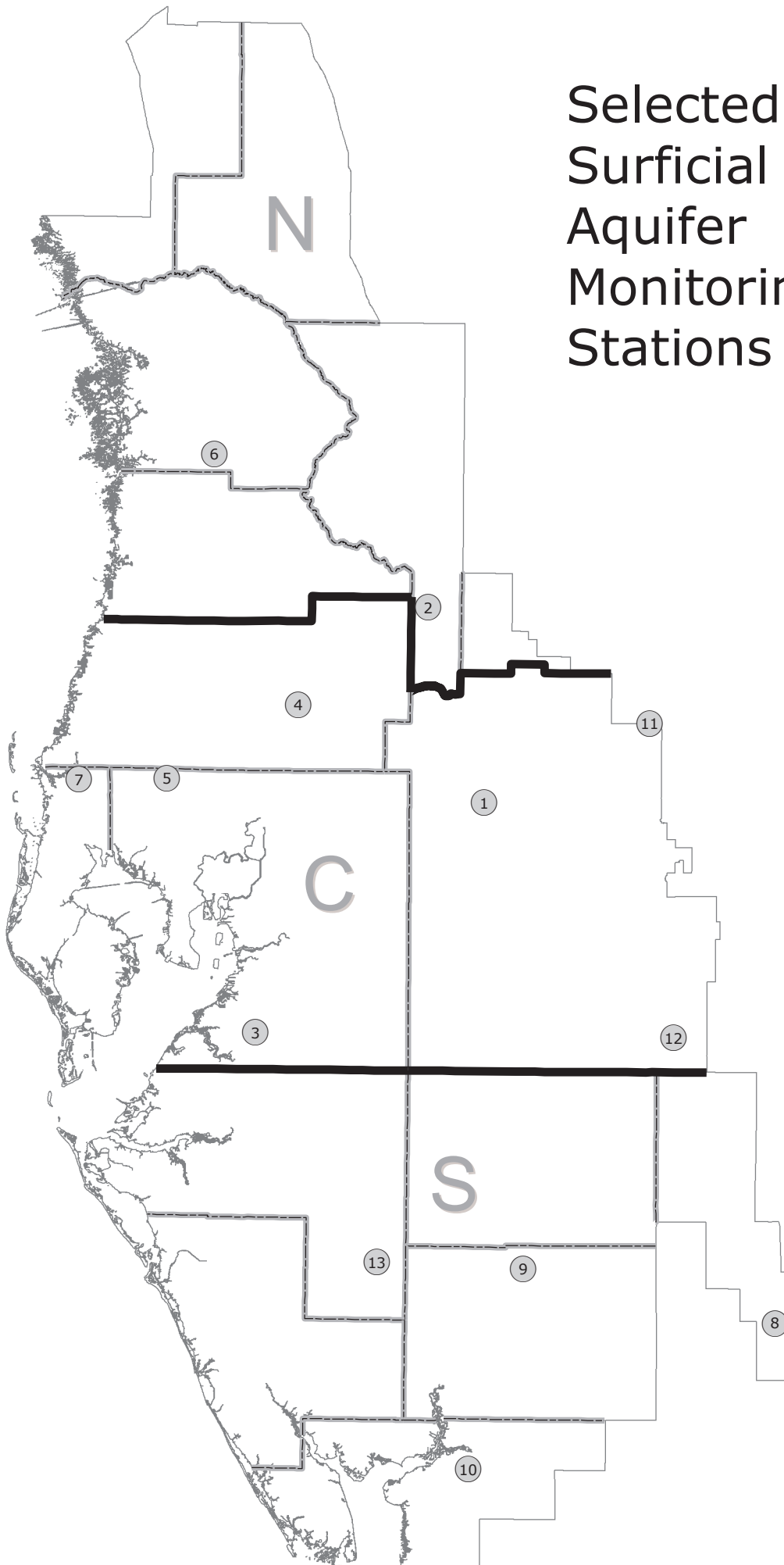
BUCKHORN SPRINGS (Central Region)

County:	Hillsborough
Basin:	Alafia River
Magnitude:	2 nd
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 nd
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

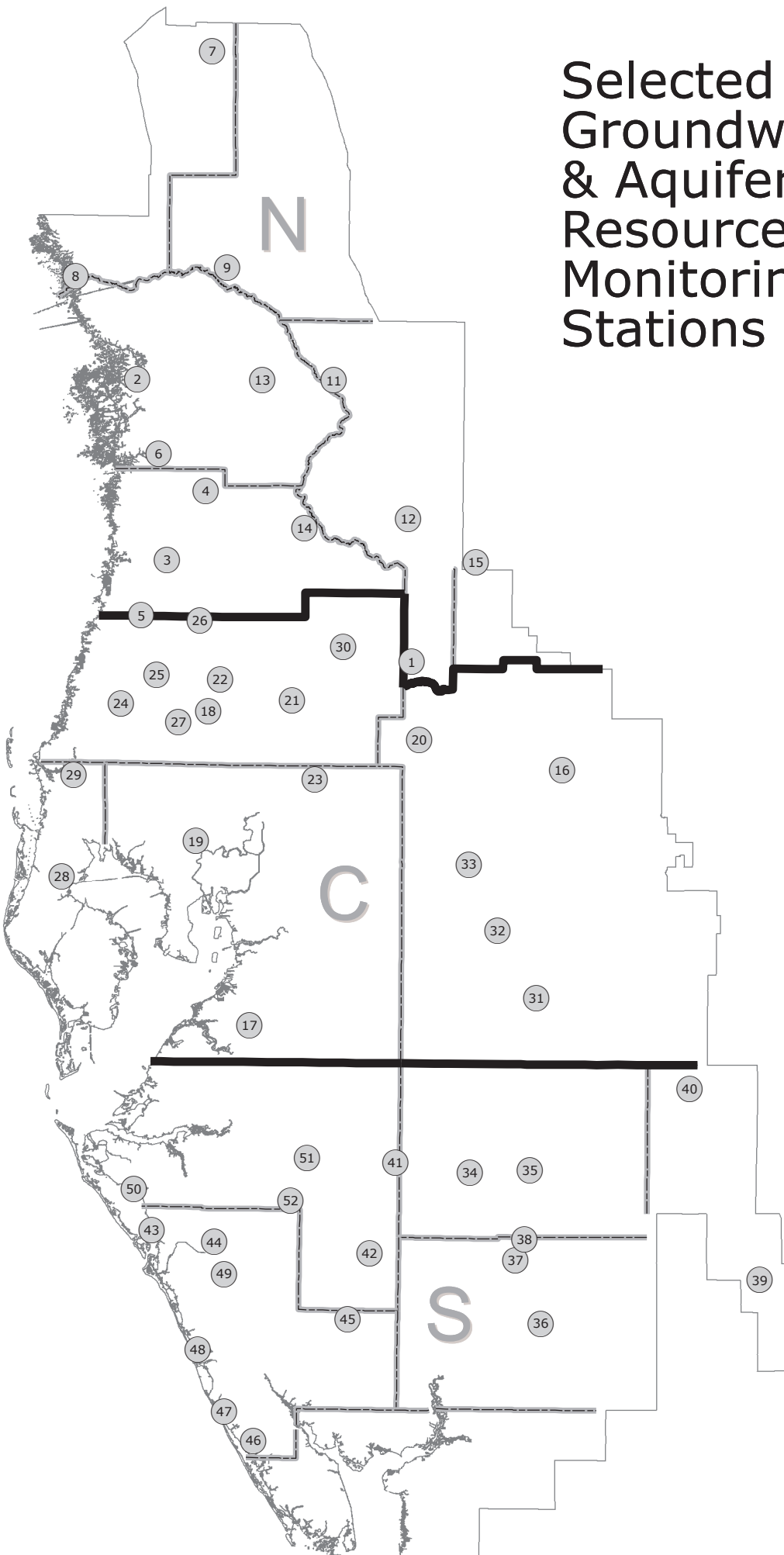
Selected Surficial Aquifer Monitoring Stations



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
8	Bairs Den Surficial
9	ROMP 26 Surficial
10	State Road 74 (77-Foot) Shallow
11	Loughman Shallow
12	USGS P-48 Shallow
13	Edgeville 4 Shallow

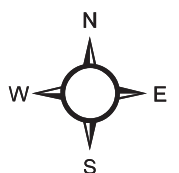
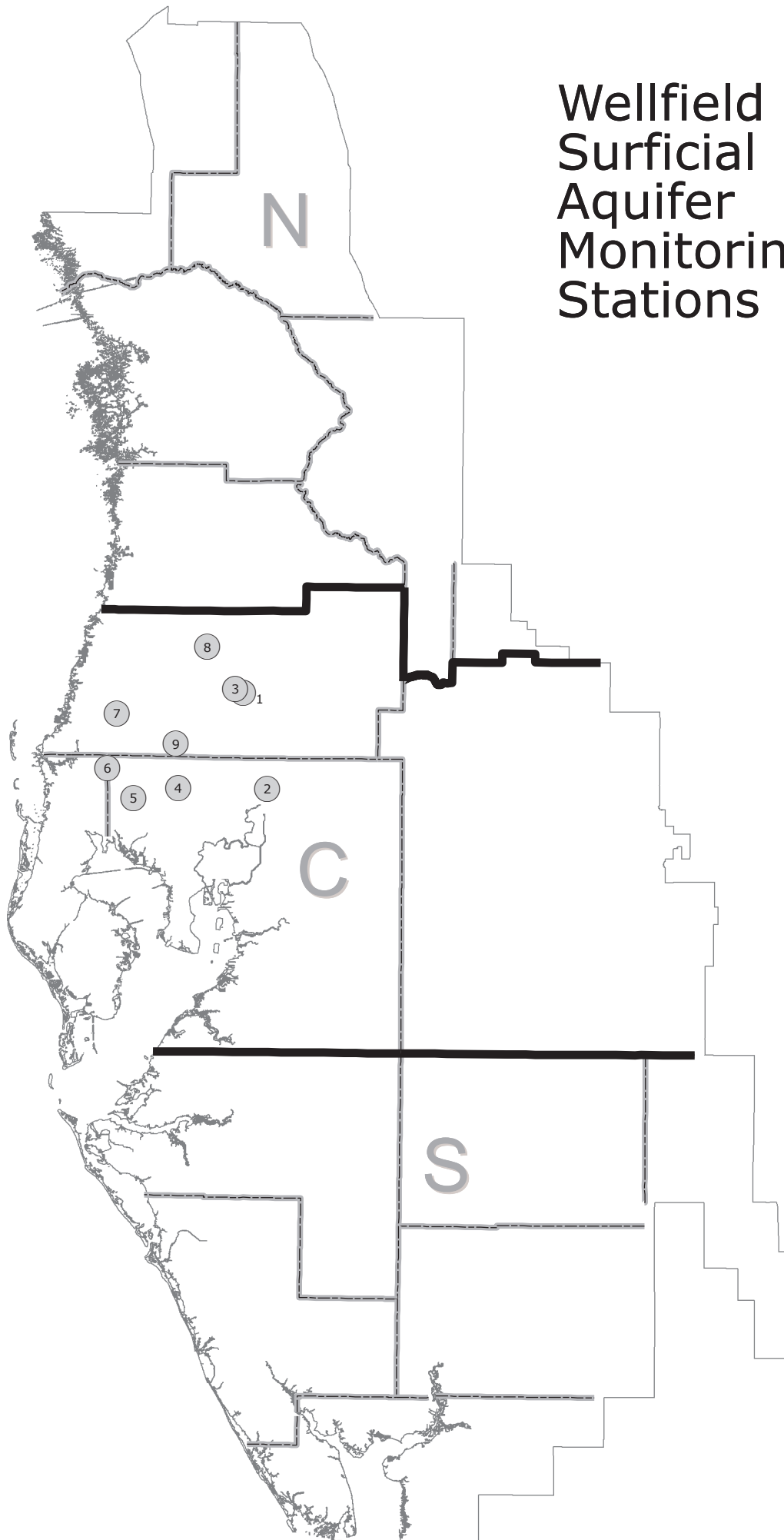
Selected Groundwater & Aquifer Resource Monitoring Stations



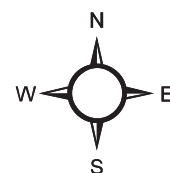
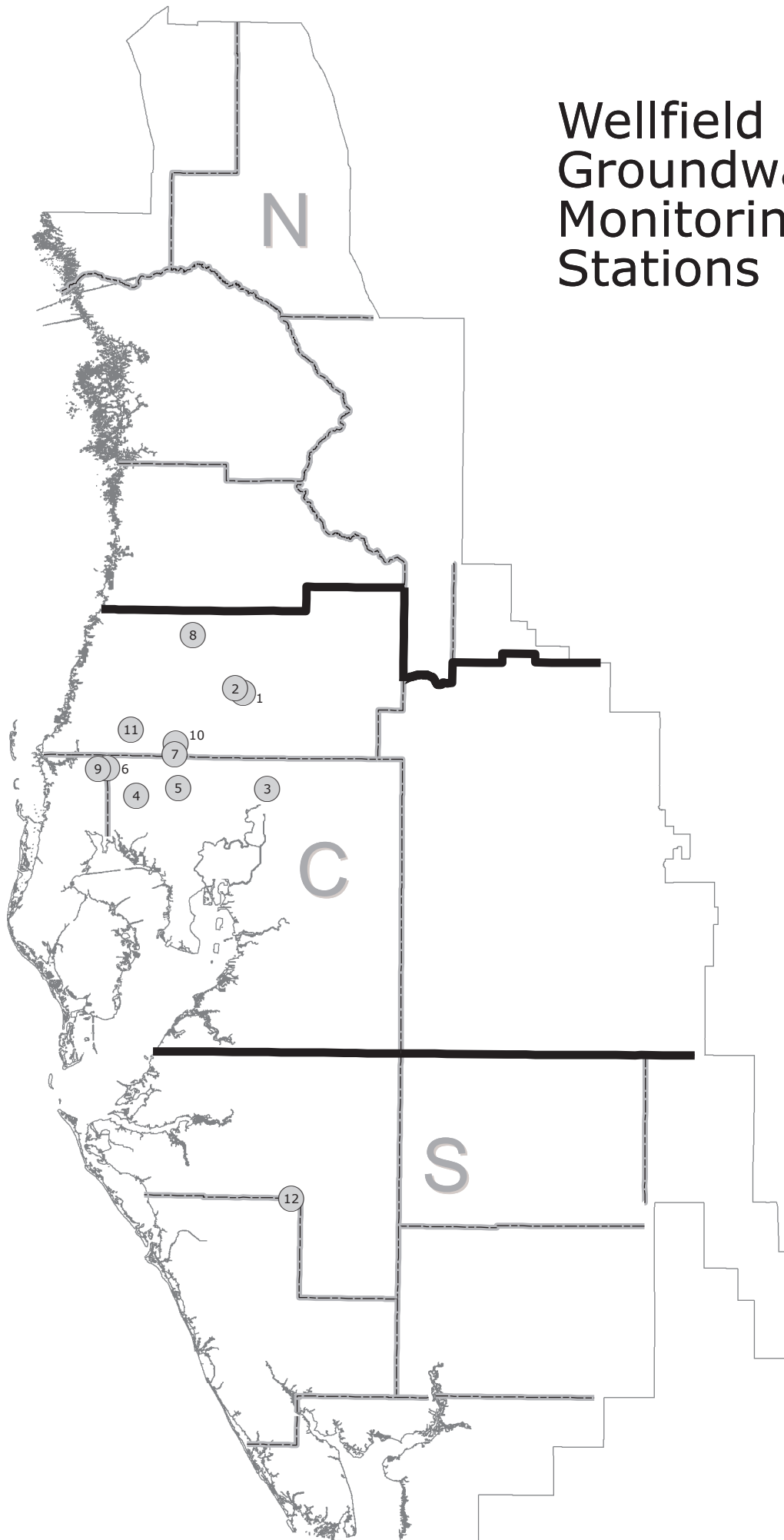
Selected Groundwater & Aquifer Resource Monitoring Stations

<u>Map ID</u>	<u>Site Name</u>	<u>Map ID</u>	<u>Site Name</u>
1	ROMP 89 Ocala	43	Sarasota 11 th Street Deep
2	ROMP TR 21-2 Ocala/Avon Park	44	Sarasota 9 Deep
3	Weeki Wachee Deep	45	Big Slough Deep
4	ROMP 107 Ocala/Avon Park	46	Englewood 14 Deep
5	ROMP 97 Avon Park	47	Manasota 14 Deep
6	Chassahowitzka 1 Deep	48	ROMP TR 5-1 Suwannee
7	ROMP 134 Ocala/Avon Park	49	Florida Cities Test 1
8	ROMP TR 124 Avon Park	50	ROMP TR 7-1 Tampa
9	CE 14 Dunnellon Deep	51	Kibler Deep
10	Verna Test 0-1		
11	Sumter 13 JC 59 Upper Floridan		
12	Webster City Floridan		
13	Inverness DOT Floridan		
14	ROMP 103 Suwannee/Ocala		
15	Mascotte Deep		
16	Lake Alfred Deep near Lake Alfred		
17	ROMP 50 Avon Park		
18	Pasco 13 Floridan near Drexel		
19	ROMP 66 Tampa		
20	ROMP 87 Avon Park		
21	State Road 577 Deep		
22	ROMP 93 Suwannee/Avon Park		
23	Hillsborough River State Park Parking Lot Deep		
24	Moon Lake Deep		
25	State Road 52 Deep West near Fivay Junction		
26	Masaryktown Deep		
27	Bexley 2 Floridan		
28	Pinellas 665 Floridan		
29	Tarpon Road Deep		
30	Lykes Pasco Floridan		
31	ROMP 45 Avon Park		
32	ROMP 59 Suwannee/Avon Park		
33	Sanlon Ranch Floridan		
34	ROMP 31 Suwannee/Avon Park		
35	ROMP 30 Suwannee/Avon Park		
36	ROMP 16 Ocala		
37	ROMP 26 Suwannee/Avon Park		
38	Marshall Deep		
39	ROMP 28X Suwannee/Avon Park		
40	ROMP 43XX Avon Park		
41	ROMP 32 Lower Ocala/Avon Park		
42	Edgeville 3 Deep		

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

