

# Hydrologic Conditions

for the month of

## April 2009

Prepared by the  
**Hydrologic Data Section**  
**Operations Department**



May 20, 2009

<http://www.watermatters.org>

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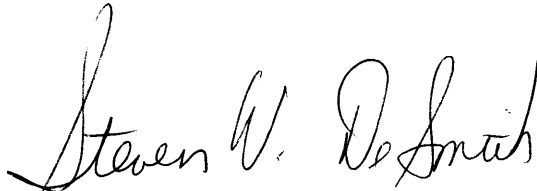
## INTRODUCTION

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

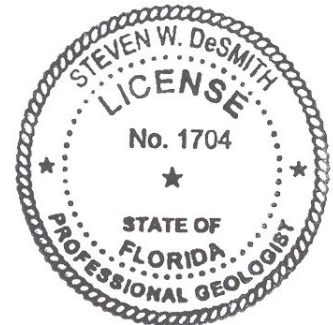
The Hydrologic Data Section is responsible for the implementation and maintenance of a network of observation and monitoring stations used to track changes in various hydrologic parameters over time. Data collected are used by the regulatory, technical, and analytical sections of the District. Data recently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

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

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



Registration #PG-1704



### Americans with Disabilities Act (ADA)

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](mailto:ADACoordinator@swfwmd.state.fl.us).

## **EXECUTIVE SUMMARY**

### **Provisional Hydrologic Conditions as of May 14, 2009**

Provisional rainfall totals are provided for the period of May 1, 2009 through May 12, 2009. The northern region has received an average of 0.76 inch, while the historic mean for the month of May is 3.56 inches. The central region has received an average of 0.19 inch, while the historic mean for the central region for May is 3.23 inches. The southern region has received 0.62 inch, while the historic mean for the southern region for May is 3.59 inches.

Provisional lake level data indicate that during the first 12 days of May, water levels have decreased in all regions of the District. Average lake levels in the Northern region decreased an average of 0.22 foot and were 6.26 feet below the base of the normal range. Lake levels in the Tampa Bay region decreased an average of 0.29 foot and were 3.12 feet below the base of the normal range. Lake levels in the Polk Uplands region decreased 0.31 foot and were 3.03 feet below the base of the normal range. The Lake Wales Ridge region posted an average decrease of 0.36 foot and was 5.32 feet below the base of the normal range.

As of May 11, 2009, average streamflow decreased in all three regions of the District compared to last month's data from regional index streams. The average streamflow for the Withlacoochee River near Holder in the northern region was below-normal at the 5<sup>th</sup> percentile. The average streamflow measured at the Hillsborough River near Zephyrhills in the central region was below-normal at the 4<sup>th</sup> percentile, and the Peace River at Arcadia in the southern region was below-normal at the 2<sup>nd</sup> percentile.

Provisional groundwater data derived from the Aquifer Resource Index, as of May 11, 2009, indicate that average water levels decreased in all three regions of the District. Water levels decreased an average of 0.27 foot in the northern counties and were 1.74 feet below the bottom of the normal range. Water levels decreased an average of 1.12 feet in the central counties and were 2.24 feet below the bottom of the normal range. Water levels decreased an average of 3.02 feet in the southern counties and were 3.66 feet below the bottom of the normal range.

## EXECUTIVE SUMMARY

### Hydrologic Conditions for April 2009

In April, average rainfall totals for the northern and central regions of the District were normal, and the southern region was below-normal. The normal range for rainfall is defined by totals that fall on or between the 25<sup>th</sup> to 75<sup>th</sup> percentiles of the historical monthly accumulation for each region and where the 50<sup>th</sup> percentile represents the historical median. The northern region received an average of 1.69 inches of rainfall, equivalent to the 33<sup>rd</sup> percentile of the historical April record. The central region received an average of 1.43 inches of rainfall, equivalent to the 38<sup>th</sup> percentile of the historical April record. The southern region received an average of 1.10 inches of rainfall, equivalent to the 22<sup>nd</sup> percentile. The District-wide rainfall average of 1.38 inches was equivalent to the 33<sup>rd</sup> percentile of the historical April record.

During the 12-month period from May 1, 2008 through April 30, 2009, the average rainfall totals in all three regions of the District were classified as "very dry." The northern region received an average of 42.00 inches of rainfall, equivalent to the 8<sup>th</sup> percentile of the historical record. The central region received an average of 36.86 inches of rainfall, equivalent to the 2<sup>nd</sup> percentile. The southern region received an average of 41.44 inches of rainfall, equivalent to the 9<sup>th</sup> percentile. The District-wide rainfall average of 39.85 inches was equivalent to the 3<sup>rd</sup> percentile of the historical annual record.

Average lake levels in April were below the annual normal range in all regions of the District. 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 0.52 foot and were 6.04 feet below the base of the annual normal range. Lake levels in the Tampa Bay region decreased an average of 0.42 foot and were 2.83 feet below the base of the annual normal range. Lake levels in the Polk Uplands region decreased 0.43 foot and were 2.72 feet below the base of the annual normal range. Average lake levels in the Lake Wales Ridge region decreased 0.48 foot and ended the month 4.96 feet below the base of the annual normal range.

Total streamflow in regional index streams, in April, was below-normal in the all regions of the District. Normal streamflow is defined as falling between the 25<sup>th</sup> and 75<sup>th</sup> percentiles. Streamflow measured at the Withlacoochee River near Holder station in the northern region was in the 5<sup>th</sup> percentile. Streamflow in the Hillsborough River near Zephyrhills station in the central region was in the 4<sup>th</sup> percentile, while total streamflow measured at the Peace River at Arcadia station in the southern region was in the 2<sup>nd</sup> percentile during April.

In April, groundwater data showed that levels in the intermediate and Floridan aquifers were below the normal range in all three regions of the District. The normal range is defined as between the 25<sup>th</sup> and 75<sup>th</sup> percentiles. The groundwater level in the northern region was in the 8<sup>th</sup> percentile, while levels in the central and southern regions were in the 12<sup>th</sup> and 17<sup>th</sup> percentiles, respectively.

## REGIONAL OVERVIEW OF HYDROLOGIC CONDITIONS

**APRIL 2009**

### **Northern Region**

In April, the northern region received an average of 1.69 inches of rainfall, equivalent to the 33<sup>rd</sup> percentile of the historical April readings, which is considered "normal." Average lake levels decreased in the northern region and ended the month an average of 6.04 feet below the base of the annual normal range. Total streamflow measured in the Withlacoochee River near Holder station increased and was in the 5<sup>th</sup> percentile. Regional groundwater levels indicated average surficial aquifer water levels decreased and were in the 4<sup>th</sup> percentile; while levels in the intermediate and Floridan aquifer decreased and were in the 8<sup>th</sup> percentile.

### **Central Region**

In April, the central region received an average of 1.43 inches of rainfall, equivalent to the 38<sup>th</sup> percentile of historical April readings, which is considered "normal." Average lake levels decreased in the Tampa Bay and Polk Uplands regions and ended the month 2.83 and 2.72 feet, respectively, below the base of the annual range. Total streamflow measured at the Hillsborough River near Zephyrhills station decreased and was in the 4<sup>th</sup> percentile. Regional groundwater levels indicated average surficial aquifer water levels decreased and were in the 27<sup>th</sup> percentile; while levels in the intermediate and Floridan aquifer decreased and were in the 12<sup>th</sup> percentile.

### **Southern Region**

In April, the southern region received an average of 1.10 inches of rainfall, equivalent to the 22<sup>nd</sup> percentile of historical April readings, which is considered "drier than normal." Average lake levels decreased in the Lake Wales Ridge region and ended the month 4.96 feet below the base of the annual normal range. Total streamflow measured at the Peace River at Arcadia station decreased and was in the 2<sup>nd</sup> percentile. Regional groundwater levels indicated average surficial aquifer water levels decreased and were in the 11<sup>th</sup> percentile; while levels in the intermediate and Floridan aquifer decreased and were in the 17<sup>th</sup> percentile.

## RAINFALL

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

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

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

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

In April, rainfall totals for the northern and central regions of the District were normal, while the southern region was below-normal. The normal range for rainfall is defined by totals that fall on or between the 25<sup>th</sup> to 75<sup>th</sup> percentiles of the historical monthly average for each region and where the 50<sup>th</sup> percentile represents the historical median. The northern region received an average of 1.69 inches of rainfall, equivalent to the 33<sup>rd</sup> percentile of the historical record. The central region received an average of 1.43 inches, equivalent to the 38<sup>th</sup> percentile; while the southern region received an average of 1.10 inches, equivalent to the 22<sup>nd</sup> percentile. District-wide, rainfall averaged 1.38 inches, which is equivalent to the 33<sup>rd</sup> percentile of the historical April record.

During the 12-month period from May 1, 2008 through April 30, 2009, the average rainfall totals in all three regions of the District were classified as "very dry." The northern region received an average of 42.00 inches of rainfall, equivalent to the 8<sup>th</sup> percentile of the historical record. The central region received an average of 36.86 inches of rainfall, equivalent to the 2<sup>nd</sup> percentile. The southern region received an average of 41.44 inches of rainfall, equivalent to the 9<sup>th</sup> percentile. The District-wide rainfall average was 39.85 inches, which is equivalent to the 3<sup>rd</sup> percentile of the historical annual record.

## **Tampa Monthly Climate Summary for April 2009**

According to the National Weather Service (NWS), the monthly average temperature (°F) in the Tampa Bay area (TBA) was 73.8 degrees, which was 2.3 degree above normal. The highest temperature recorded in the TBA during the month was 89 degrees, while the lowest temperature recorded during the month was 50 degrees.

## **Temperature and Precipitation Outlook**

The Climate Prediction Center's (CPC) three-month weather forecast, as of April 16, 2009, is inconclusive regarding precipitation and indicates an equal chance for below-normal, normal or above normal precipitation in all three regions of the District, during June through August 2009. The temperature forecast for this same time-period indicates above-normal temperatures in all regions of the District. [Note: The CPC issues a forecast of future precipitation and temperatures conditions once a month, and due to the publication date of this report on May 20, 2009, the CPC's May 21, 2009 forecast was unavailable for publication].

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

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

## RELATIONSHIP OF APRIL 2009 RAINFALL TO HISTORICAL RAINFALL AVERAGES

### Regional Summary:

<i>Region</i>	<i>APR 2009 Average Rainfall</i>	<i>Historical Average for APR</i>	<i>Departure from Historical Average</i>	<i>Calendar Year 2009 Cumulative Rainfall JAN-APR</i>	<i>Calendar Year Historical Cumulative Rainfall JAN-APR</i>	<i>Departure from Historical Cumulative APR 2009</i>	<i>Cumulative 12-month Rainfall MAY 2008- APR 2009</i>	<i>Historical 12-month Cumulative Rainfall</i>	<i>Departure from Historical 12-month Cumulative</i>
Northern Counties	1.69	2.76	-1.07	6.03	12.39	-6.36	42.00	53.46	-11.46
Central Counties	1.43	2.45	-1.02	5.04	11.29	-6.25	36.86	52.45	-15.59
Southern Counties	1.10	2.50	-1.40	3.77	10.35	-6.58	41.44	52.33	-10.89
District All Counties	1.38	2.55	-1.17	4.86	11.25	-6.39	39.85	52.57	-12.72

### Regional Counties Summary:

<i>NORTHERN COUNTIES</i>	<i>APR 2009 Average Rainfall</i>	<i>Historical Average for APR</i>	<i>Departure from Historical Average</i>	<i>Calendar Year 2009 Cumulative Rainfall JAN-APR</i>	<i>Calendar Year Historical Cumulative Rainfall JAN-APR</i>	<i>Departure from Historical Cumulative APR 2009</i>	<i>Cumulative 12-month Rainfall MAY 2008- APR 2009</i>	<i>Historical 12-month Cumulative Rainfall</i>	<i>Departure from Historical 12-month Cumulative</i>
Levy County	2.36	3.02	-0.66	8.14	13.44	-5.30	48.92	53.85	-4.93
Marion County	1.83	2.98	-1.15	7.48	12.98	-5.50	44.32	54.23	-9.91
Citrus County	1.27	2.68	-1.41	5.86	12.35	-6.49	43.52	53.88	-10.36
Sumter County	1.89	2.72	-0.83	5.27	12.11	-6.84	39.06	51.93	-12.87
Hernando County	1.67	2.77	-1.10	4.96	12.37	-7.41	38.70	54.90	-16.20
<i>CENTRAL COUNTIES</i>									
Pasco County	1.77	2.59	-0.82	5.20	11.97	-6.77	36.66	53.79	-17.13
Pinellas County	1.51	2.39	-0.88	4.98	11.17	-6.19	37.64	51.42	-13.78
Hillsborough County	1.51	2.45	-0.94	5.33	11.11	-5.78	36.69	52.43	-15.74
Polk County	1.20	2.64	-1.44	4.78	10.98	-6.20	36.95	51.90	-14.95
<i>SOUTHERN COUNTIES</i>									
Manatee County	1.65	2.45	-0.80	4.70	10.69	-5.99	38.78	53.58	-14.80
Hardee County	1.20	2.67	-1.47	4.26	10.32	-6.06	41.02	52.15	-11.13
Highlands County	0.92	2.61	-1.69	3.82	9.96	-6.14	47.86	51.81	-3.95
Sarasota County	1.05	2.42	-1.37	3.54	10.25	-6.71	39.18	52.67	-13.49
DeSoto County	0.66	2.46	-1.80	2.86	9.71	-6.85	42.02	51.75	-9.73
Charlotte County	0.85	2.23	-1.38	2.99	9.24	-6.25	44.10	52.19	-8.09

## APRIL 2009 RAINFALL CHARACTERIZATION

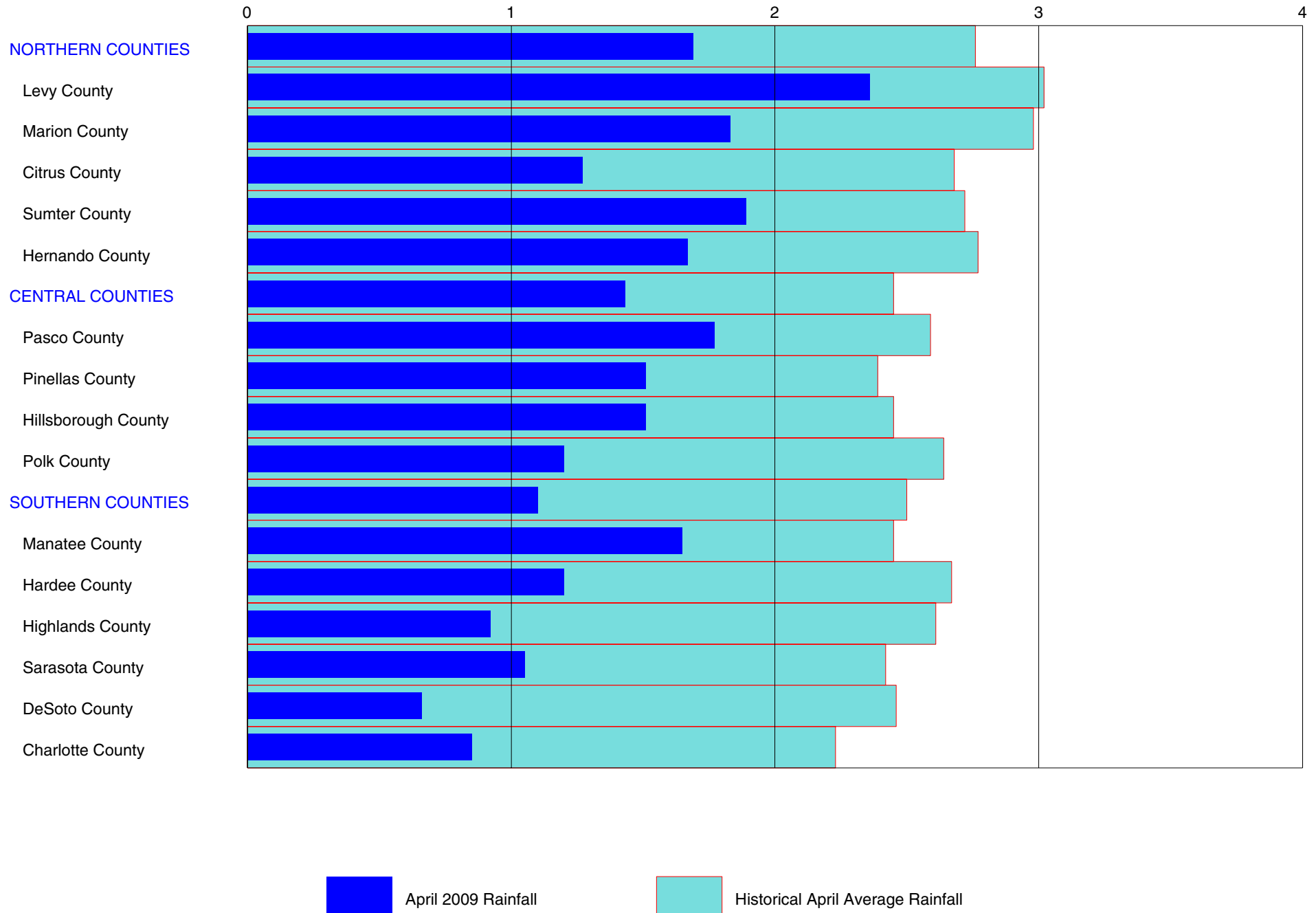
### Regional Characterization:

<i>Region</i>	<i>APR 2009 Average Rainfall</i>	<i>Historical APR Percentile</i>	<i>APR Rainfall Characterization</i>	<i>Cumulative 12-month Rainfall MAY 2008- APR 2009</i>	<i>Historical 12-month Cumulative Percentile</i>	<i>12-month Cumulative Rainfall Characterization</i>
Northern Counties	1.69	33	Normal	42.00	8	Very dry
Central Counties	1.43	38	Normal	36.86	2	Very dry
Southern Counties	1.10	22	Drier than normal	41.44	9	Very dry
District Counties	1.38	33	Normal	39.85	3	Very dry

### Regional Counties Characterization:

<i>NORTHERN COUNTIES</i>	<i>APR 2009 Average Rainfall</i>	<i>Historical APR Percentile</i>	<i>APR Rainfall Characterization</i>	<i>Cumulative 12-month Rainfall MAY 2008- APR 2009</i>	<i>Historical 12-month Cumulative Percentile</i>	<i>12-month Cumulative Rainfall Characterization</i>
Levy County	2.36	48	Normal	48.92	32	Normal
Marion County	1.83	38	Normal	44.32	13	Drier than normal
Citrus County	1.27	28	Normal	43.52	14	Drier than normal
Sumter County	1.89	42	Normal	39.06	8	Very dry
Hernando County	1.67	35	Normal	38.70	3	Very dry
<i>CENTRAL COUNTIES</i>						
Pasco County	1.77	42	Normal	36.66	2	Very dry
Pinellas County	1.51	44	Normal	37.64	6	Very dry
Hillsborough County	1.51	38	Normal	36.69	2	Very dry
Polk County	1.20	25	Drier than normal	36.95	3	Very dry
<i>SOUTHERN COUNTIES</i>						
Manatee County	1.65	43	Normal	38.78	4	Very dry
Hardee County	1.20	21	Drier than normal	41.02	11	Drier than normal
Highlands County	0.92	17	Drier than normal	47.86	31	Normal
Sarasota County	1.05	35	Normal	39.18	7	Very dry
DeSoto County	0.66	18	Drier than normal	42.02	15	Drier than normal
Charlotte County	0.85	31	Normal	44.10	22	Drier than normal

## APRIL 2009 RAINFALL HISTORIC AVERAGE VS HISTORICAL APRIL AVERAGE (INCHES)

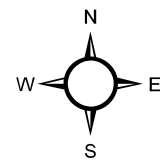
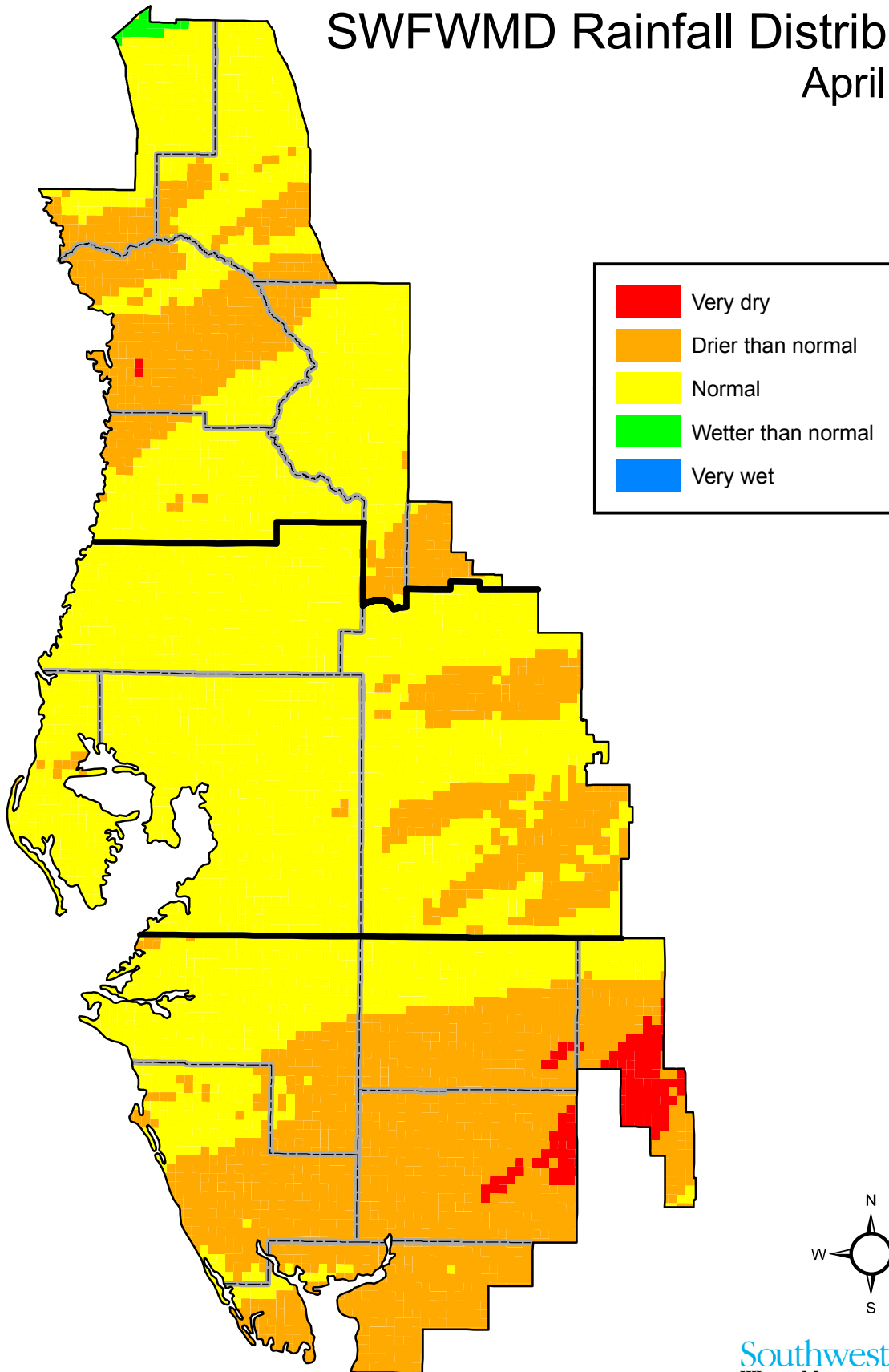


## APRIL 2009 12-MONTH CUMULATIVE RAINFALL VS AVERAGE ANNUAL CUMULATIVE (INCHES)



# SWFWMD Rainfall Distribution

## April 2009

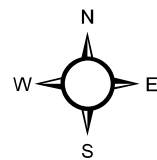
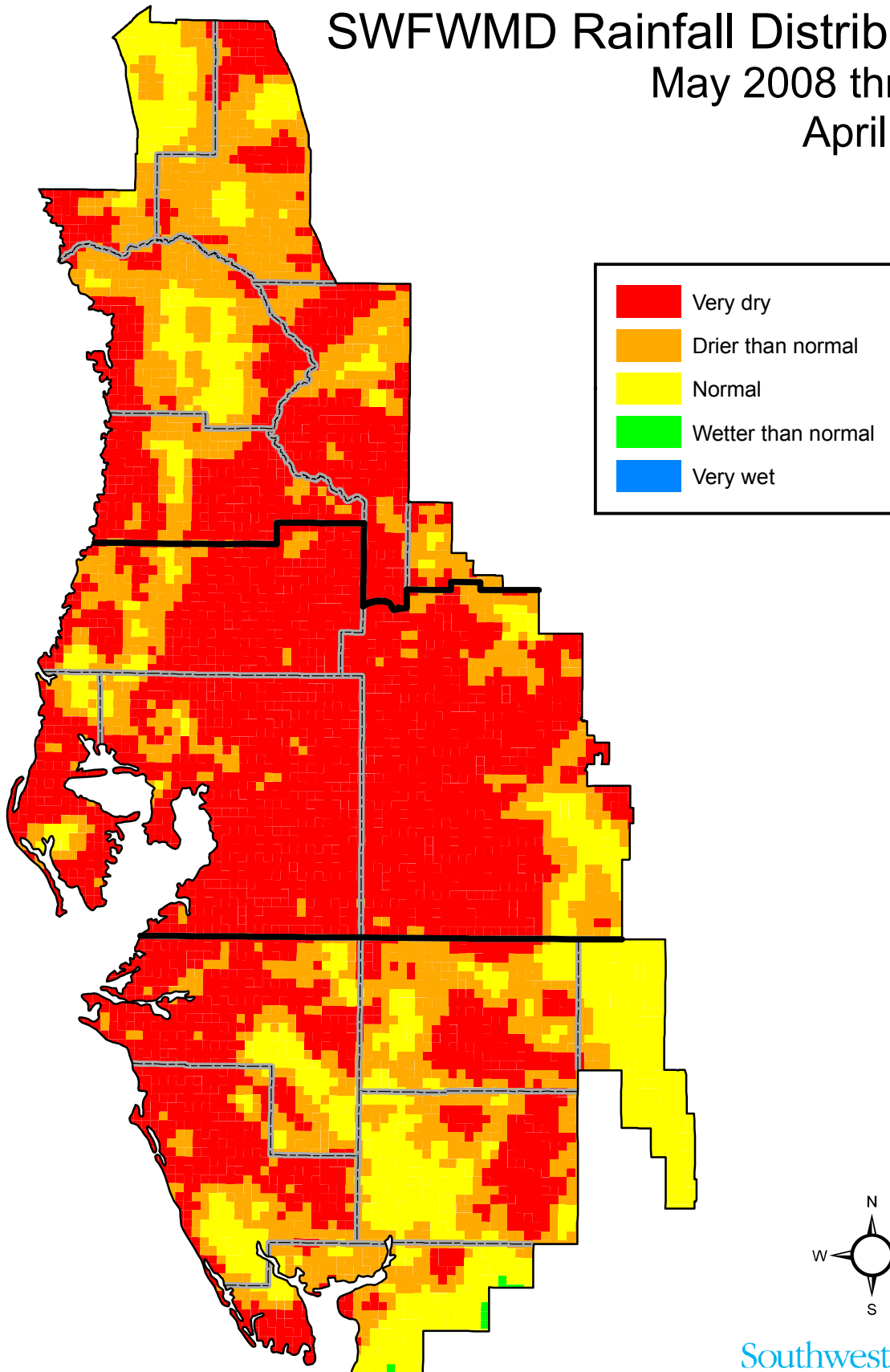


Compiled by: M. L. Crowell  
Data source: Vieux, Inc.

Southwest Florida  
Water Management District

# SWFWMD Rainfall Distribution

May 2008 through  
April 2009



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.

In April, 72 of the 76 lakes monitored for this report recorded water level decreases. Water levels decreased in the Northern, Tampa Bay, Polk Uplands and Lake Wales Ridge regions by 0.52, 0.42, 0.43 and 0.48 foot, respectively. District-wide, average water levels decreased by 0.45 foot, compared to last month.

In April, average water levels were lower in 67 of the 76 lakes, compared to April 2008. In the Northern, Tampa Bay and Polk Uplands regions, the average regional lake level was lower by 2.28 feet, 1.37 feet and 0.89 foot, respectively, compared to last year's levels. In the Lake Wales Ridge region, there was "no change" in the average regional lake level. District-wide, average lake levels were lower by 1.27 foot.

Water levels in 74 of the 76 lakes were below the base of the annual normal range. Average lake levels in the Northern and Tampa Bay regions were 6.04 and 2.83 feet, respectively, below the base of the annual normal range. Water levels in the Polk Uplands and Lake Wales Ridge regions were 2.72 and 4.96 feet, respectively, below the base of the annual normal range. District-wide, average lake levels were 3.69 feet below the base of the annual normal range. Water levels in 56 of the 76 lakes were below the drought-year levels.

Period-of-record low water levels were recorded in seven of the 76 lakes in April 2009, as follows:

Northern Region - Lake Iola, Lake Lindsey, Moon Lake and Spring Lake  
Tampa Bay Region - King Lake and Mud (Walden) Lake  
Polk Uplands – Lake Bonny

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

NORTHERN LAKES															
Lake Name	County	Beginning of Record	MAR 2009	APR 2009	APR 2008	Change from MAR 2009	Change from APR 2008	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	68.94	67.89	69.69	-1.05	-1.80	-3.86	71.75	73.05	76.05	65.45	JUN 1997	77.40	SEP 2004
Crews Lake	Pasco	1964	42.95	42.95	43.90	0.00	-0.95	-7.05	50.00	52.00	55.00	42.63	APR 2001	56.60	SEP 1964
Hancock Lake	Pasco	1978	90.00	90.00	94.96	0.00	-4.96	-12.00	102.00	104.00	106.50	90.00	MAR 2009	108.90	MAR 1998
Hunters Lake	Hernando	1965	12.98	12.43	13.37	-0.55	-0.94	-3.57	16.00	17.50	20.50	11.90	JUN 2001	20.70	MAR 1970
Lake Iola	Pasco	1965	134.23	133.70	137.33	-0.53	-3.63	-8.80	142.50	145.00	147.50	133.70	APR 2009	148.70	JAN 1989
Lake Lindsey	Hernando	1965	62.27	61.85	63.73	-0.42	-1.88	-2.65	64.50	66.00	69.00	61.85	APR 2009	70.14	AUG 1965
Little Lake (Consu	Citrus	1975	34.23	33.70	36.30	-0.53	-2.60	-3.55	37.25	39.00	41.50	31.10	MAY 2001	42.84	SEP 2004
Lake Miona	Sumter	1978	49.66	49.36	50.36	-0.30	-1.00	-1.64	51.00	53.00	55.00	47.88	MAY 2002	56.60	OCT 1982
Moon Lake	Pasco	1965	33.41	32.98	34.82	-0.43	-1.84	-2.52	35.50	37.50	40.50	32.98	APR 2009	41.26	SEP 2004
Lake Panasoffkee	Sumter	1955	37.92	37.32	39.44	-0.60	-2.12	-1.18	38.50	39.50	42.50	36.93	JUN 2002	44.28	APR 1960
Lake Pasadena	Pasco	1984	83.53	82.90	86.62	-0.63	-3.72	-7.10	90.00	91.50	94.50	81.56	MAY 2001	94.86	OCT 2004
Spring Lake	Hernando	1965	175.19	174.75	177.26	-0.44	-2.51	-3.50	178.25	181.25	184.25	174.75	APR 2009	183.57	OCT 1984
Floral City Pool	Citrus	1957	37.68	36.68	39.58	-1.00	-2.90	-1.57	38.25	40.25	42.50	30.29	APR 2008	44.22	MAR 1960
Inverness Pool	Citrus	1957	35.29	34.68	36.53	-0.61	-1.85	-1.57	36.25	38.25	40.50	31.56	MAY 2001	42.94	APR 1960
Hernando Pool	Citrus	1936	33.56	32.83	34.38	-0.73	-1.55	-1.92	34.75	36.75	39.00	30.92	JUL 1957	41.74	APR 1960

TAMPA BAY LAKES															
Lake Name	County	Beginning of Record	MAR 2009	APR 2009	APR 2008	Change from MAR 2009	Change from APR 2008	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	35.69	35.21	36.42	-0.48	-1.21	-2.29	37.50	40.25	42.25	33.24	MAY 2002	42.42	SEP 2004
Lake Ann-Parker	Pasco	1969	45.21	44.77	45.86	-0.44	-1.09	-0.23	45.00	45.75	48.75	43.28	JUN 2001	49.29	SEP 1979
Bay Lake	Hillsborough	1982	44.08	43.62	45.25	-0.46	-1.63	1.12	42.50	44.00	46.75	41.86	APR 1985	46.46	DEC 1997
Lake Brant	Hillsborough	1971	54.44	54.34	54.46	-0.10	-0.12	-0.16	54.50	56.50	58.75	51.65	JUN 1994	60.04	AUG 1979
Brooker Lake	Hillsborough	1977	59.92	59.31	60.27	-0.61	-0.96	0.31	59.00	61.00	64.25	56.49	MAY 2002	64.08	DEC 1997
Calm Lake	Hillsborough	1965	44.48	43.96	45.44	-0.52	-1.48	-1.04	45.00	47.50	50.50	41.88	JUN 2002	50.73	SEP 2004
Camp Lake	Pasco	1968	56.09	55.35	56.74	-0.74	-1.39	-3.65	59.00	61.75	64.00	50.82	MAY 2002	64.00	SEP 1979
Carlton Lake	Hillsborough	1976	88.64	87.76	90.55	-0.88	-2.79	-0.24	88.00	90.50	93.50	86.82	MAY 2001	94.60	FEB 1998
Lake Carroll	Hillsborough	1946	33.14	32.70	34.08	-0.44	-1.38	0.20	32.50	34.50	37.00	30.87	MAY 2002	40.08	SEP 1947
Church Lake	Hillsborough	1957	32.96	32.44	33.63	-0.52	-1.19	0.94	31.50	34.00	36.25	27.94	MAY 2002	37.28	AUG 1959
Lake Cooper	Hillsborough	1946	57.15	56.77	57.90	-0.38	-1.13	-0.23	57.00	59.75	61.75	55.60	JUN 2001	62.54	SEP 1947
Crescent Lake	Hillsborough	1981	38.93	38.97	38.81	0.04	0.16	0.47	38.50	40.00	42.50	35.34	JUN 2001	42.65	DEC 2002
Deer Lake	Hillsborough	1977	61.73	61.30	62.70	-0.43	-1.40	-1.20	62.50	64.50	67.25	60.72	MAY 2002	67.42	DEC 1997
Egypt Lake	Hillsborough	1978	35.04	34.54	35.34	-0.50	-0.80	2.04	32.50	35.00	37.50	33.06	MAY 2000	38.15	SEP 1985
Gornto Lake	Hillsborough	1979	31.56	31.04	32.80	-0.52	-1.76	-2.96	34.00	36.00	38.50	29.86	MAR 1979	39.48	FEB 1998
Lake Harvey	Hillsborough	1970	57.28	56.83	57.85	-0.45	-1.02	-1.17	58.00	60.25	62.50	53.94	MAY 2002	63.90	DEC 1997
Lake Hiawatha	Hillsborough	1981	48.56	48.11	49.16	-0.45	-1.05	3.11	45.00	48.00	50.50	46.14	JUN 2000	51.04	DEC 2002
Horse Lake	Hillsborough	1930	40.18	39.77	41.47	-0.41	-1.70	-2.23	42.00	44.00	46.50	36.33	JUN 2002	50.00	AUG 1959
Lake Keene	Hillsborough	1948	59.78	59.77	59.80	-0.01	-0.03	0.77	59.00	60.50	63.00	56.12	JUN 2002	63.30	SEP 1953
Keystone Lake	Hillsborough	1946	39.35	38.84	39.26	-0.51	-0.42	-0.16	39.00	39.75	42.00	37.84	JUN 2000	43.55	MAR 1960
King Lake	Pasco	1977	94.73	94.20	98.18	-0.53	-3.98	-5.80	100.00	102.50	105.25	94.20	APR 2009	104.92	SEP 1983
Lake Leclare	Hillsborough	1977	47.70	47.30	48.20	-0.40	-0.90	0.30	47.00	49.50	52.00	44.95	JUN 2001	52.34	DEC 1997
Lake Linda	Pasco	1969	61.50	61.20	62.94	-0.30	-1.74	-0.80	62.00	64.00	66.75	60.07	MAY 2001	67.13	AUG 1979
Little Lake	Hillsborough	1979	43.38	42.88	44.30	-0.50	-1.42	0.88	42.00	43.50	46.50	38.06	JUN 1994	46.44	FEB 1998
Long Pond	Hillsborough	1978	40.53	39.93	41.78	-0.60	-1.85	-2.07	42.00	44.00	46.50	36.33	MAY 1979	48.27	SEP 1998
Mud (Walden) Lake	Hillsborough	1978	112.30	111.90	112.78	-0.40	-0.88	1.40	110.50	112.50	115.00	111.90	APR 2009	114.42	MAR 1978
Lake Padgett	Pasco	1965	67.18	66.74	68.96	-0.44	-2.22	-0.76	67.50	69.00	71.25	66.27	JUN 2001	71.90	SEP 1988
Platt Lake	Hillsborough	1946	46.90	46.50	47.07	-0.40	-0.57	0.50	46.00	47.75	50.50	42.53	JUN 2001	51.88	SEP 1979
Rainbow Lake	Hillsborough	1971	33.56	33.04	34.78	-0.52	-1.74	-1.96	35.00	37.50	40.50	29.82	JUN 2002	40.74	AUG 2003
Lake Stemper	Hillsborough	1946	54.74	55.18	56.51	0.44	-1.33	-2.82	58.00	59.50	62.00	53.36	JUN 2001	62.30	MAR 1960
Lake Thomas	Hillsborough	1971	59.68	59.34	60.70	-0.34	-1.36	0.09	59.25	61.25	63.50	56.48	JUN 2002	64.48	SEP 1979
Turkey Ford Lake	Hillsborough	1970	49.62	49.30	51.23	-0.32	-1.93	-0.70	50.00	51.50	54.00	48.07	JUN 1985	55.28	SEP 1988
Lake Wimauma	Hillsborough	1974	73.45	72.68	75.64	-0.77	-2.96	-8.32	81.00	83.00	86.75	70.12	MAY 2001	84.38	MAR 1998

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

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

POLK UPLANDS LAKES															
Lake Name	County	Beginning of Record	MAR 2009	APR 2009	APR 2008	Change from MAR 2009	Change from APR 2008	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	124.75	124.42	125.85	-0.33	-1.43	-1.83	126.25	128.25	130.75	122.40	MAY 1977	132.76	MAR 1998
Lake Ariana	Polk	1945	132.20	131.80	133.32	-0.40	-1.52	-0.70	132.50	134.50	137.00	131.28	MAY 1976	137.90	AUG 1946
Lake Arietta	Polk	1970	139.03	139.02	138.78	-0.01	0.24	1.02	138.00	141.00	144.00	136.50	MAY 1977	144.33	OCT 2004
Blue Lake South	Polk	1986	110.71	110.00	110.10	-0.71	-0.10	-2.50	112.50	114.00	117.00	103.38	FEB 1991	119.19	DEC 2005
Lake Bonny	Polk	1954	123.28	122.62	125.32	-0.66	-2.70	-3.38	126.00	128.00	130.50	122.62	APR 2009	133.08	SEP 2004
Lake Buffum	Polk	1972	125.20	124.97	126.65	-0.23	-1.68	-1.78	126.75	129.25	132.25	123.90	JUN 1991	133.00	JUN 2005
Clearwater Lake	Polk	1979	139.38	138.94	139.60	-0.44	-0.66	-0.06	139.00	141.00	143.50	137.93	MAY 2001	146.06	AUG 1984
Lake Conine	Polk	1989	124.63	124.19	125.10	-0.44	-0.91	-0.31	124.50	126.50	128.75	124.11	MAY 2001	129.95	SEP 2004
Eagle Lake	Polk	1965	125.65	125.22	125.66	-0.43	-0.44	-1.28	126.50	128.50	130.75	118.76	MAY 1976	131.50	SEP 1996
Lake Fannie	Polk	1967	120.69	120.24	121.23	-0.45	-0.99	0.24	120.00	123.50	125.75	118.67	MAY 1977	127.51	SEP 2004
Lake Garfield	Polk	1969	101.22	100.60	102.10	-0.62	-1.50	0.60	100.00	101.00	104.75	97.38	JUN 2001	105.91	SEP 1979
Lake Hamilton	Polk	1945	118.14	117.99	118.71	-0.15	-0.72	0.74	117.25	119.00	121.50	116.61	JUN 2001	124.34	OCT 1948
Lake Helene	Polk	1961	135.68	135.24	134.55	-0.44	0.69	-3.76	139.00	141.00	144.00	134.06	JUN 2008	146.48	MAR 1998
Lake Howard	Polk	1946	129.06	128.64	129.21	-0.42	-0.57	1.64	127.00	129.50	132.00	127.69	MAY 2001	133.10	SEP 1960
Lake Juliana	Polk	1961	127.89	127.42	128.76	-0.47	-1.34	-0.08	127.50	130.00	132.50	126.20	MAY 1976	134.10	MAR 1998
Lake Mcleod	Polk	1965	125.70	125.20	125.08	-0.50	0.12	-2.80	128.00	129.50	132.00	115.11	MAY 1976	131.98	SEP 1998
Lake Otis	Polk	1954	123.20	122.66	123.11	-0.54	-0.45	-0.34	123.00	125.00	128.00	119.58	MAY 1976	129.12	SEP 1960
Lake Ruby	Polk	1976	123.17	122.73	123.60	-0.44	-0.87	1.73	121.00	123.00	125.25	117.41	MAY 1976	125.98	SEP 2004
Lake Gibson	Polk	1954	140.94	140.42	142.48	-0.52	-2.06	-1.08	141.50	141.50	143.50	140.40	JUN 1985	145.40	SEP 1988

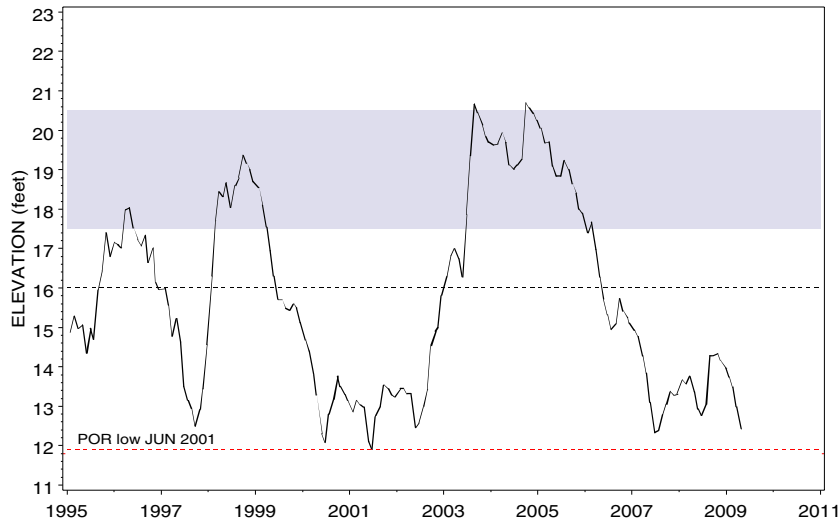
LK WALES RIDGE LAKES															
Lake Name	County	Beginning of Record	MAR 2009	APR 2009	APR 2008	Change from MAR 2009	Change from APR 2008	Diff from MELM	(MELM) Drought Year Low	(MLM) Normal Year Low	(MF) Normal Year High	Period of Record Low	Record Low Date	Period of Record High	Record High Date
Lake Annie	Polk	1970	111.36	110.85	112.14	-0.51	-1.29	-3.15	114.00	116.00	119.00	108.36	JUN 1990	117.56	OCT 2005
Lake Clay	Highlands	1983	76.84	76.32	75.98	-0.52	0.34	1.32	75.00	76.00	78.75	74.34	MAY 2001	78.38	OCT 1995
Crooked Lake	Polk	1945	115.52	114.96	116.05	-0.56	-1.09	-2.04	117.00	118.50	122.00	106.10	MAY 1991	123.98	OCT 1948
Lake Jackson	Highlands	1945	98.35	97.80	97.08	-0.55	0.72	-0.20	98.00	100.00	103.00	96.37	JUN 2008	103.76	SEP 1947
Lake Letta	Highlands	1951	92.44	91.93	91.10	-0.51	0.83	-3.07	95.00	97.00	100.00	90.27	JUN 2008	101.38	OCT 1953
Lake Lotela	Highlands	1950	98.38	97.97	97.90	-0.41	0.07	-6.03	104.00	105.00	108.50	97.00	JUN 2008	109.38	JUL 1954
Lake Placid	Highlands	1984	90.21	89.91	88.68	-0.30	1.23	-0.09	90.00	91.50	94.50	88.08	JUN 2008	94.24	SEP 2003
Starr Lake	Polk	1983	100.24	99.67	100.20	-0.57	-0.53	-8.33	108.00	110.00	113.00	96.23	JUL 2001	109.80	DEC 2005
Trout Lake	Highlands	1981	88.33	87.95	88.27	-0.38	-0.32	-7.05	95.00	98.00	101.00	87.15	MAY 2001	98.90	MAR 1998

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

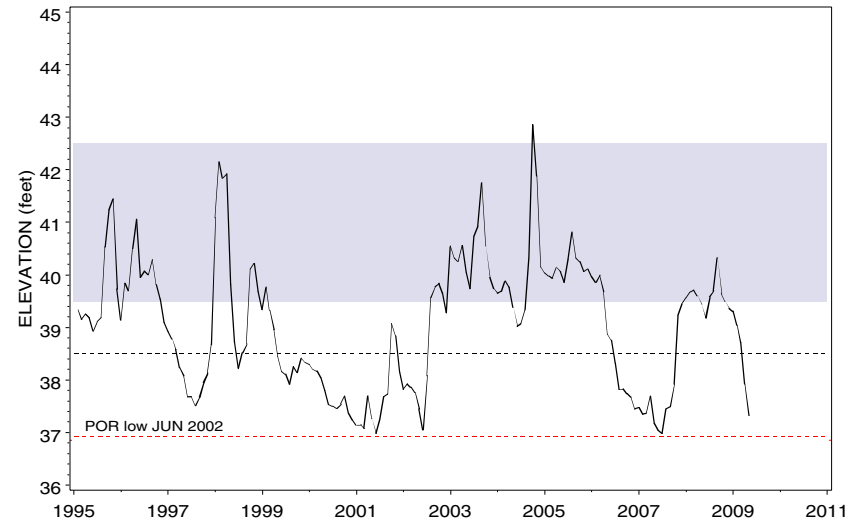
# HYDROGRAPHS OF REGIONAL LAKES

15-yr Period of Record

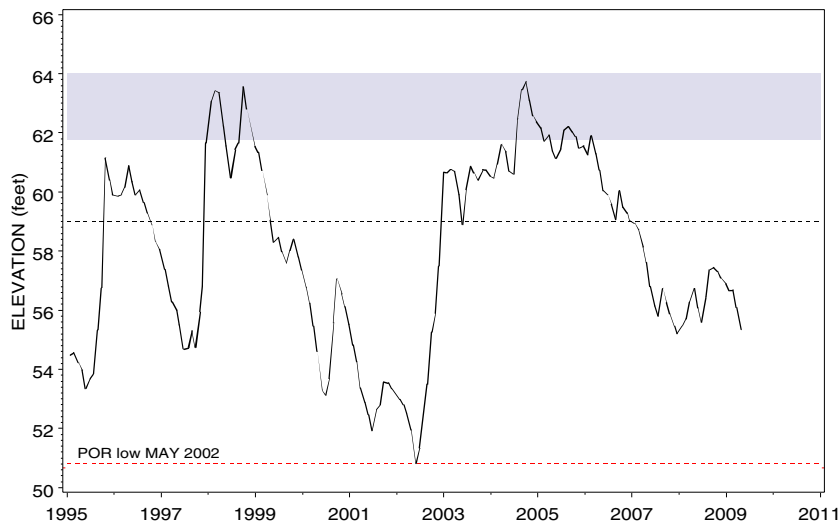
**Hunters Lake**  
Northern Lakes



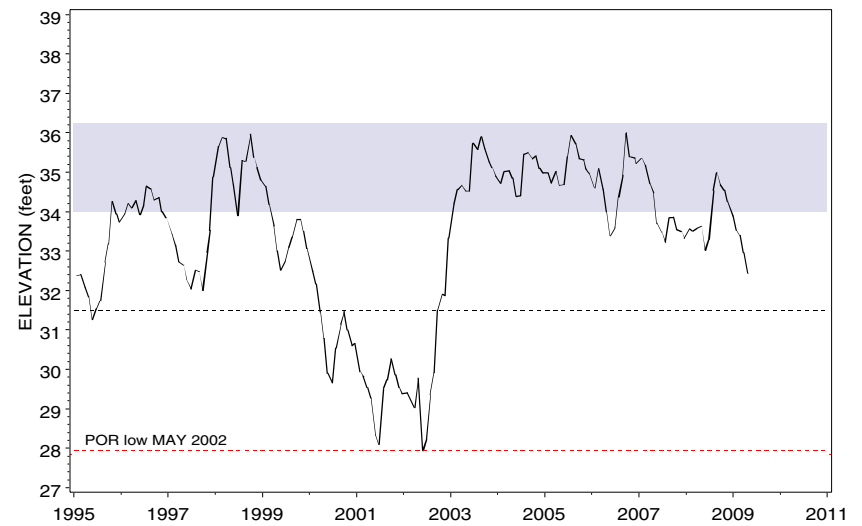
**Lake Panasoffkee**  
Northern Lakes



**Camp Lake**  
Tampa Bay Lakes



**Church Lake**  
Tampa Bay Lakes

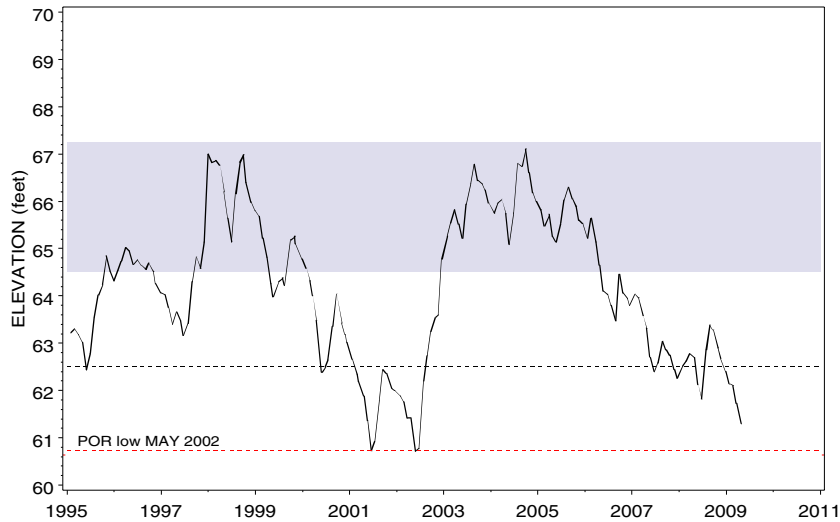


— Monthly Mean Elevation    - - - Drought Year Low    Normal Range

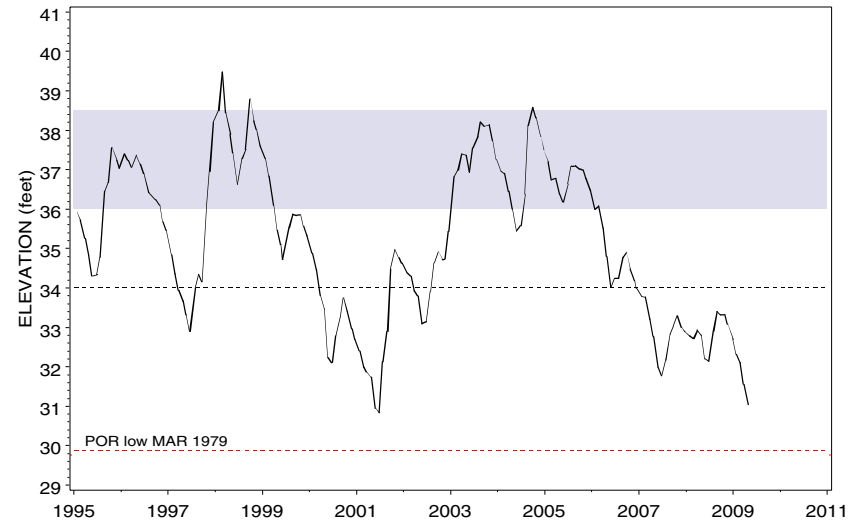
# HYDROGRAPHS OF REGIONAL LAKES

15-yr Period of Record

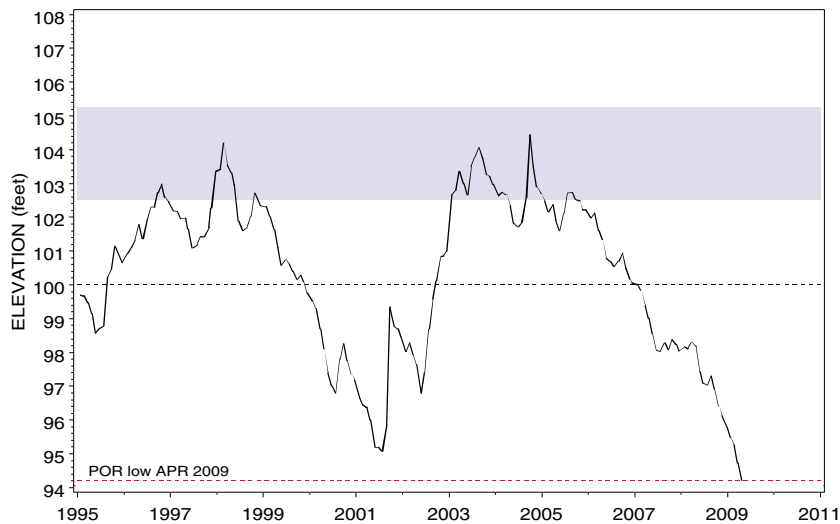
Deer Lake  
Tampa Bay Lakes



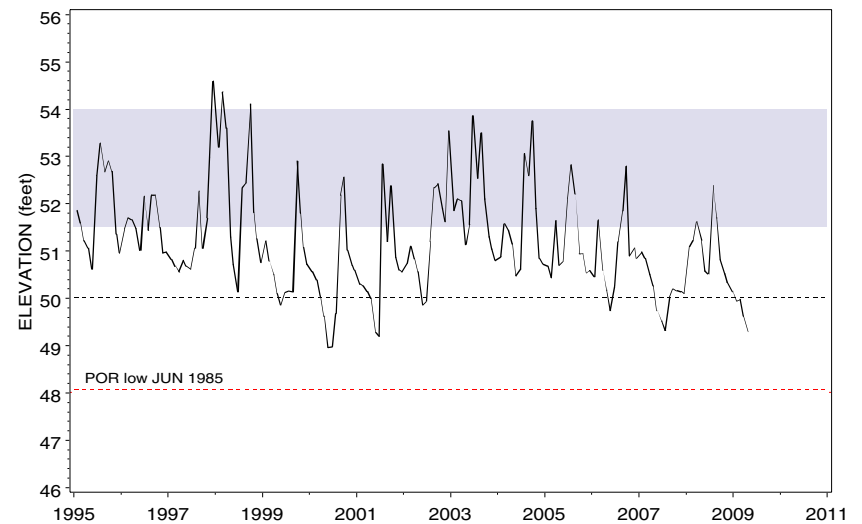
Gornto Lake  
Tampa Bay Lakes



King Lake  
Tampa Bay Lakes



Turkey Ford Lake  
Tampa Bay Lakes

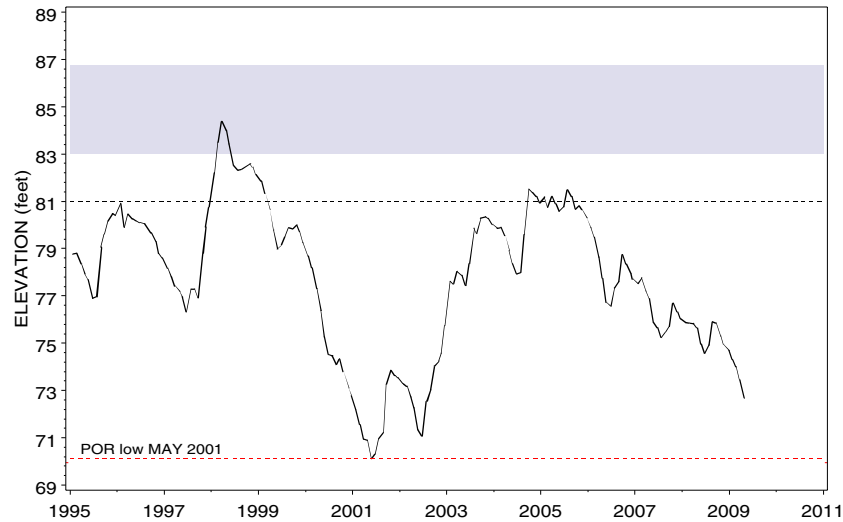


— Monthly Mean Elevation    - - - Drought Year Low    Normal Range

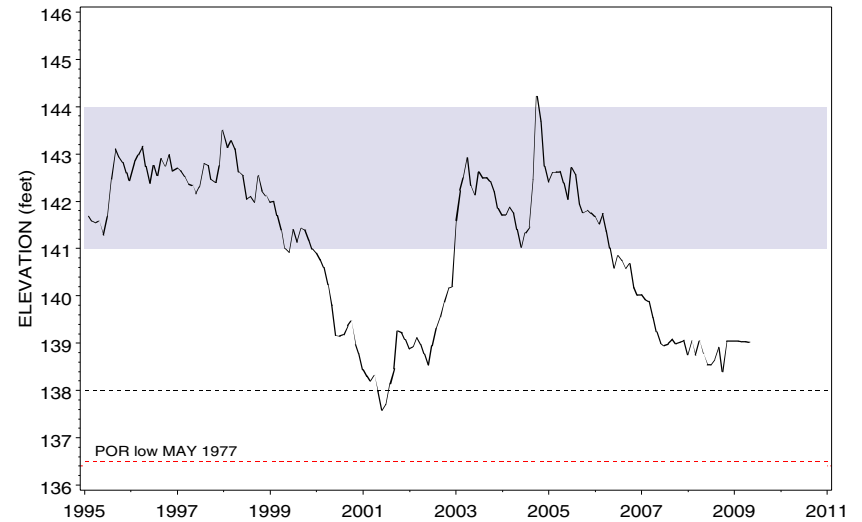
# HYDROGRAPHS OF REGIONAL LAKES

## 15-yr Period of Record

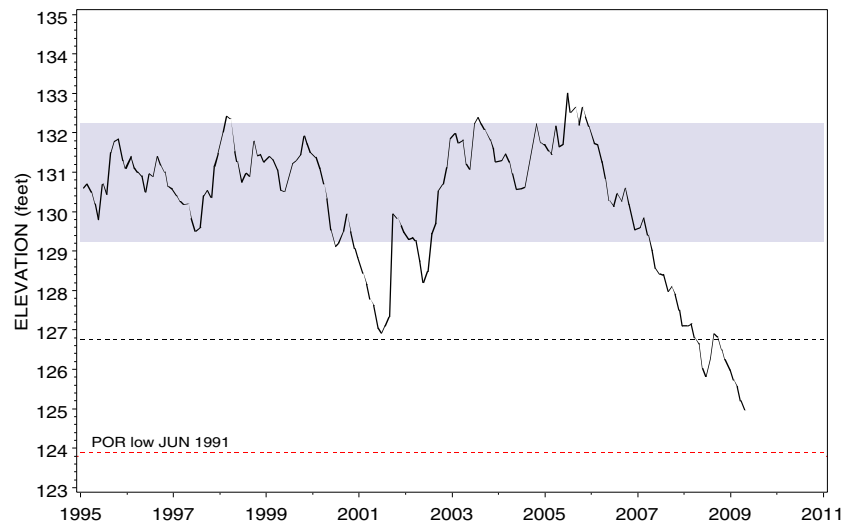
**Lake Wimauma**  
Tampa Bay Lakes



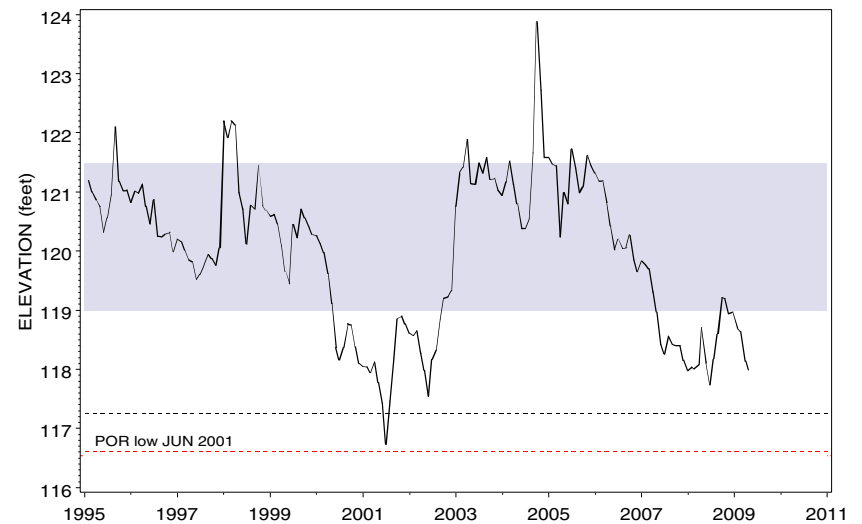
**Lake Arietta**  
Polk Uplands Lakes



**Lake Buffum**  
Polk Uplands Lakes



**Lake Hamilton**  
Polk Uplands Lakes

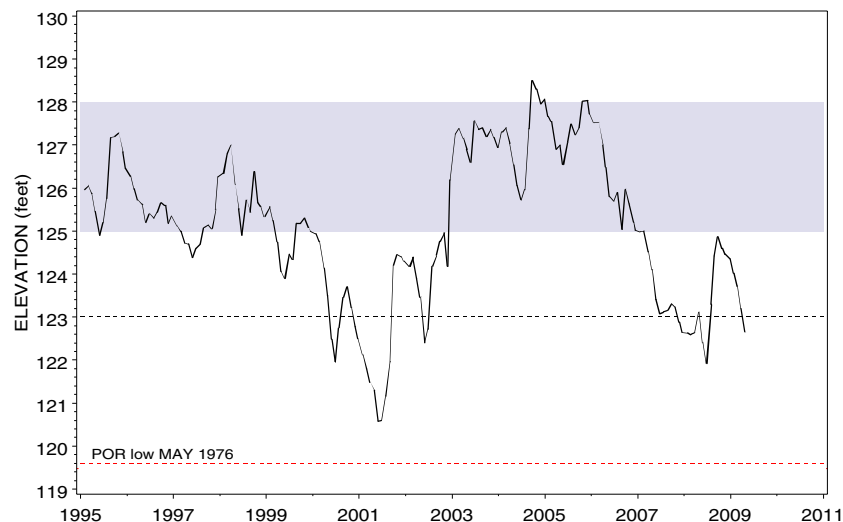


— Monthly Mean Elevation    - - - Drought Year Low    Normal Range

# HYDROGRAPHS OF REGIONAL LAKES

15-yr Period of Record

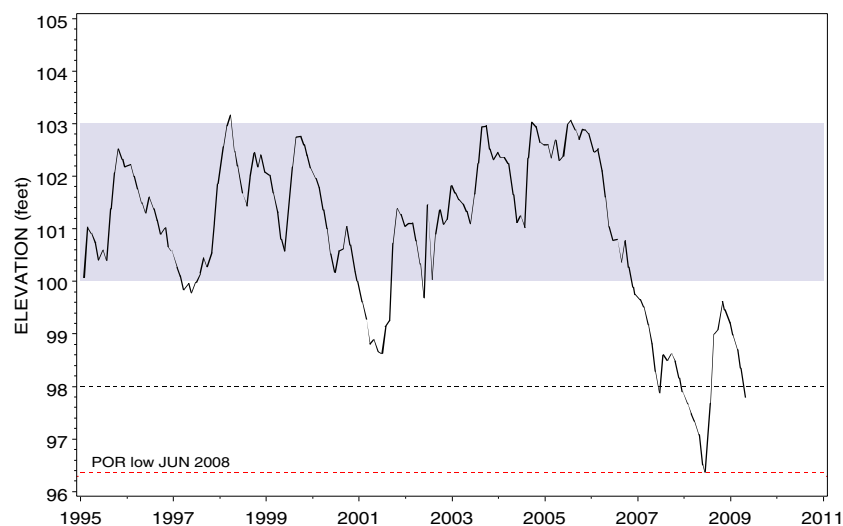
**Lake Otis**  
Polk Uplands Lakes



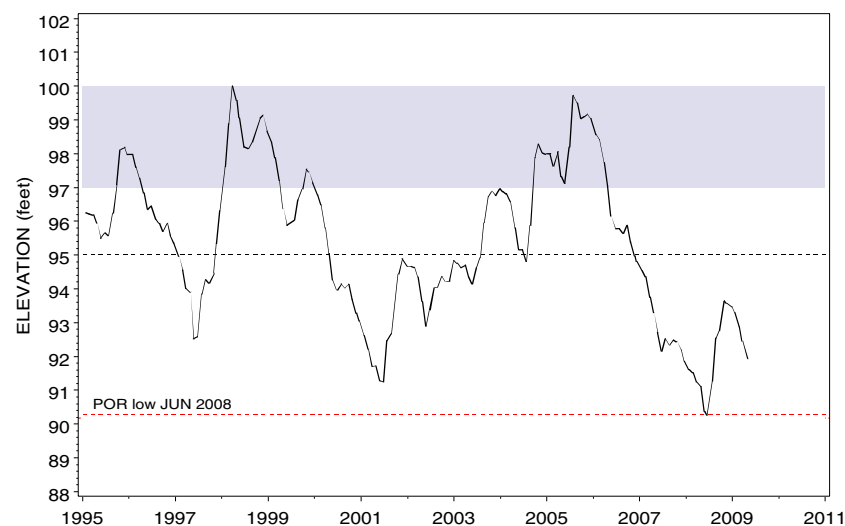
**Crooked Lake**  
Lake Wales Ridge Lakes



**Lake Jackson**  
Lake Wales Ridge Lakes



**Lake Letta**  
Lake Wales Ridge Lakes



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

## Streams

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

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

In April, nine of the twelve stations monitored for this report had decreased streamflow compared to last month. Total streamflow increased in the northern region of the District by 1.6 cfs (1.0 mgd), while it decreased in the central and southern regions by 14.5 cfs (9.4 mgd) and 21.7 cfs (14.0 mgd), respectively. District-wide, total streamflow decreased an average of 34.6 cfs (22.4 mgd).

All twelve monitoring stations recorded lower streamflow in April 2009 than in April 2008. Streamflow was lower in the northern region by 266.2 cfs (172.0 mgd), and was lower in the central and southern regions by 725.0 cfs (468.4 mgd) and 369.6 cfs (238.8 mgd), respectively. District-wide, total streamflow was lower, on average, by 1361.0 cfs (879.1 mgd), than the April 2008 average.

Compared to historical April discharge values, Withlacoochee River streamflow, measured at the Trilby station and the Holder station averaged in the 2<sup>nd</sup> and 5<sup>th</sup> percentiles, respectively. Streamflow measured at the Anclote, Hillsborough and Pithlachascotee River stations averaged in the 1<sup>st</sup>, 4<sup>th</sup> and 4<sup>th</sup> percentiles of respective historical April readings. Streamflow measured at the Alafia River, Little Manatee River and Peace River at Bartow stations averaged in the 1<sup>st</sup>, 19<sup>th</sup> and 4<sup>th</sup> percentiles of respective historical April readings. Additionally, streamflow measured at the Josephine Creek, Manatee River, Myakka River and Peace River at Arcadia stations averaged in the 6<sup>th</sup>, 27<sup>th</sup>, 21<sup>st</sup> and 2<sup>nd</sup> percentiles of respective historical April readings.

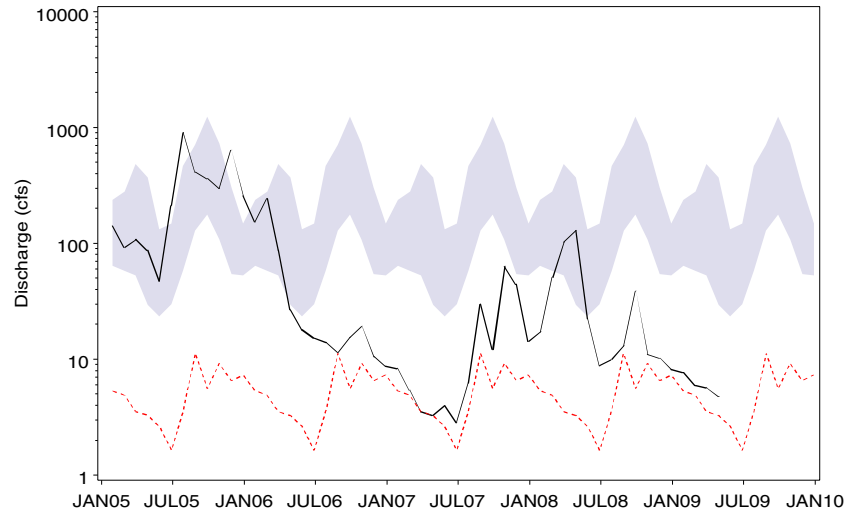
## SUMMARY OF STREAM DISCHARGE FROM MAJOR STREAMS (CFS), APRIL 2009

	<i>Beginning Year of Record</i>	<i>Mean Discharge APR 2009</i>	<i>Mean Discharge MAR 2009</i>	<i>Mean Discharge APR 2008</i>	<i>Change from MAR 2009</i>	<i>Change from APR 2008</i>	<i>APR 2009 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	1928	4.8	5.7	128.5	-0.9	-123.7	2%	0.1	JUN2000	8840	JUN1934
Withlacoochee R near Holder	1928	137.8	135.3	280.3	2.5	-142.5	5%	33.0	MAR2001	8660	APR1960
<i>CENTRAL COUNTIES</i>											
Anclote River near Elfers	1946	2.0	2.4	34.5	-0.4	-32.5	1%	0.8	MAY1962	3710	JUL1960
Pithlachascottee R near New Port Richey	1963	0.0	0.0	4.5	0.0	-4.5	4%	0.0	APR2009	1420	SEP1988
Hillsborough R near Zephyrhills	1939	44.4	45.8	242.7	-1.4	-198.3	4%	27.0	MAY2001	12300	MAR1960
Alafia River at Lithia	1932	13.4	22.2	347.6	-8.8	-334.2	1%	4.1	JUN2000	40800	SEP1933
Little Manatee R near Wimauma	1939	16.0	17.9	151.3	-1.9	-135.3	19%	0.9	DEC1976	11100	SEP1960
Peace River at Bartow	1939	4.6	7.0	47.6	-2.4	-43.0	4%	0.0	APR2009	4100	SEP1947
<i>SOUTHERN COUNTIES</i>											
Josephine Cr near DeSoto City	1946	4.7	6.7	24.7	-2.0	-20.0	6%	0.5	MAY1956	1680	SEP1948
Manatee River near Myakka Head	1966	5.9	5.5	36.0	0.4	-30.1	27%	0.1	MAY1975	6440	JUN2003
Myakka River near Sarasota	1936	3.4	7.2	80.2	-3.8	-76.8	21%	0.0	JUL2007	10800	JUN2003
Peace River at Arcadia	1931	39.1	55.1	258.9	-16.0	-219.8	2%	5.6	MAY2000	34700	SEP1933

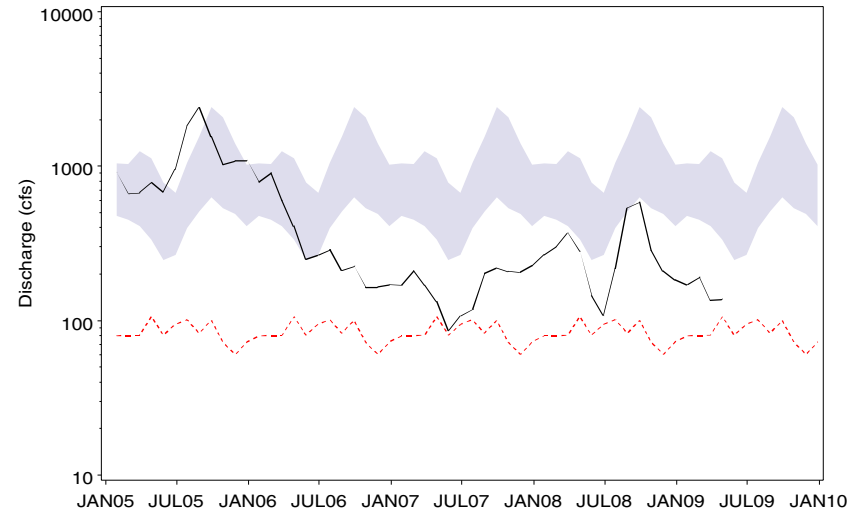
# HYDROGRAPHS OF MAJOR STREAMS

## JANUARY 2005 TO APRIL 2009

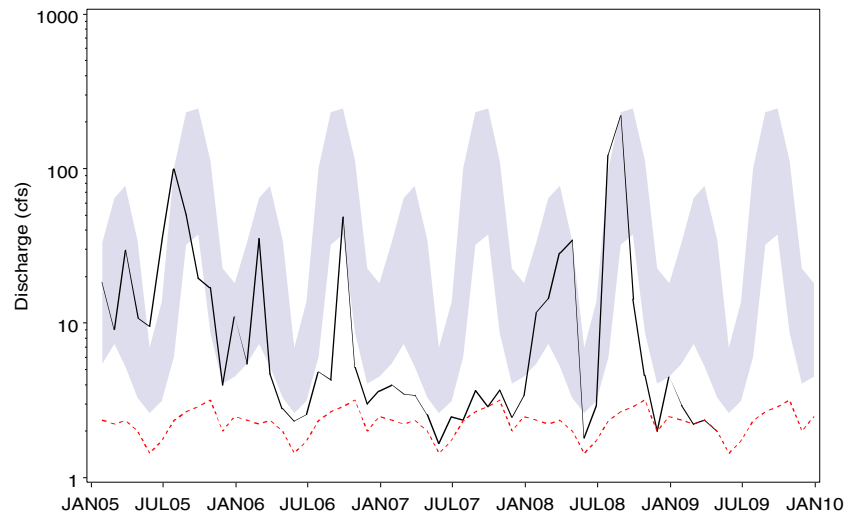
Withlacoochee R at Trilby  
Northern Counties



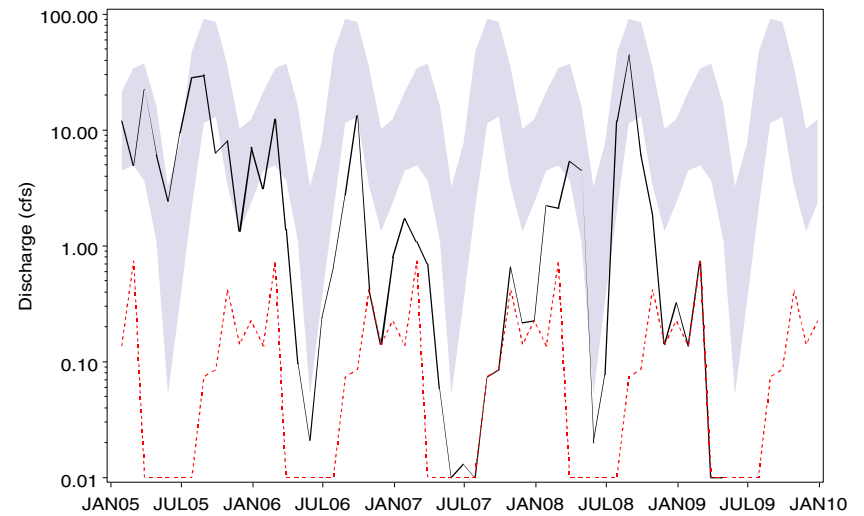
Withlacoochee R near Holder  
Northern Counties



Anclole River near Elfers  
Central Counties



Pithlachascottee R near New Port Richey  
Central Counties



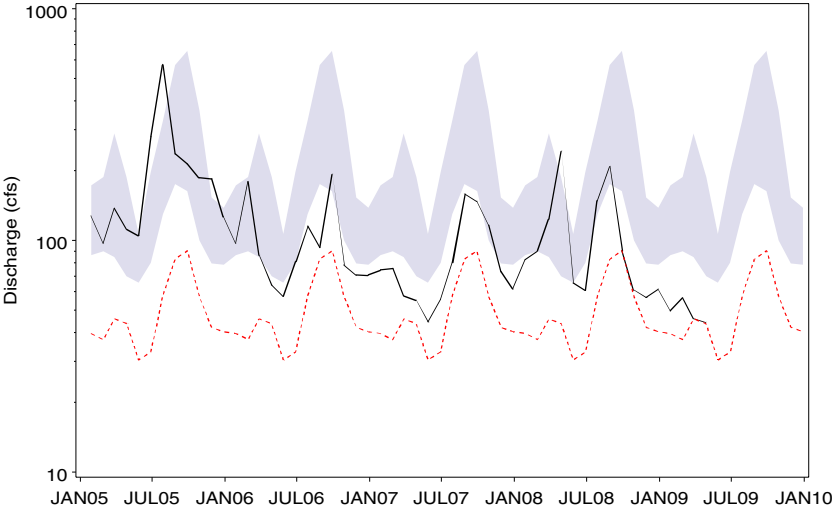
— Monthly Mean Discharge

- - - POR Monthly Low

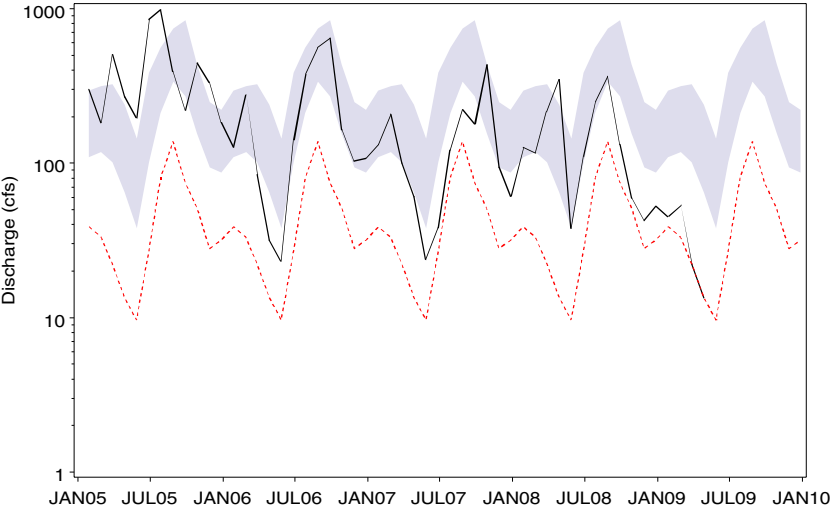
■ Normal Range

**HYDROGRAPHS OF MAJOR STREAMS**  
**JANUARY 2005 TO APRIL 2009**

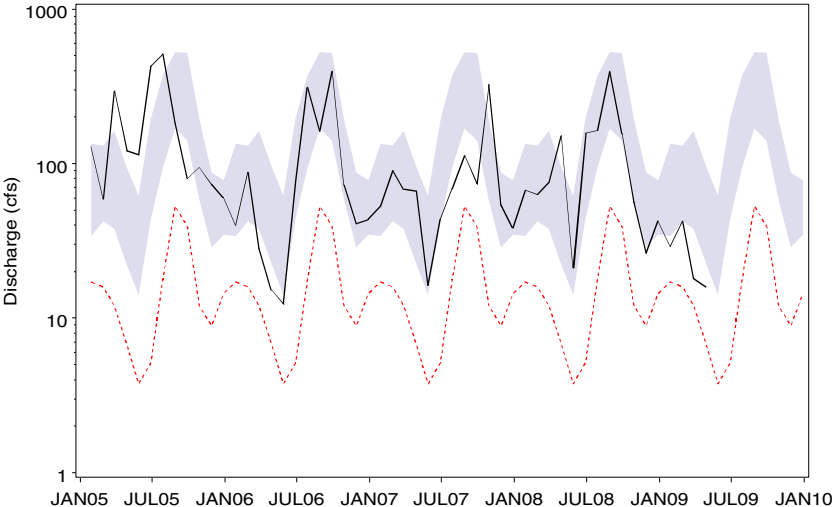
**Hillsborough R near Zephyrhills**  
Central Counties



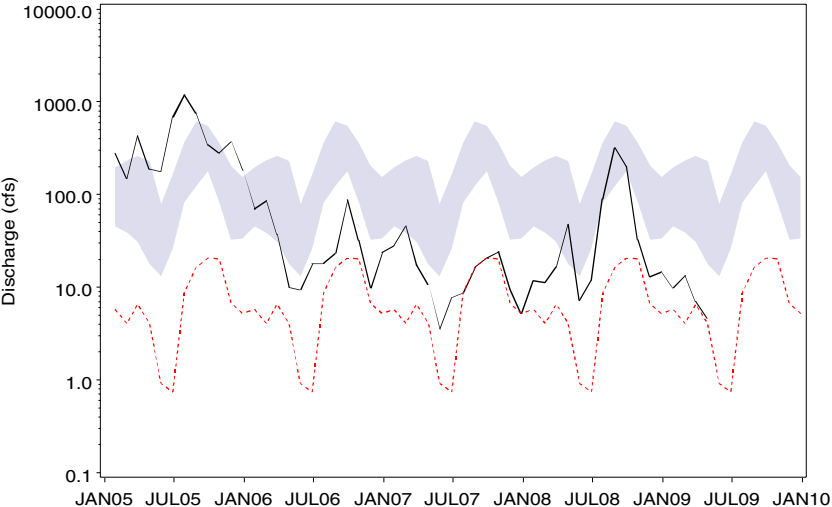
**Alafia River at Lithia**  
Central Counties



**Little Manatee R near Wimauma**  
Central Counties



**Peace River at Bartow**  
Central Counties

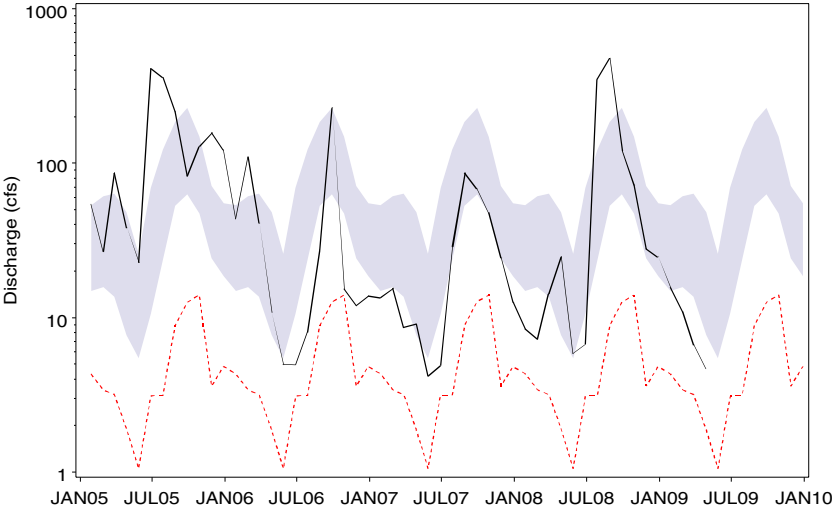


— Monthly Mean Discharge      - - - - - POR Monthly Low      Normal Range

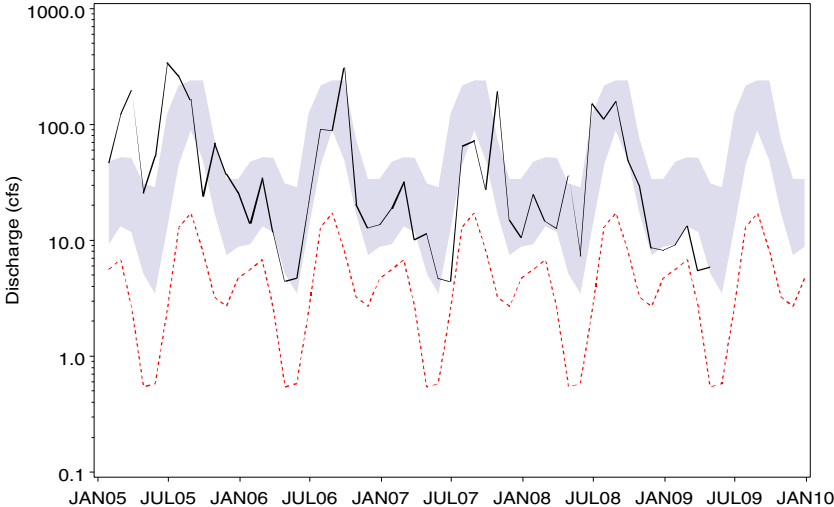
# HYDROGRAPHS OF MAJOR STREAMS

## JANUARY 2005 TO APRIL 2009

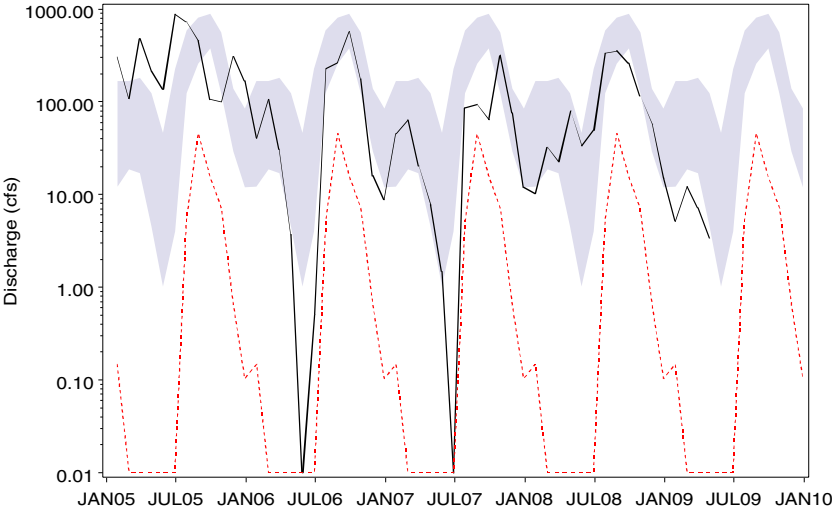
Josephine Cr near DeSoto City  
Southern Counties



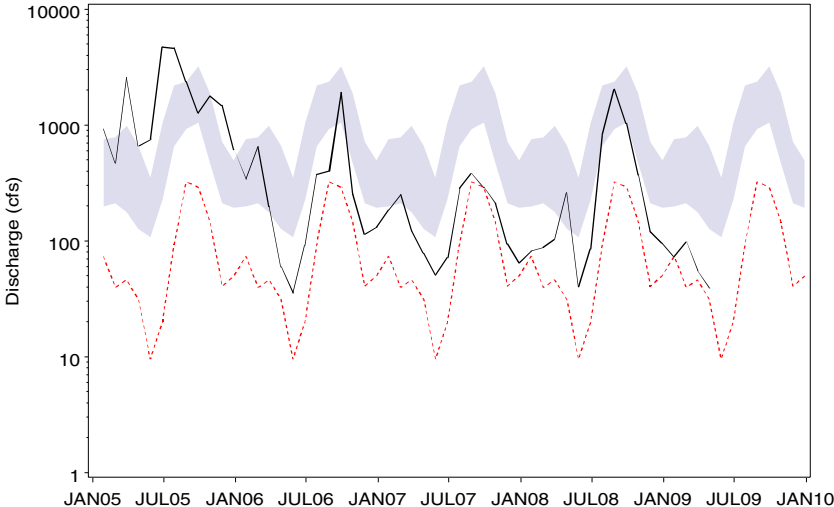
Manatee River near Myakka Head  
Southern Counties



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

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

In April, four of the seven stations reported decreased springflow, compared to the previous month. Total springflow decreased in the northern region by 61.0 cfs (39.4 mgd), while it slightly increased in the central region by 1.4 cfs (0.9 mgd). District-wide, springflow decreased by 59.6 cfs (38.5 mgd).

Total springflow recorded in all seven stations was lower in April 2009 than April 2008. Total springflow for the northern and central regions was lower by 152.0 cfs (98.2 mgd) and 48.0 cfs (31.0 mgd), respectively. District-wide, springflow decreased by 200.0 cfs (129.3 mgd), compared to April 2008 rates.

Compared to historical period-of-record values for April, total springflow measured in Rainbow, Silver and Weeki Wachee Springs, in the northern region, was in the 3<sup>rd</sup>, 2<sup>nd</sup> and 1<sup>st</sup> percentiles of respective historical readings. Springflow measured in Crystal, Sulphur, Buckhorn and Lithia Springs in the central region was in the 23<sup>rd</sup>, 10<sup>th</sup>, 5<sup>th</sup> and 1<sup>st</sup> percentiles, respectively, of historical April readings.

[Note: Due to boundary changes in the geographical delineations of the northern, central and southern regions of the District (see index maps in the Appendix), Buckhorn and Lithia Springs are now located in the central region].

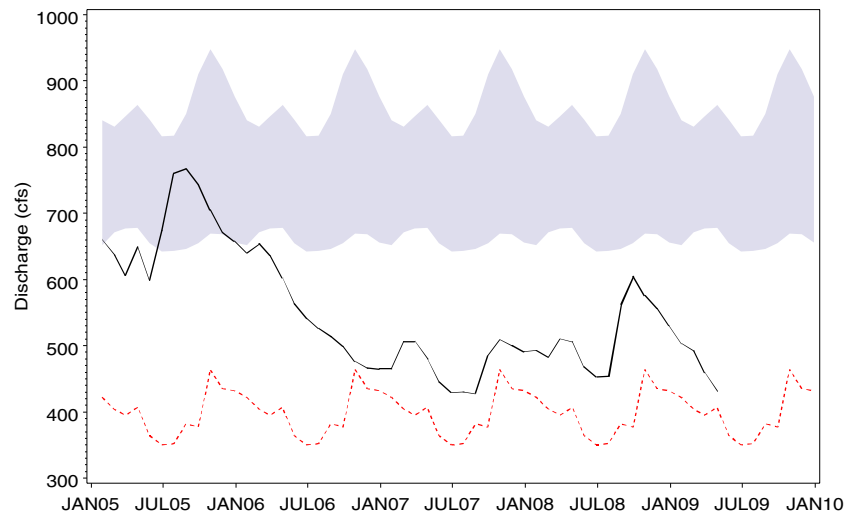
# SUMMARY OF SPRINGS DISCHARGE FROM MAJOR SPRINGS (CFS), APRIL 2009

<i>NORTHERN COUNTIES</i>	<i>APR 2009 Discharge</i>	<i>MAR 2009 Discharge</i>	<i>APR 2008 Discharge</i>	<i>Change From MAR 2009</i>	<i>Change From APR 2008</i>	<i>APR 2009 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	519.0	547.0	582.0	-28.0	-63.0	3%	470.0	JUL2001	1230.0	OCT1964
Silver Springs	431.0	459.0	506.0	-28.0	-75.0	2%	350.0	JUN2001	1290.0	OCT1960
Weeki Wachee Springs	113.0	118.0	127.0	-5.0	-14.0	1%	101.0	JUN1994	257.0	OCT2004
<i>CENTRAL COUNTIES</i>										
Crystal Springs	32.0	32.0	50.0	0.0	-18.0	23%	1.0	NOV1997	580.0	DEC1997
Sulphur Springs	7.0	6.9	7.2	0.1	-0.2	10%	0.0	MAY2007	145.0	MAR1960
Buckhorn Springs	9.2	9.9	13.0	-0.7	-3.8	5%	2.2	MAY2006	32.7	AUG2004
Lithia Springs	15.0	13.0	41.0	2.0	-26.0	1%	5.0	JUN1985	91.0	NOV2004

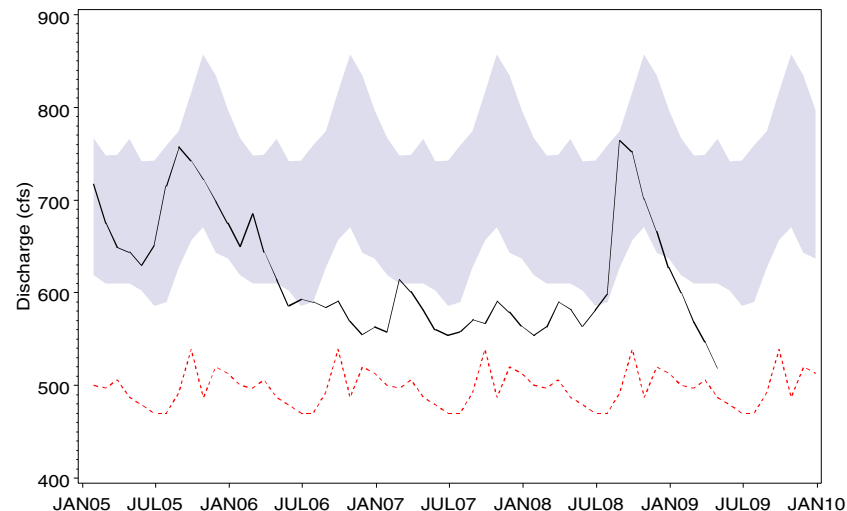
# HYDROGRAPHS OF REGIONAL SPRINGS

## JANUARY 2005 TO APRIL 2009

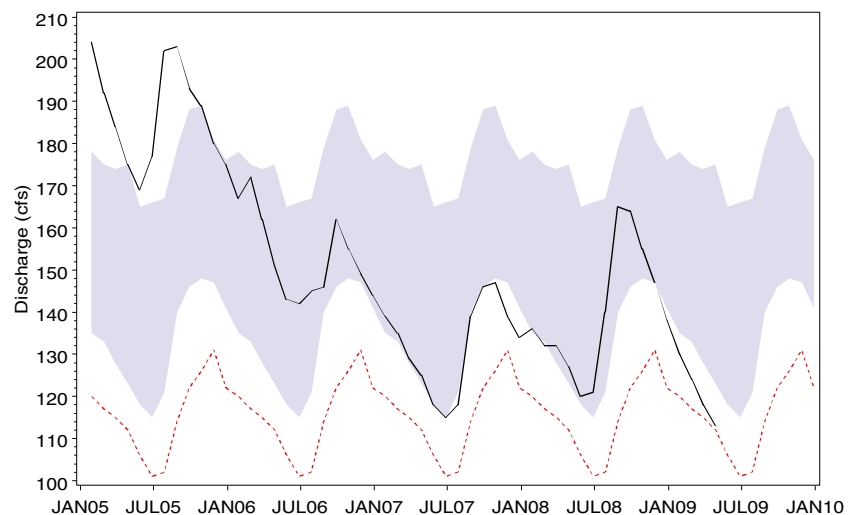
Silver Springs  
Northern Counties



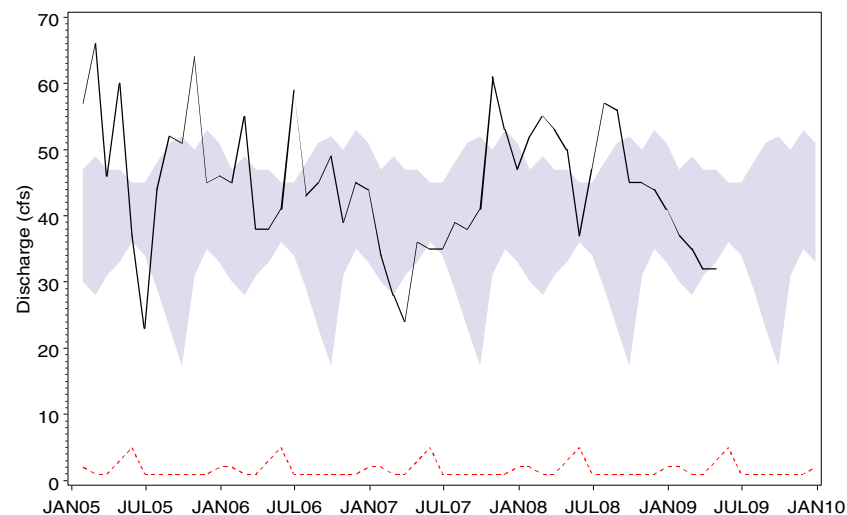
Rainbow Springs  
Northern Counties



Weeki Wachee Springs  
Northern Counties



Crystal Springs  
Central Counties



— Monthly Discharge

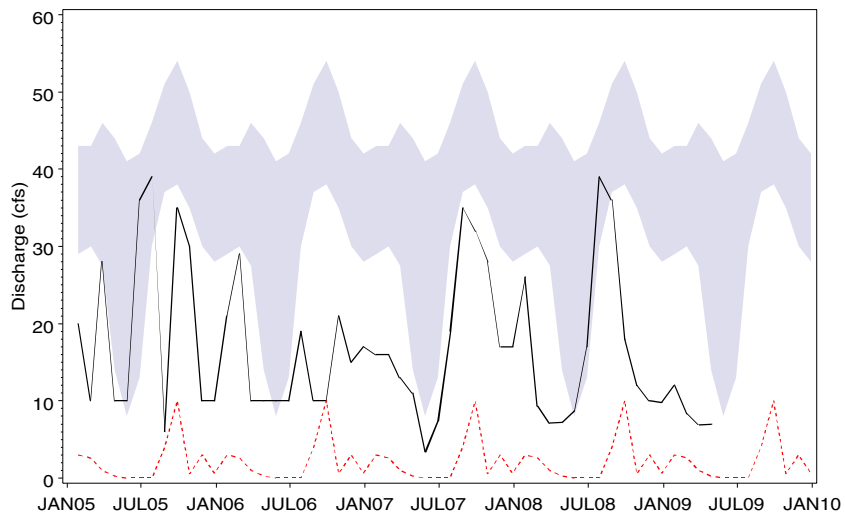
- - - POR Monthly Low

Normal Range

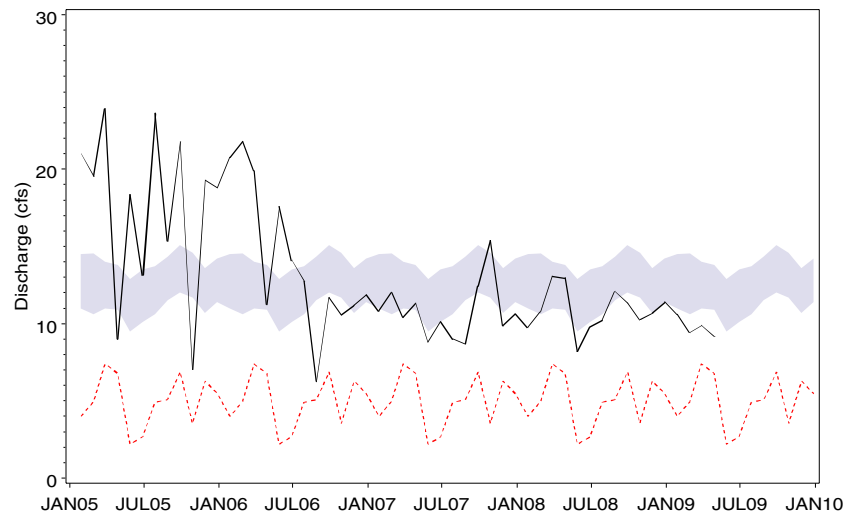
# HYDROGRAPHS OF REGIONAL SPRINGS

## JANUARY 2005 TO APRIL 2009

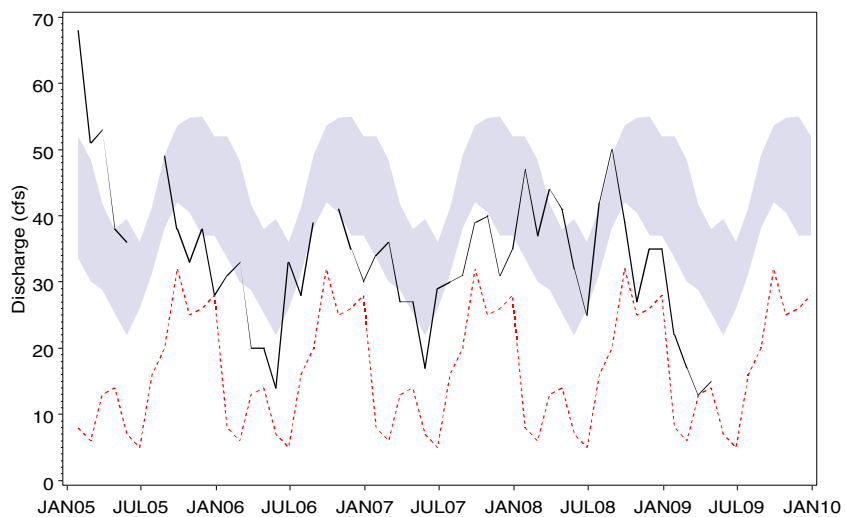
**Sulphur Springs**  
Central Counties



**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 25<sup>th</sup> and 75<sup>th</sup> percentiles ("low normal" and "high normal," respectively) were calculated for each week of the year using the period-of-record data. The 25<sup>th</sup> and 75<sup>th</sup> percentiles are used to represent the lower and upper limits of the normal range, as they are considered a reliable and robust measure of the normal range, and are less affected by extremes in the data record. The end-of month water-level readings measured for this report are compared to their corresponding normal ranges. Trend data from 16 intermediate and Floridan aquifer wells are shown in hydrographs to compare current water levels to the low normal and high normal levels.

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

## **Surficial Aquifer**

During April, all twelve 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 0.91, 0.33 and 0.34 foot, respectively. District-wide, average surficial aquifer water levels decreased by 0.43 foot.

In April, average water levels in all twelve surficial aquifer wells were lower than April 2008 levels. Average surficial aquifer water levels were lower in the northern, central and southern regions by 3.24, 1.59 and 1.56 feet, respectively. District-wide, average water levels in surficial wells were 1.86 feet lower than April 2008 levels.

At the end of April, water levels were below the normal range in nine of the twelve surficial wells. Average surficial aquifer water levels in the northern and southern regions were below the bottom of the normal range by 1.73 feet and 0.88 foot, respectively. Water levels in the central region were 0.18 foot above the bottom of the normal range. District-wide, the average water level in surficial wells was 0.40 foot below the bottom of the normal range.

# SUMMARY OF SURFICIAL AQUIFER LEVELS IN REPRESENTATIVE WELLS, APRIL 2009

	<i>APR 2009 Elev</i>	<i>MAR 2009 Elev</i>	<i>APR 2008 Elev</i>	<i>Change From MAR 2009</i>	<i>Change From APR 2008</i>	<i>APR Historical Low Normal</i>	<i>APR Historical High Normal</i>	<i>Departure From Low Normal</i>	<i>Period of Record Low</i>	<i>Record Low Date</i>	<i>Period of Record High</i>	<i>Record High Date</i>
<i>NORTHERN COUNTIES</i>												
Green Swamp	84.77	86.35	90.67	-1.58	-5.90	87.45	90.67	-2.68	82.95	MAY2000	93.07	SEP1985
Lecanto 2	6.11	6.35	6.68	-0.24	-0.57	6.88	8.85	-0.77	5.76	MAY2001	13.92	SEP1974
<i>CENTRAL COUNTIES</i>												
Loughman	89.64	89.97	91.56	-0.34	-1.92	90.44	91.88	-0.80	88.19	AUG2000	95.79	SEP2004
Lutz-Lake Fern	55.43	55.77	57.08	-0.34	-1.65	55.72	57.03	-0.29	53.39	AUG1992	67.92	MAY1966
ROMP 50 Shallow	40.55	40.59	41.71	-0.04	-1.15	40.96	41.61	-0.41	39.93	MAY1989	44.05	SEP2001
SR 33 & Combee Road	130.28	130.66	131.90	-0.38	-1.62	132.34	134.60	-2.06	129.16	FEB2001	136.97	OCT1995
SR 577 Shallow	122.43	122.95	123.26	-0.52	-0.83	117.35	123.15	5.08	110.18	FEB1991	129.02	AUG2003
Tarpon Road Shallow	10.93	11.04	14.58	-0.11	-3.65	10.55	12.67	0.38	9.31	JUN1978	16.30	OCT2006
USGS P-48	97.25	97.81	97.54	-0.56	-0.29	97.88	99.52	-0.63	96.07	JUN2001	104.79	SEP2004
<i>SOUTHERN COUNTIES</i>												
Edgeville 4 Shallow	64.97	65.50	66.95	-0.53	-1.98	66.17	67.56	-1.20	63.85	MAY1975	69.93	SEP1971
ROMP 26 Shallow	65.83	65.99	67.60	-0.16	-1.77	67.53	70.30	-1.70	64.32	JUN1999	75.11	JUN1982
SR 74	13.93	14.27	14.86	-0.34	-0.93	13.67	14.75	0.26	12.66	MAY2000	18.32	JUL2001

## **Intermediate and Floridan Aquifers**

In April, 39 of the 51 intermediate and Floridan aquifer wells monitored for this report recorded water level decreases. Regionally, average water levels decreased in the northern and central regions of the District by 1.18 feet and 0.74 foot, respectively. Water levels decreased in the southern region by 0.70 foot. District-wide, the mean water level in the intermediate and Floridan aquifer wells decreased 0.87 foot.

During April, water levels in 49 of the 51 intermediate and Floridan aquifer wells were lower than those measured in April 2008. Regionally, the mean water level in the northern, central and southern regions was 1.94, 4.31 and 5.16 feet, respectively, lower than April 2008 levels. District-wide, average water levels in intermediate and Floridan aquifer wells were 3.98 feet lower than last year.

For April, 44 of the 51 intermediate and Floridan aquifer wells had levels below the normal range, compared to historical monthly levels. Regionally, the average water level in the northern, central and southern regions was 2.37, 1.49 and 2.64 feet, respectively, below the bottom of the normal range. District-wide, the average water level in intermediate and Floridan aquifer wells was 2.16 feet below the normal range.

Period-of-record low water levels were recorded in one of the 51 monitor wells in April 2009, as follows:

Northern Counties – Weeki Wachee Deep

## SUMMARY OF INTERMEDIATE AND FLORIDAN AQUIFER LEVELS IN REPRESENTATIVE WELLS, APRIL 2009

### Regional Summary:

<i>Region</i>	<i>APR 2009 Mean Elevation</i>	<i>APR 2009 Relation to POR Median</i>	<i>APR 2009 Relation to 25th Percentile</i>	<i>APR 2009 Mean Percentile Rank</i>	<i>MAR 2009 Mean Percentile Rank</i>	<i>APR 2008 Mean Percentile Rank</i>
Northern Counties	34.50	-3.33	-1.68	8%	16%	28%
Central Counties	49.39	-4.66	-1.69	12%	11%	49%
Southern Counties	20.22	-6.80	-1.85	17%	10%	37%

### Regional Wells Summary:

<i>NORTHERN COUNTIES</i>	<i>APR 2009 Elev</i>	<i>MAR 2009 Elev</i>	<i>APR 2008 Elev</i>	<i>Change From MAR 2009</i>	<i>Change From APR 2008</i>	<i>APR Historical Low Normal</i>	<i>APR Historical High Normal</i>	<i>Departure From Low Normal</i>	<i>APR 2009 Percentile Rank</i>	<i>Period of Record Low</i>	<i>Record Low Date</i>	<i>Period of Record High</i>	<i>Record High Date</i>
CE 14 Dunnellon Deep	34.73	35.29	37.56	-0.56	-2.83	37.53	42.55	-2.80	1%	34.14	JUN2001	50.90	MAR1998
Chassahowitzka 1 Deep	5.16	5.56	5.55	-0.40	-0.39	5.75	6.83	-0.59	6%	4.68	JUN2001	9.75	SEP2004
Inverness Dot Fldn	24.38	25.23	24.56	-0.85	-0.18	28.34	31.15	-3.96	8%	21.63	JUN2001	37.80	OCT1982
Mascotte Deep	96.02	96.60	99.07	-0.58	-3.05	98.54	100.40	-2.52	5%	93.61	JUN2000	102.66	SEP1988
ROMP 103 Suwannee/Ocala	34.22	34.74	36.74	-0.52	-2.52	37.94	43.05	-3.72	1%	33.77	JUL2001	51.03	OCT2004
ROMP 107 Ocala/Avon Park	9.16	9.39	9.70	-0.23	-0.54	11.17	13.64	-2.01	4%	8.05	AUG2007	19.78	NOV1982
ROMP 134 Ocala/Avon Park	42.77	43.38	43.89	-0.61	-1.12	44.03	49.95	-1.26	9%	38.71	JUL2002	57.37	APR1998
ROMP 89 Ocala	84.84	86.08	91.33	-1.24	-6.49	88.71	91.42	-3.87	3%	82.42	JUN2000	94.99	DEC1997
ROMP 97 Avon Park	12.23	12.78	14.13	-0.55	-1.90	15.40	20.09	-3.17	1%	11.88	JUN2001	26.24	SEP2004
ROMP Tr 124 Avon Park	2.33	3.04	2.88	-0.71	-0.55	2.39	3.30	-0.06	23%	0.77	SEP2004	6.11	AUG1985
ROMP Tr 21-2 Ocala/Avon Pk	1.43	2.21	1.54	-0.78	-0.11	1.32	1.92	0.11	33%	0.03	FEB2001	4.56	NOV1987
Sumter 13 JC 59 Up Fldn	38.05	38.46	40.24	-0.41	-2.19	40.31	43.11	-2.26	5%	36.84	JUL2007	47.01	JUN2003
Webster City Fldn	76.94	77.57	80.98	-0.63	-4.04	80.61	84.55	-3.67	9%	74.48	JUL1981	88.77	SEP2005
Weeki Wachee Deep	10.98	11.36	12.20	-0.38	-1.22	14.41	17.98	-3.43	1%	10.90	APR2009	23.91	AUG1984

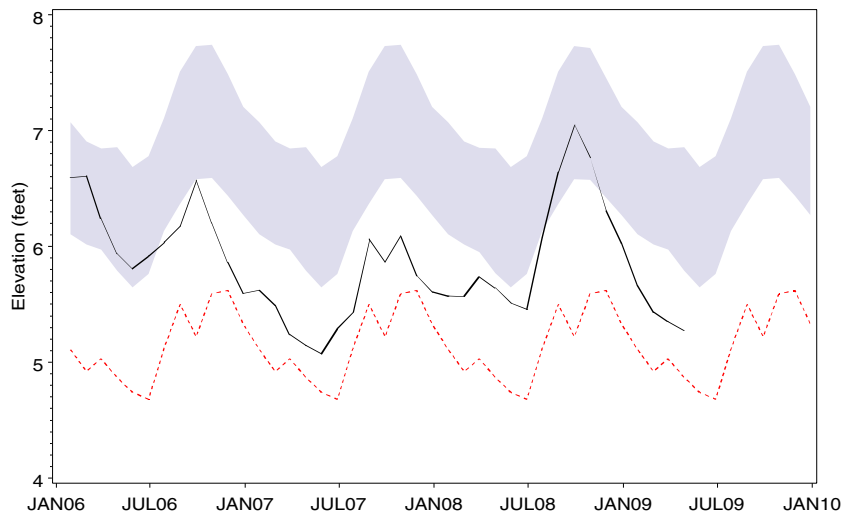
# Regional Wells Summary (continued):

	APR 2009 Elev	MAR 2009 Elev	APR 2008 Elev	Change From MAR 2009	Change From APR 2008	APR Historical Low Normal	APR Historical High Normal	Departure From Low Normal	APR 2009 Percentile Rank	Period of Record Low	Record Low Date	Period of Record High	Record High Date
<b>CENTRAL COUNTIES</b>													
Bexley 2 Fldn	58.01	58.57	61.06	-0.56	-3.05	58.89	61.48	-0.88	9%	56.08	JUN2000	64.07	SEP1988
Hills State Pk Parking Deep	35.93	36.14	39.14	-0.21	-3.21	37.04	39.22	-1.11	1%	35.35	JUN2000	47.42	DEC1997
Lk Alfred Deep nr Lake Alfre	123.61	124.52	125.12	-0.91	-1.51	124.54	127.40	-0.93	14%	119.85	MAY1974	131.62	OCT1960
Lykes Pasco Fldn	59.69	60.25	64.55	-0.56	-4.86	61.67	67.61	-1.98	7%	56.94	JUN2000	74.89	MAR1998
Masaryktown Deep	23.05	23.88	24.30	-0.83	-1.25	29.30	37.47	-6.25	2%	21.89	AUG1994	50.32	SEP1984
Moon Lake Deep	27.12	27.48	28.67	-0.36	-1.55	28.95	31.11	-1.83	1%	26.15	JUN2000	34.38	MAR1998
Pasco Well 13 nr Drexel Fldn	68.49	68.93	71.18	-0.44	-2.69	71.29	73.39	-2.80	1%	68.00	JUN2001	77.14	JUL1960
Pinellas 665 Fldn	8.06	8.25	8.94	-0.19	-0.88	8.52	10.41	-0.46	8%	6.70	MAY2006	14.79	SEP1959
ROMP 45 Avon Park	51.31	51.04	62.56	0.27	-11.25	49.58	66.19	1.73	30%	31.75	MAY1981	84.42	OCT2004
ROMP 50 Avon Park	-4.52	-3.54	0.29	-0.98	-4.81	-5.67	3.15	1.15	32%	-17.09	JAN2005	14.95	AUG1982
ROMP 59 Swnn/AvPk	52.83	52.79	63.89	0.04	-11.06	49.81	66.78	3.02	33%	33.33	MAY1981	85.92	OCT2004
ROMP 66 Tampa	15.00	15.20	17.18	-0.20	-2.18	15.04	17.61	-0.04	25%	12.04	JUN1977	24.51	DEC1997
ROMP 87 Avon Park	96.50	97.29	102.14	-0.79	-5.64	99.32	102.76	-2.82	3%	94.90	JUN2000	106.30	FEB1998
ROMP 93 Swnn/AvPk	61.84	62.52	65.87	-0.68	-4.03	65.61	72.46	-3.77	7%	59.02	JUN2001	76.60	SEP1982
SR 52 Deep W nr Fivay Jct	48.84	49.22	50.34	-0.38	-1.50	51.22	52.86	-2.38	1%	48.08	JUN2000	56.75	SEP1988
SR 577 Deep	75.64	76.13	85.53	-0.49	-9.89	83.75	91.56	-8.11	4%	72.76	JUN2000	98.51	MAR1998
Sanlon Ranch Fldn	82.57	83.30	90.01	-0.73	-7.44	81.25	92.02	1.32	35%	66.38	MAY1975	105.27	OCT2004
Tarpon Rd Deep	8.61	9.13	9.46	-0.52	-0.85	9.24	10.30	-0.63	6%	6.95	MAY2007	13.06	SEP1971
	APR 2009 Elev	MAR 2009 Elev	APR 2008 Elev	Change From MAR 2009	Change From APR 2008	APR Historical Low Normal	APR Historical High Normal	Departure From Low Normal	APR 2009 Percentile Rank	Period of Record Low	Record Low Date	Period of Record High	Record High Date
<b>SOUTHERN COUNTIES</b>													
Big Slough Deep	28.64	29.11	31.41	-0.47	-2.77	30.55	32.96	-1.91	1%	26.82	MAY2006	36.12	OCT1995
Edgeville 3 Deep	11.00	9.19	20.30	1.81	-9.30	17.26	29.27	-6.26	11%	1.13	MAY2000	46.40	OCT1965
Englewood 14 Deep	3.86	3.74	1.01	0.12	2.85	1.93	4.47	1.93	64%	-0.97	FEB2001	11.37	SEP1974
Florida Cities Test 1	-3.81	-3.26	-2.38	-0.55	-1.43	-0.24	12.29	-3.57	17%	-15.98	MAY2006	25.89	SEP1977
Kibler Deep	-17.94	-16.82	-5.65	-1.12	-12.29	-12.18	5.62	-5.76	11%	-29.95	MAY2000	29.30	AUG1978
Manasota 14 Deep	16.02	16.34	17.55	-0.32	-1.53	18.48	20.56	-2.46	1%	14.88	JUL2004	22.70	NOV1971
Marshall Deep	29.44	28.90	37.89	0.54	-8.45	31.00	44.20	-1.56	20%	8.96	JUN2000	55.24	MAR1964
ROMP 16 Ocala	41.40	42.43	44.52	-1.03	-3.12	43.36	47.89	-1.96	11%	28.94	JAN2001	51.21	SEP1995
ROMP 26 Swnn/AvPk	34.98	35.52	40.64	-0.54	-5.66	37.00	44.92	-2.02	16%	19.62	JAN2001	51.28	OCT1979
ROMP 28X Swnn/AvPk	64.80	66.18	65.04	-1.38	-0.24	65.00	67.96	-0.20	22%	58.40	JAN2001	74.68	OCT1995
ROMP 30 Swnn/AvPk	25.16	24.38	36.75	0.78	-11.59	28.43	46.39	-3.27	16%	-0.20	JUN2000	60.52	MAR1998
ROMP 31 Swnn/AvPk	19.52	19.35	32.44	0.17	-12.92	22.93	41.87	-3.41	18%	-8.20	JUN2000	57.92	MAR1998
ROMP 32 L Ocala/Avon Park	2.07	1.72	14.42	0.35	-12.35	7.55	25.25	-5.48	13%	-17.54	JUN2000	44.72	FEB1998
ROMP 43XX Avon Park	80.82	81.42	79.95	-0.60	0.87	81.11	86.51	-0.29	24%	73.61	MAY1986	94.60	MAR1998
ROMP Tr 5-1 Suwannee	15.21	15.42	17.39	-0.21	-2.18	16.56	19.27	-1.35	7%	13.26	JUN2000	23.00	SEP1983
ROMP Tr 7-1 Tampa	13.99	13.61	16.07	0.38	-2.08	13.44	17.25	0.55	33%	10.08	JUN2000	23.56	SEP2003
Sarasota 11th St Deep	3.89	2.02	4.44	1.87	-0.55	4.88	9.28	-0.99	20%	0.39	MAY2000	19.31	SEP1979
Sarasota 9 Deep	7.30	6.61	12.14	0.69	-4.84	12.95	30.46	-5.65	9%	0.31	JUN2000	37.56	AUG1932
Verna Test 0-1	-7.18	-8.08	3.21	0.90	-10.39	-0.64	14.01	-6.54	8%	-18.05	MAY2000	33.32	JAN1984

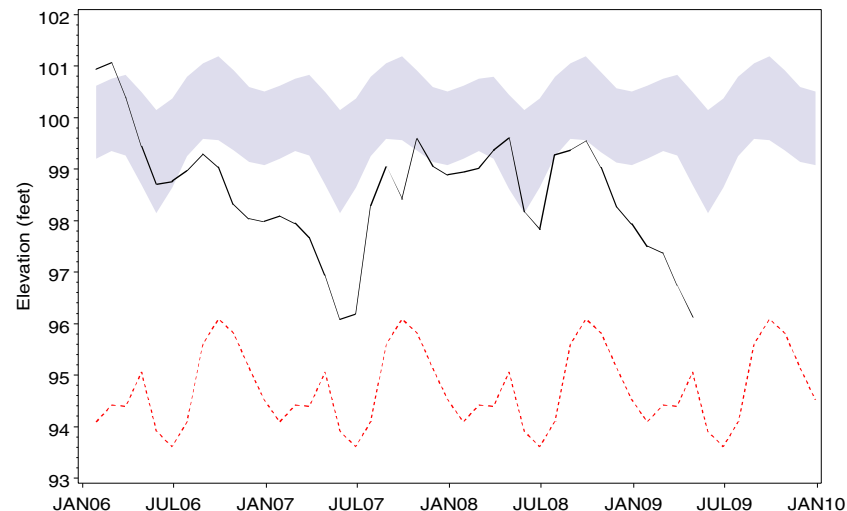
# HYDROGRAPHS OF REPRESENTATIVE INTERMEDIATE AND FLORIDAN AQUIFER WELLS

## JANUARY 2006 TO APRIL 2009

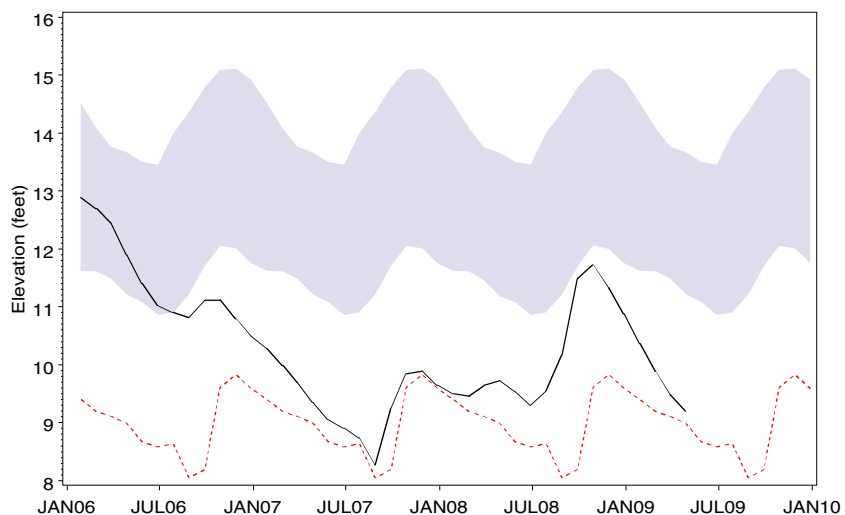
Chassahowitzka 1 Deep  
Northern Counties



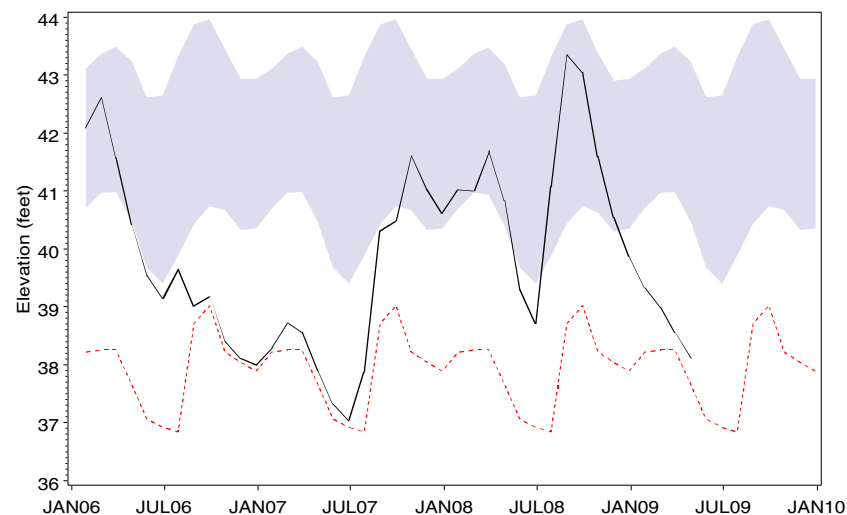
Mascotte Deep  
Northern Counties



ROMP 107 Ocala/Avon Park  
Northern Counties



Sumter 13 JC 59 Up Fldn  
Northern Counties

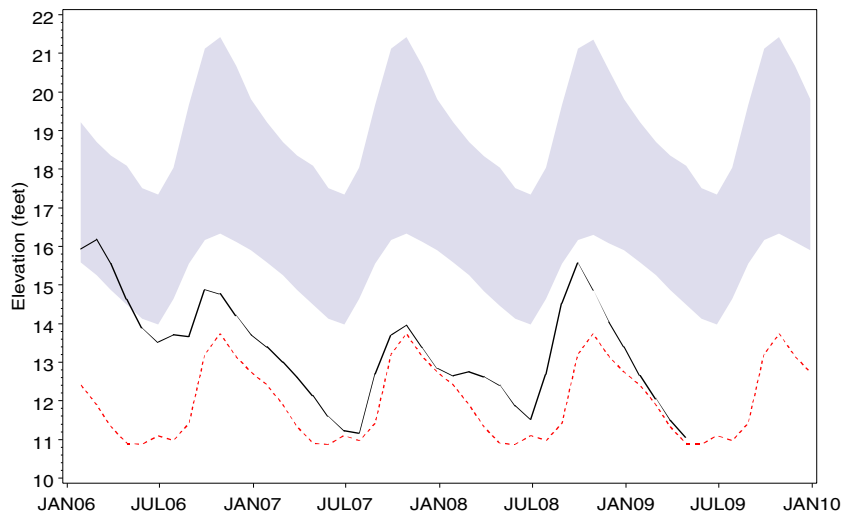


— Average Monthly Elevation      - - - - - POR Monthly Low      Normal Range

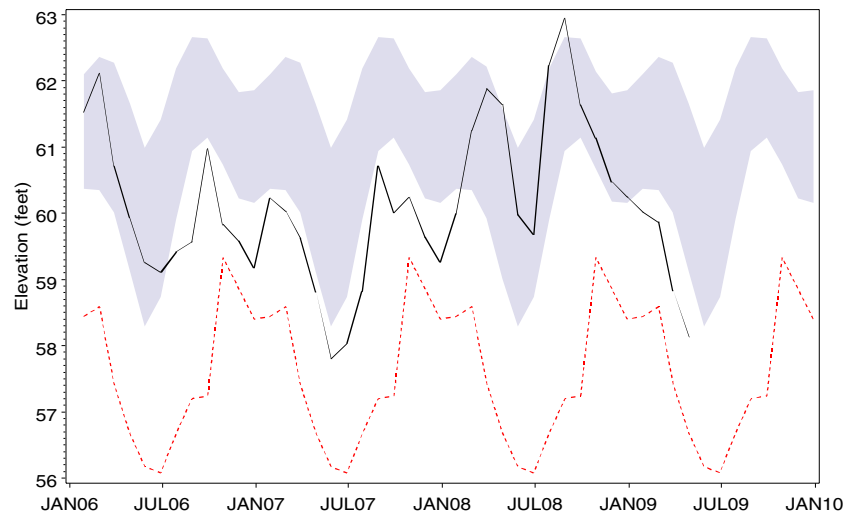
# HYDROGRAPHS OF REPRESENTATIVE INTERMEDIATE AND FLORIDAN AQUIFER WELLS

## JANUARY 2006 TO APRIL 2009

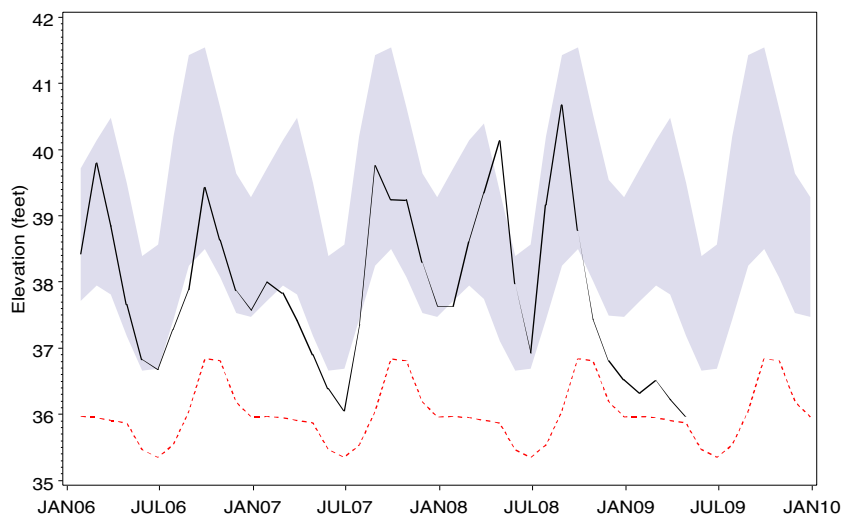
Weeki Wachee Deep  
Northern Counties



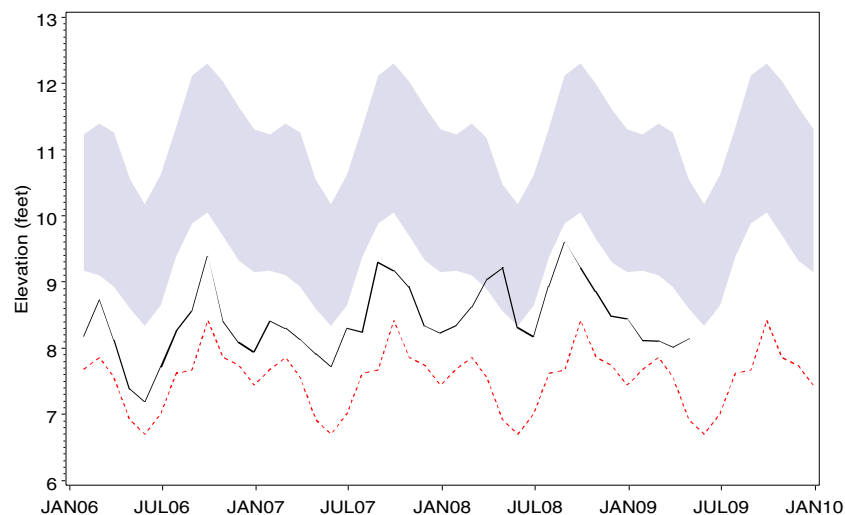
Bexley 2 Fldn  
Central Counties



Hills State Pk Parking Deep  
Central Counties



Pinellas 665 Fldn  
Central Counties

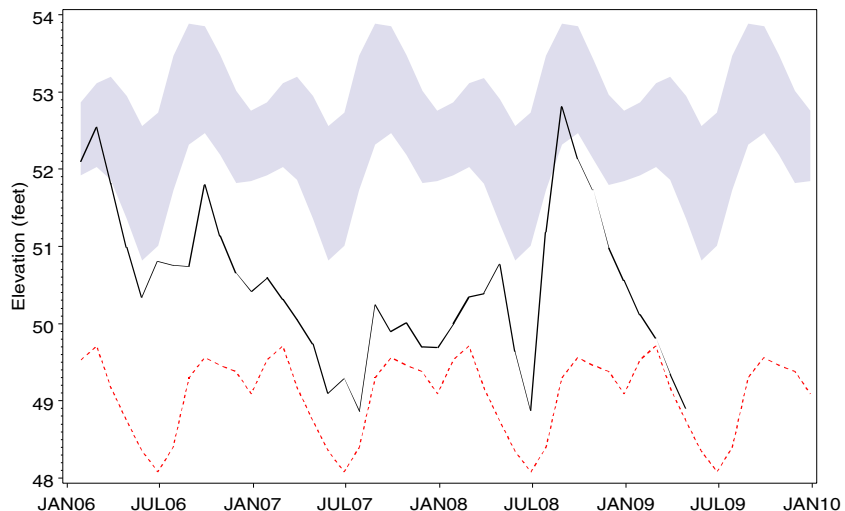


— Average Monthly Elevation      - - - - - POR Monthly Low      Normal Range

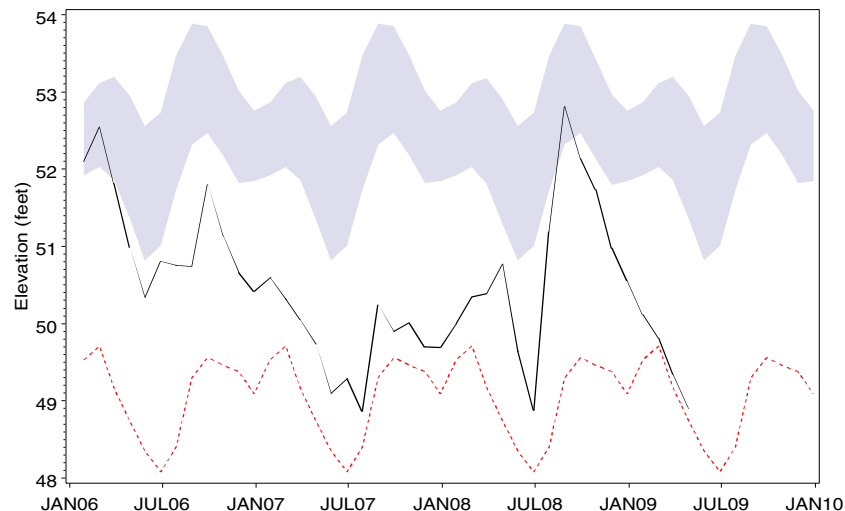
# HYDROGRAPHS OF REPRESENTATIVE INTERMEDIATE AND FLORIDAN AQUIFER WELLS

## JANUARY 2006 TO APRIL 2009

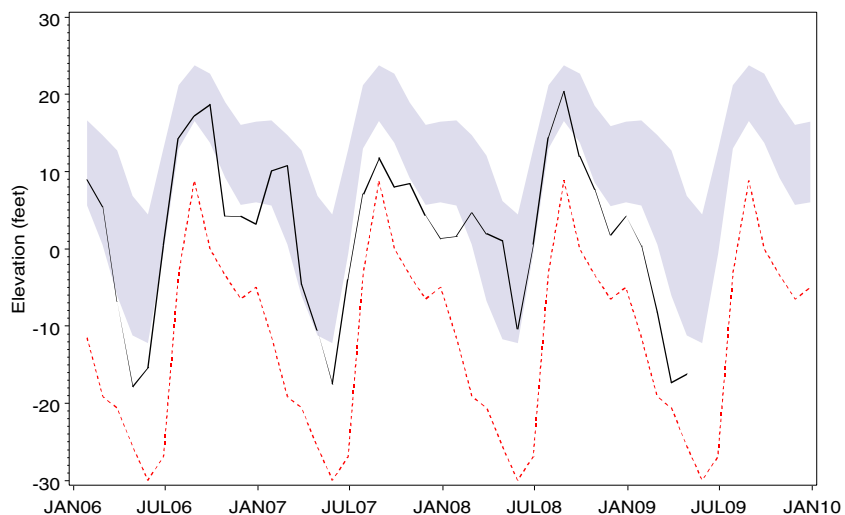
SR 52 Deep W nr Fivay Jct  
Central Counties



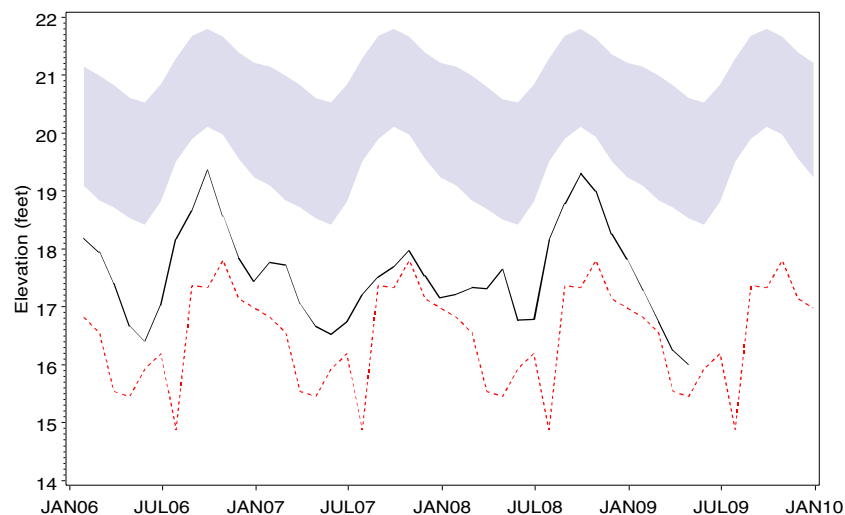
SR 52 Deep W nr Fivay Jct  
Central Counties



Kibler Deep  
Southern Counties



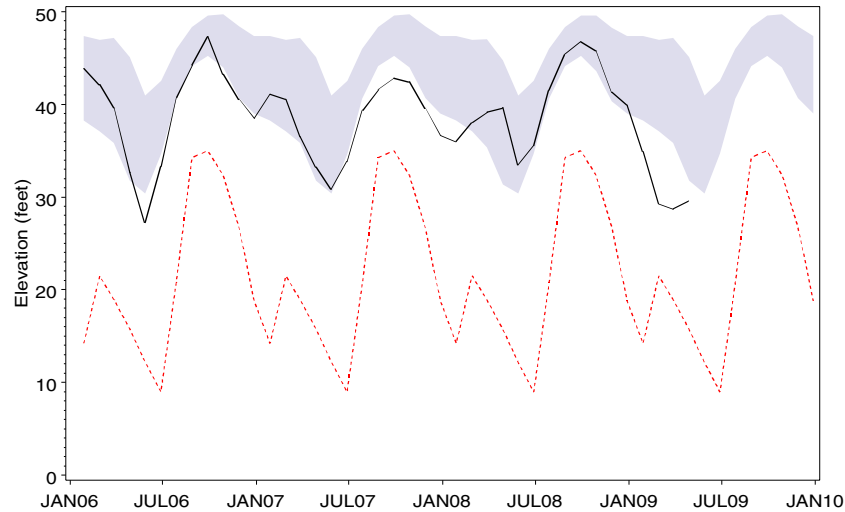
Manasota 14 Deep  
Southern Counties



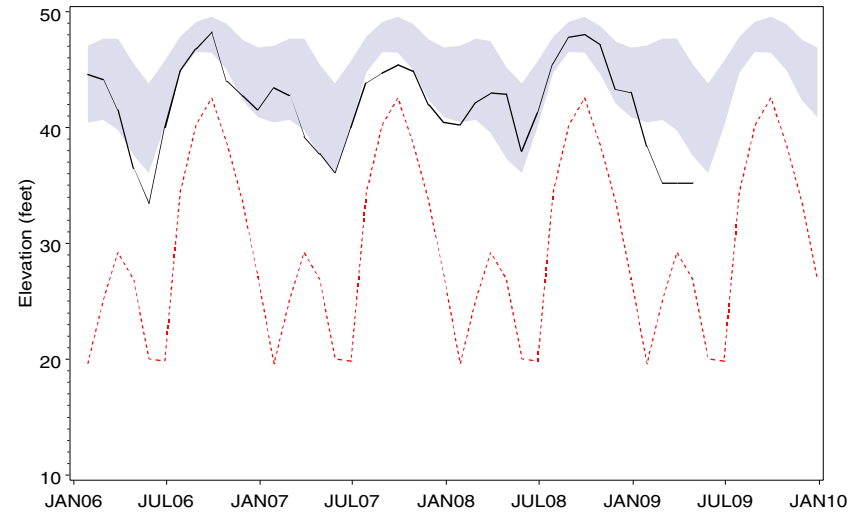
— Average Monthly Elevation      - - - - - POR Monthly Low      Normal Range

# HYDROGRAPHS OF REPRESENTATIVE INTERMEDIATE AND FLORIDAN AQUIFER WELLS JANUARY 2006 TO APRIL 2009

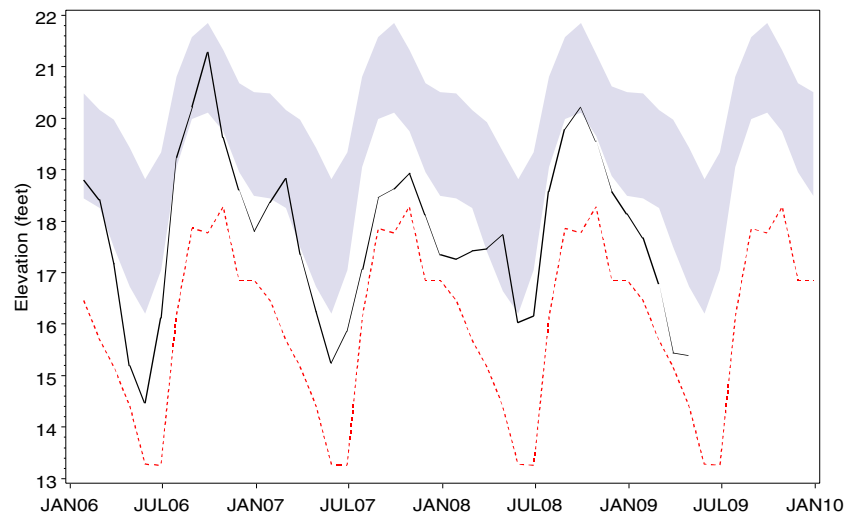
Marshall Deep  
Southern Counties



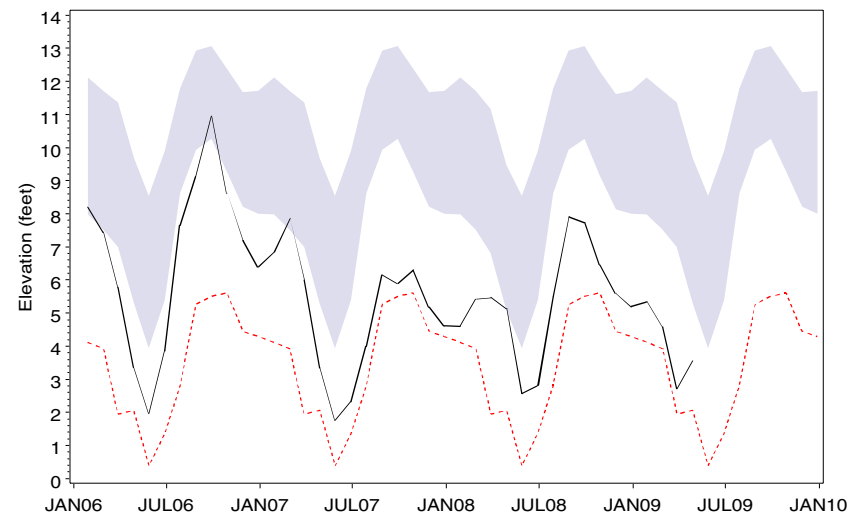
ROMP 26 Suwannee/Avon Park  
Southern Counties



ROMP Tr 5-1 Suwannee  
Southern Counties

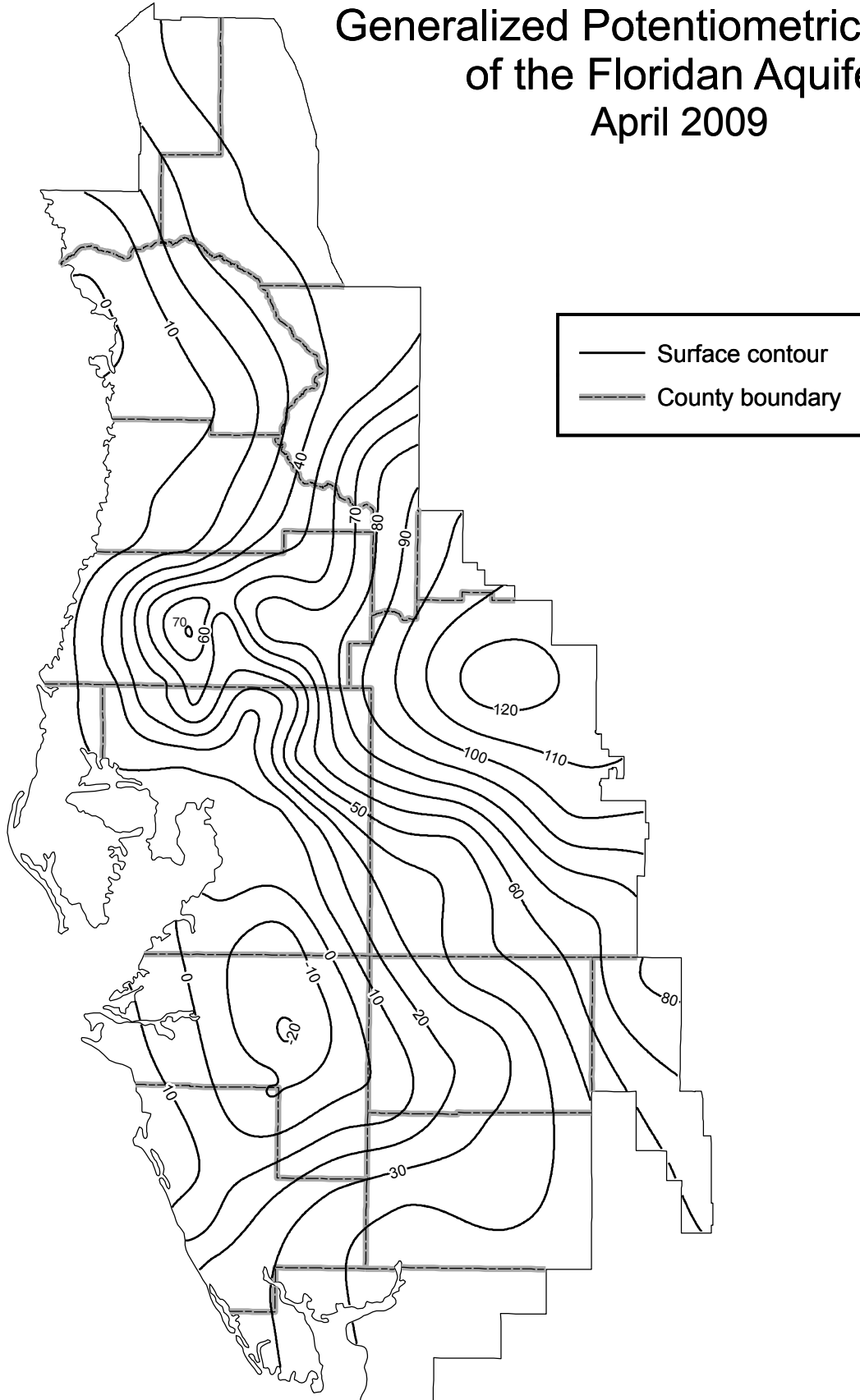


Sarasota 11th St Deep  
Southern Counties



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

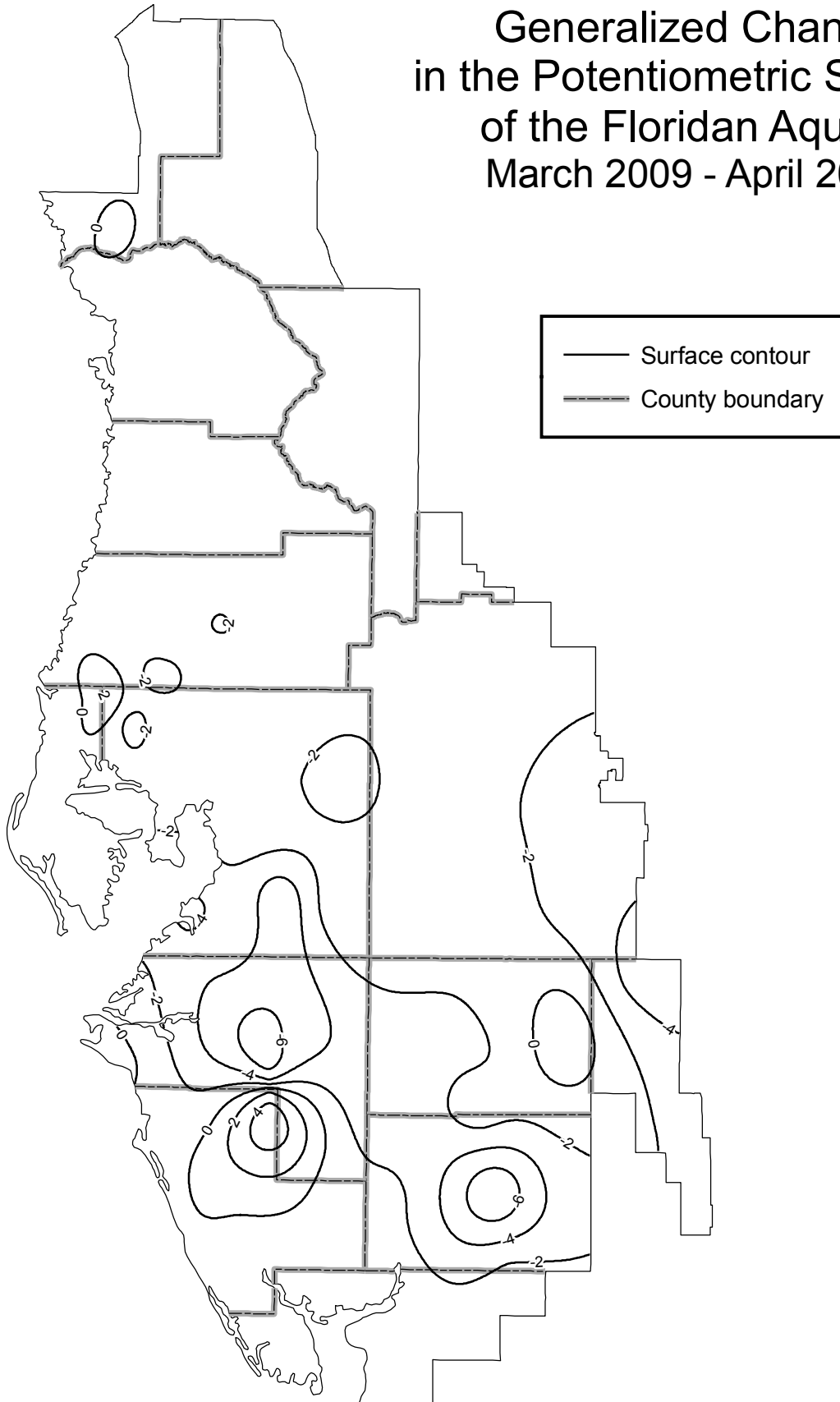
# Generalized Potentiometric Surface of the Floridan Aquifer April 2009



Compiled by M. L. Crowell

Contour Interval = 10 Feet

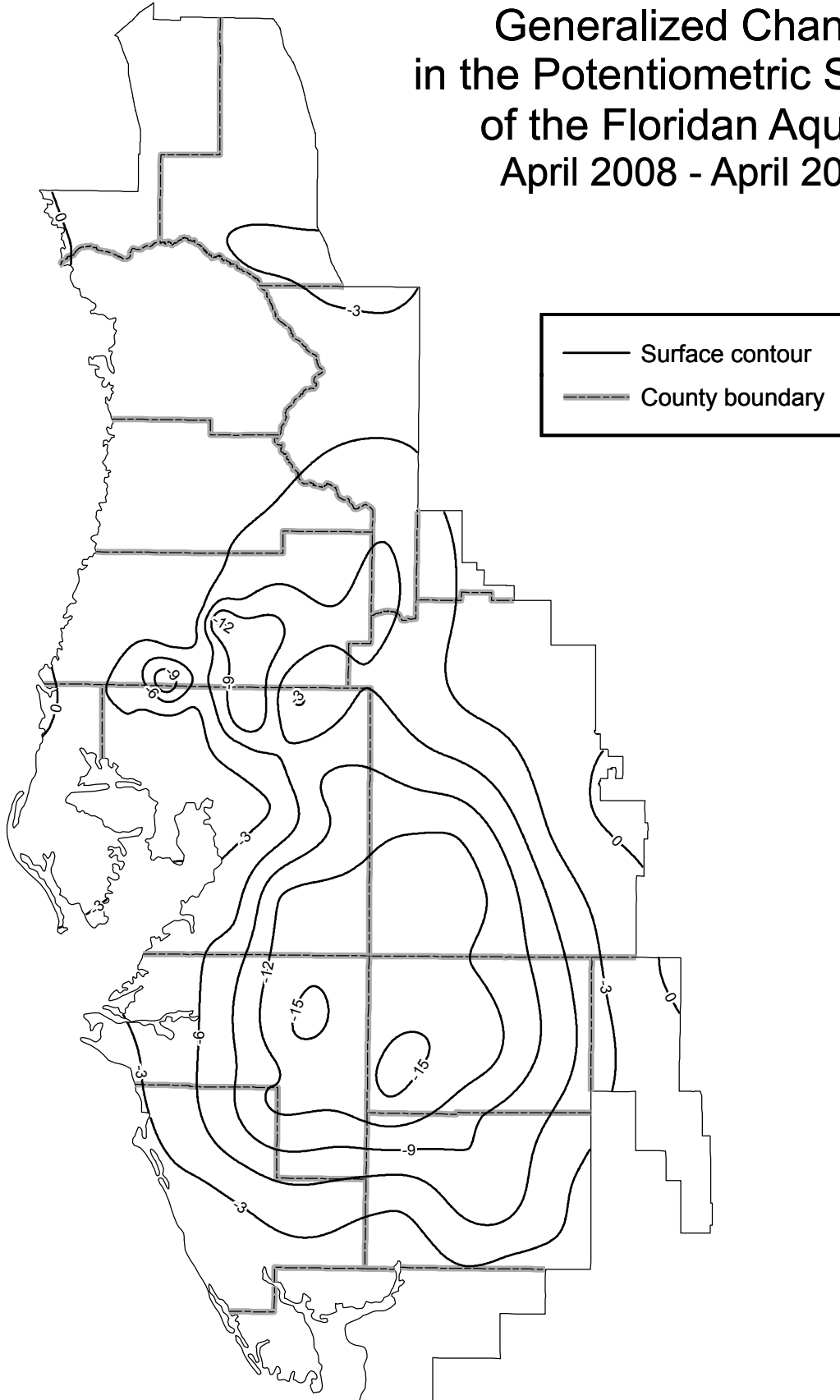
# Generalized Change in the Potentiometric Surface of the Floridan Aquifer March 2009 - April 2009



Compiled by M. L. Crowell

Contour Interval = 2 Feet

# Generalized Change in the Potentiometric Surface of the Floridan Aquifer April 2008 - April 2009



Compiled by M. L. Crowell

Contour Interval = 3 Feet

## **Public Supply Wellfields**

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

During April, average water levels decreased in eight of the twelve intermediate and Floridan wells and eight of the nine surficial wells. Average water levels measured in the intermediate and Floridan wells decreased 0.35 foot, while levels measured in surficial wells decreased 0.73 foot.

In April, average water levels in all twelve intermediate and Floridan wells and all nine surficial wells were below those measured in April 2008. Water levels measured in the intermediate and Floridan wells averaged 6.56 feet below last year's levels, while surficial water levels averaged 3.18 feet below April 2008 levels.

At the end of April, average water levels in seven of the twelve intermediate and Floridan wells and three of the nine surficial wells were at or above the low normal level, compared to historical monthly levels. Water levels measured in the intermediate and Floridan wells averaged 1.66 feet above the base of the normal range, while levels in the surficial wells averaged 0.53 foot below the base of the normal range.

Period-of-record low water levels were recorded in one of the 12 Intermediate/Floridan monitor wells in April 2009, as follows:

Morris Bridge 3A Deep

# SUMMARY OF GROUNDWATER LEVELS IN REPRESENTATIVE WELLFIELD WELLS, APRIL 2009

	<i>APR 2009 Elev</i>	<i>MAR 2009 Elev</i>	<i>APR 2008 Elev</i>	<i>Change From MAR 2009</i>	<i>Change From APR 2008</i>	<i>APR Historical Low Normal</i>	<i>APR Historical High Normal</i>	<i>Departure From Low Normal</i>	<i>Period of Record Low</i>	<i>Record Low Date</i>	<i>Period of Record High</i>	<i>Record High Date</i>
<i>INT/FLORIDAN WELLS</i>												
Cosme-Odesa Cosme No. 3	22.11	22.57	25.59	-0.45	-3.48	20.75	25.06	1.36	10.94	MAY2000	33.51	OCT1979
Cross Bar WRW	39.43	40.16	39.51	-0.73	-0.08	39.43	52.68	0.00	33.88	DEC1993	61.65	AUG1984
Cypress Crk TMR-1 Deep	48.46	50.19	58.59	-1.72	-10.13	47.29	60.62	1.17	36.93	FEB2001	70.78	JUN1976
Cypress Crk TMR-3 Deep	46.71	47.87	56.58	-1.16	-9.87	47.07	57.03	-0.36	34.22	FEB2001	68.79	JUL1976
Eldridge-Wilde 11 Deep	12.61	10.55	15.51	2.06	-2.90	6.67	12.78	5.94	0.31	SEP1990	24.17	SEP2004
Eldridge-Wilde 2S	14.37	14.01	18.39	0.36	-4.02	6.00	14.51	8.37	-1.16	JUN2000	25.24	OCT1982
Morris Bridge 3A Deep	19.14	21.42	31.07	-2.28	-11.93	24.48	31.17	-5.34	18.87	APR2009	36.99	DEC1997
Section 21 Hills 13 Deep	37.14	36.75	40.04	0.39	-2.90	33.14	43.60	4.00	21.88	JUN2002	52.08	JUL1944
South Pasco 42	41.58	41.96	51.25	-0.38	-9.67	38.40	45.65	3.18	27.98	MAY2002	56.79	SEP2003
South Pasco SR 54 Deep	44.84	45.50	53.33	-0.66	-8.49	43.01	51.39	1.83	33.49	MAY2002	57.94	SEP2003
Starkey Regional	29.31	29.88	32.52	-0.57	-3.22	29.43	33.27	-0.12	0.04	DEC2007	37.55	SEP2004
Verna 08	-10.28	-11.18	1.72	0.90	-12.00	-10.21	3.89	-0.07	-24.32	MAY1989	26.68	FEB1998
<i>SURFICIAL WELLS</i>												
Cosme-Odesa IC-6	34.14	34.26	36.74	-0.12	-2.60	34.81	37.17	-0.67	31.91	JUL1973	42.72	SEP1988
Cross Bar SERW	57.50	58.22	58.31	-0.72	-0.81	57.94	67.67	-0.44	53.09	JUL1994	72.53	JUL1984
Cypress Crk TMR-1 Shallow	48.63	50.50	58.57	-1.87	-9.94	54.25	62.63	-5.62	40.07	JUN2001	69.46	FEB1977
Cypress Crk TMR-3 Shallow	53.76	53.76	54.02	0.00	-0.26	54.02	60.92	-0.26	53.55	MAY1997	64.80	JUN2003
Eldridge-Wilde 11 Shallow	18.93	19.95	21.78	-1.02	-2.85	15.46	21.22	3.47	10.77	JUN1994	29.34	SEP2004
Morris Bridge 3A Shallow	24.96	26.02	32.36	-1.06	-7.40	28.26	34.03	-3.30	24.50	APR1985	39.20	DEC1997
Section 21 Hills 13 Shallow	41.69	42.40	43.54	-0.71	-1.85	38.92	48.20	2.77	33.81	MAY2001	53.78	SEP1979
South Pasco SR 54 Shallow	56.65	57.26	58.03	-0.61	-1.38	56.22	58.30	0.43	54.43	OCT1980	60.49	SEP1998
Starkey 707	24.73	25.23	26.24	-0.50	-1.51	25.84	29.12	-1.11	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.

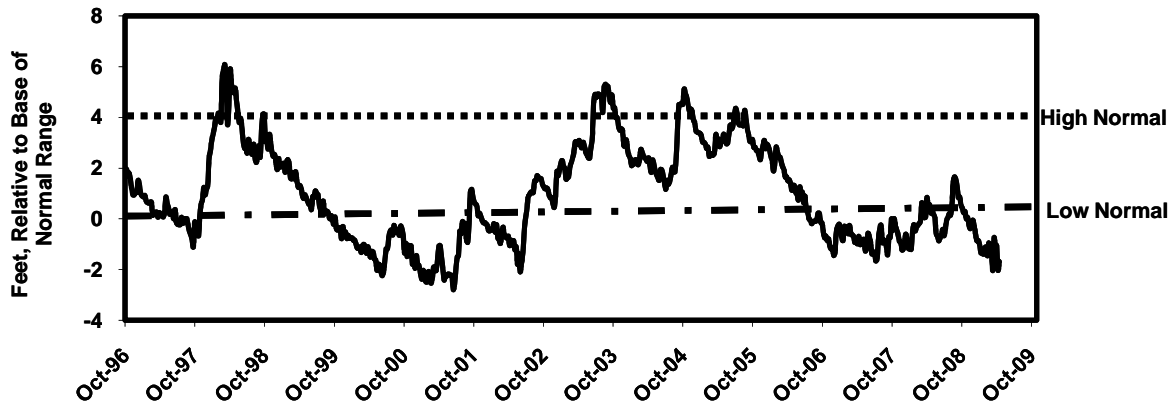
**Weekly Aquifer Resource Index Level, In Feet  
(Relative to Bottom of the Normal Range or 25<sup>th</sup> Percentile)**

<b>Report Date</b>	<b>Northern Counties</b>	<b>Central Counties</b>	<b>Southern Counties</b>
04/06/2009	-1.08	-1.66	-2.98
04/14/2009	-1.06	-1.94	-2.20
04/20/2009	-2.02	-1.63	-1.15
04/27/2009	-1.68	-1.69	-1.85

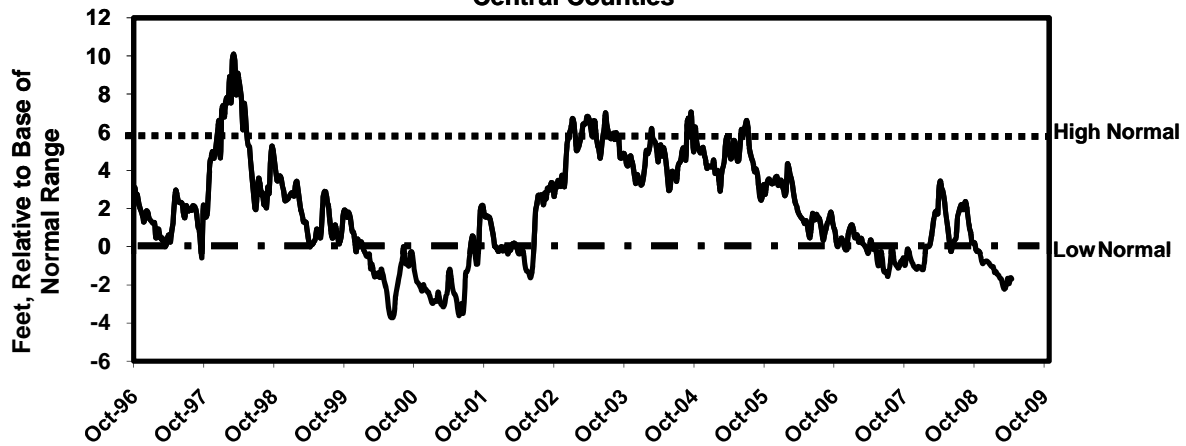
Note: A negative value indicates the regional average is below the "Low-Normal" level

**AQUIFER RESOURCE INDEX\***  
**April 2009**

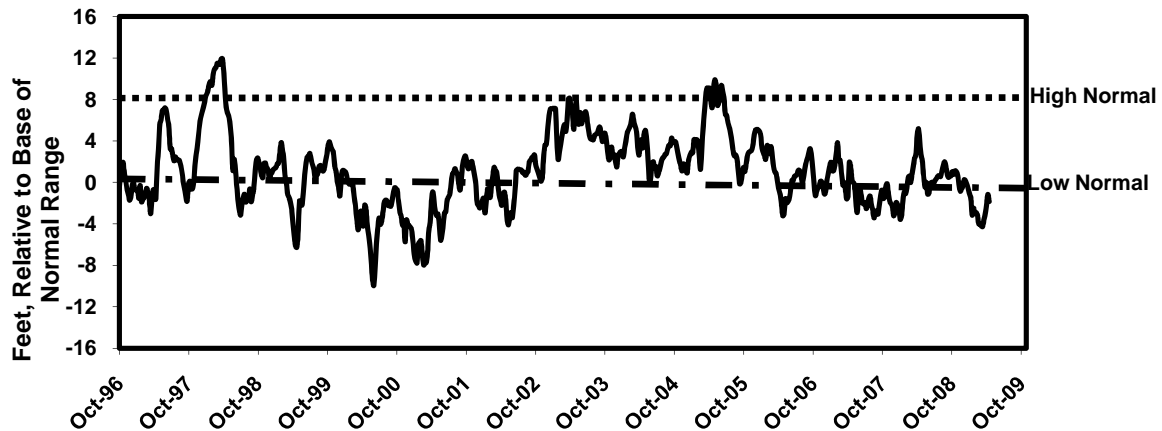
**Northern Counties**



**Central Counties**



**Southern Counties**



\*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 third 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 RESERVOIR - PEACE RIVER/MANASOTA REGIONAL WATER SUPPLY AUTHORITY (Peace River Basin):**

The Peace River facility is an off-stream reservoir. Unlike other utilities, the daily river water pumpage is not a reflection of daily water consumed by the public. Built in 1980, the PRMRWSA facility ranks sixth in total volume storage, and supplies water to Charlotte County, City of North Port, and DeSoto County. While all of the available water produced for public supply comes from the Peace River, they have by far the most complicated system for insuring adequate supply throughout the year. The facility also uses an aquifer storage recovery (ASR) system for storing treated water pumped from the river. The current permit restrictions on the PRMRWSA facility state that they may not withdraw water from the Peace River if the river gauging station at Arcadia has declined below pre-established monthly levels. Also, withdrawals may not exceed 10 percent of the preceding day's flow level as calculated at the Peace River Arcadia gauge station. To the greatest extent possible, the PRMRWSA fills its reservoir and ASR facilities to full capacity to insure water is available during times they are not permitted to withdraw from the Peace River. The total size of the reservoir is approximately 85 acres and is 31 feet deep. Total storage capacity is approximately 625 mg. Average and maximum permitted withdrawal amounts from the Peace River are 32.7 and 90.0 mgd, respectively. The Peace River reservoir and ASR system are both permitted for an average withdrawal of 32.7 mgd. The minimum producible level is 8.00 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 fourth 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 fifth 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 six reservoirs are obtained weekly from the USGS, Manatee County Utilities Department, Peace River/Manasota Regional Water Supply Authority, or Tampa Bay Water. The weekly data are then reduced to a monthly average. The values reported are provisional and subject to revision.

In April, all six reservoirs monitored for this report recorded average water-level decreases compared to last month. The Evers, Hillsborough River and Lake Manatee reservoirs posted average water level decreases of 1.31 feet, 0.46 foot and 0.55 foot, respectively. The Bill Young, Peace River and Shell Creek reservoirs posted water-level decreases of 0.81, 0.25 and 0.11 foot, respectively.

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

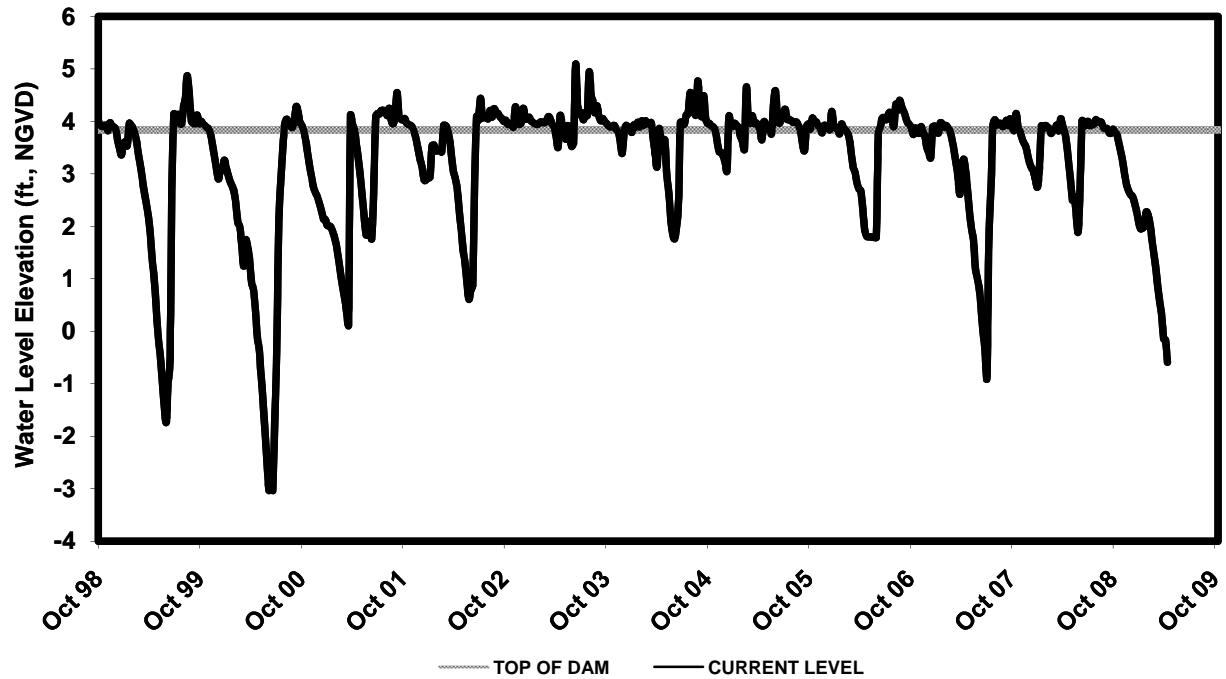
RESERVOIR	2009 March	2009 April	2008 April	Change from Prior Month	Change from Prior Year
<b>Evers</b>					
City of Bradenton	1.16	-0.15	3.84	-1.31	-3.99
<b>Hillsborough</b>					
City of Tampa	20.15	19.69	22.54	-0.46	-2.85
<b>Lake Manatee</b>					
Manatee County	37.61	37.06	40.21	-0.55	-3.15
<b>C.W. Bill Young Regional</b>					
Tampa Bay Water	77.32	76.51	108.98	-0.81	-32.47
<b>Peace River</b>					
PRMRWSA	21.80	21.55	28.18	-0.25	-6.63
<b>Shell Creek</b>					
City of Punta Gorda	4.97	4.86	5.14	-0.11	-0.28

NGVD - National Geodetic Vertical Datum

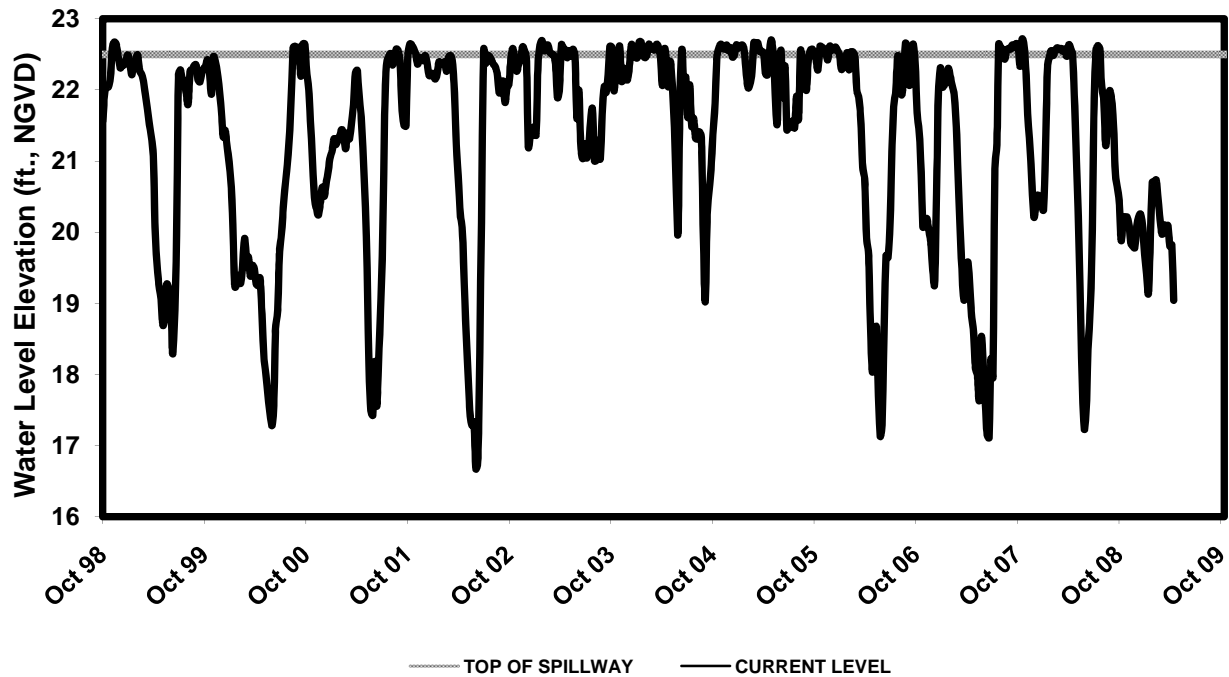
Reported data are provisional and subject to revision.

Compiled by Pam Green

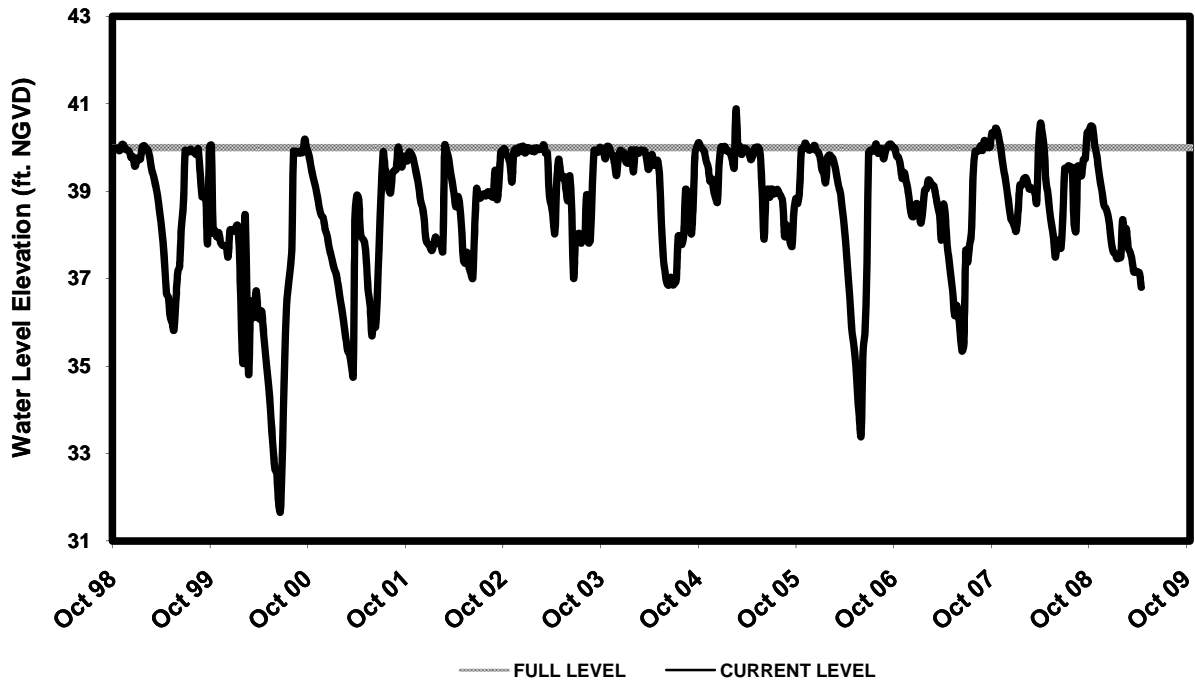
## EVERS RESERVOIR City of Bradenton



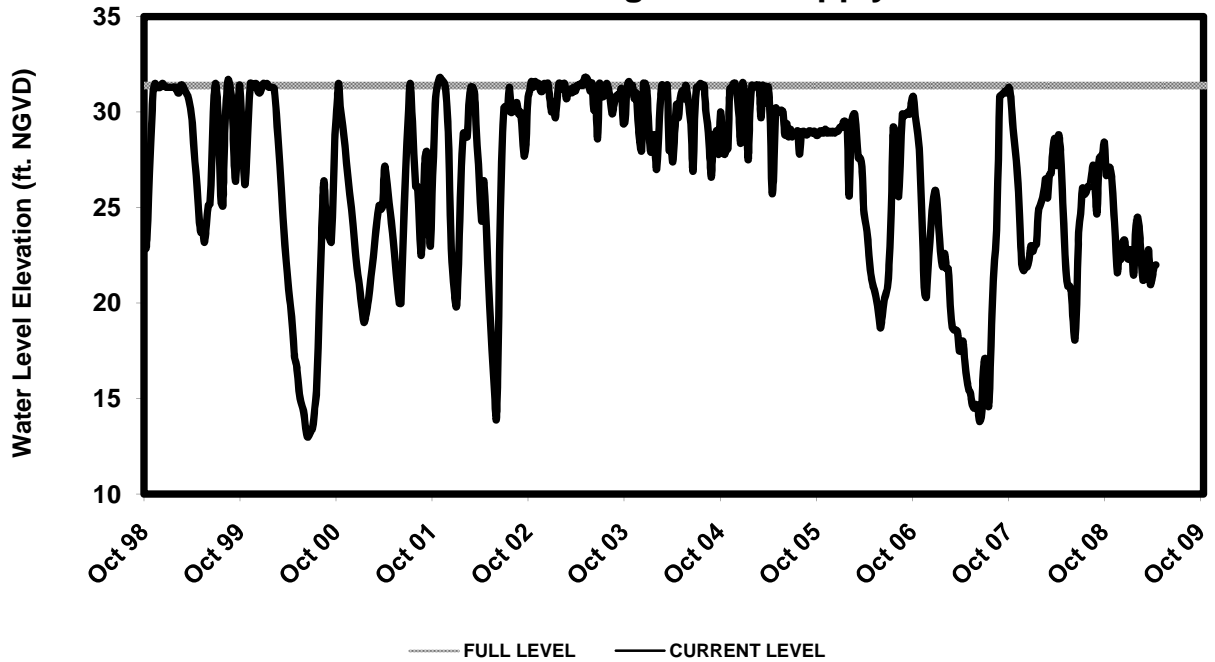
## HILLSBOROUGH RESERVOIR City of Tampa



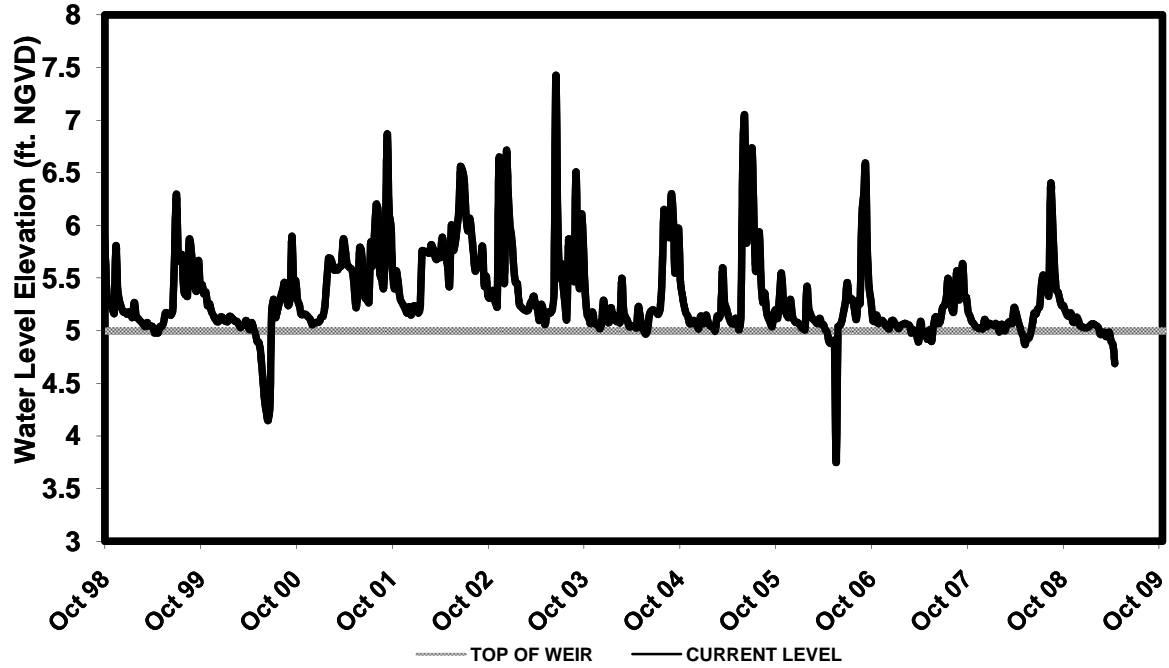
**LAKE MANATEE RESERVOIR**  
**Manatee County**



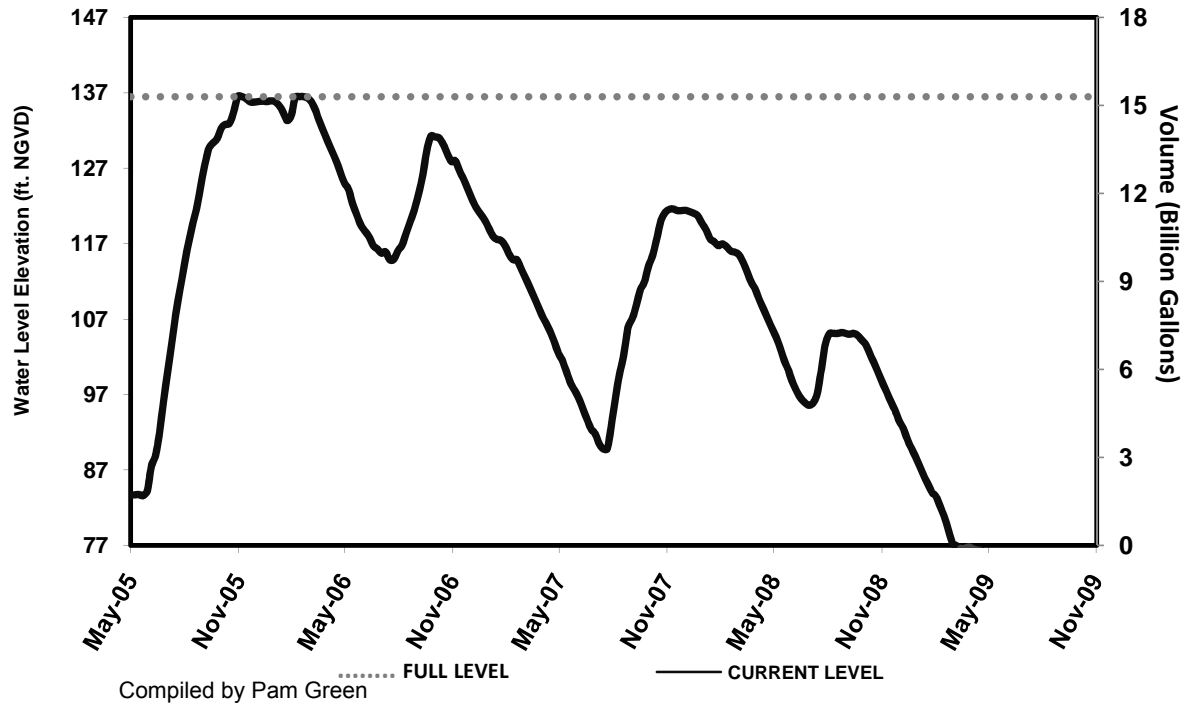
**PEACE RIVER RESERVOIR**  
**Peace/Manasota Reg. Water Supply**



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



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



# **APPENDICES**

Rainfall percentiles by interval and region, inches.

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

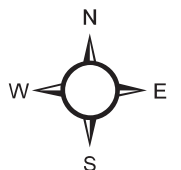
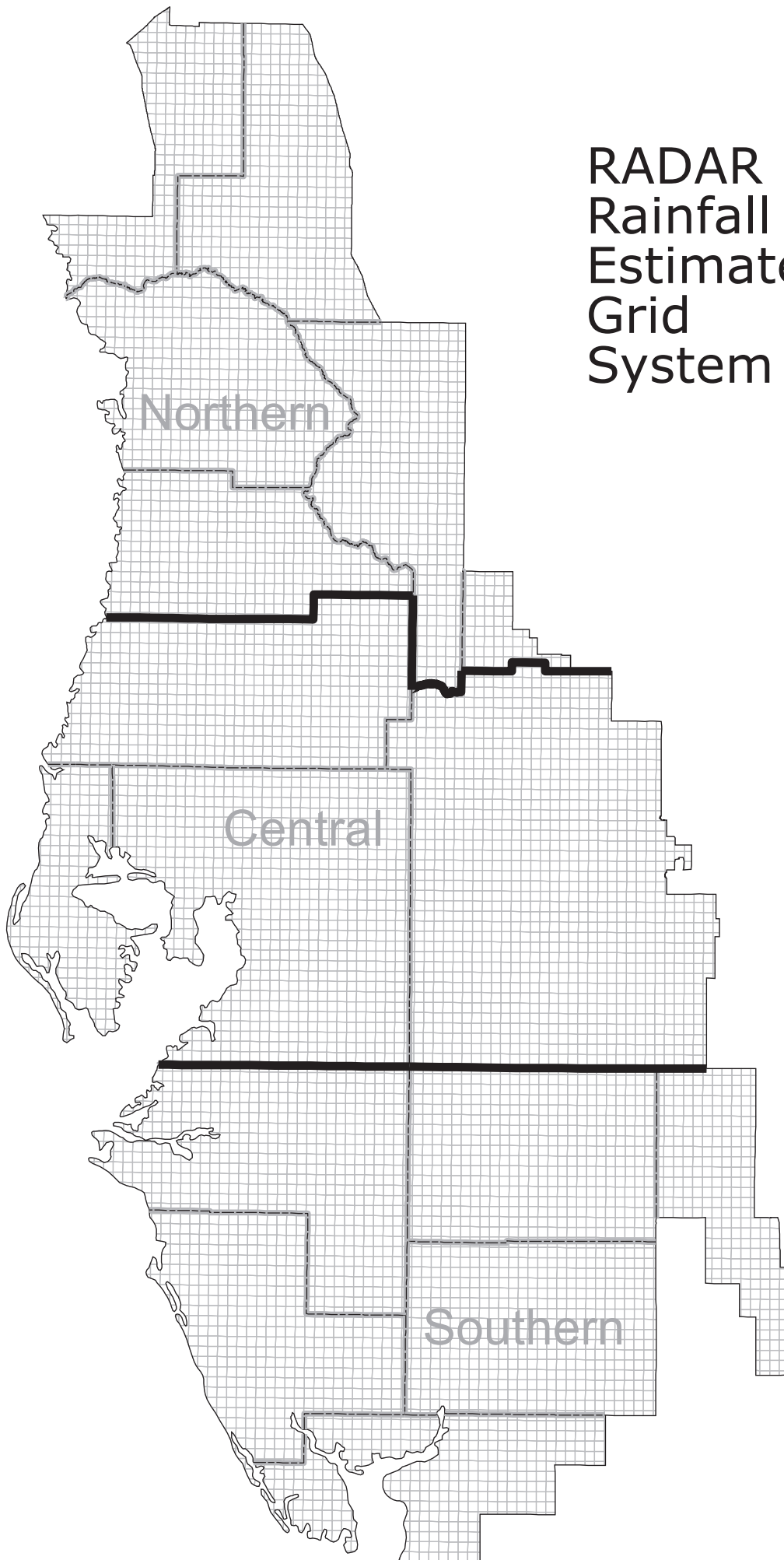
Rainfall percentiles by interval and region, inches (continued).

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

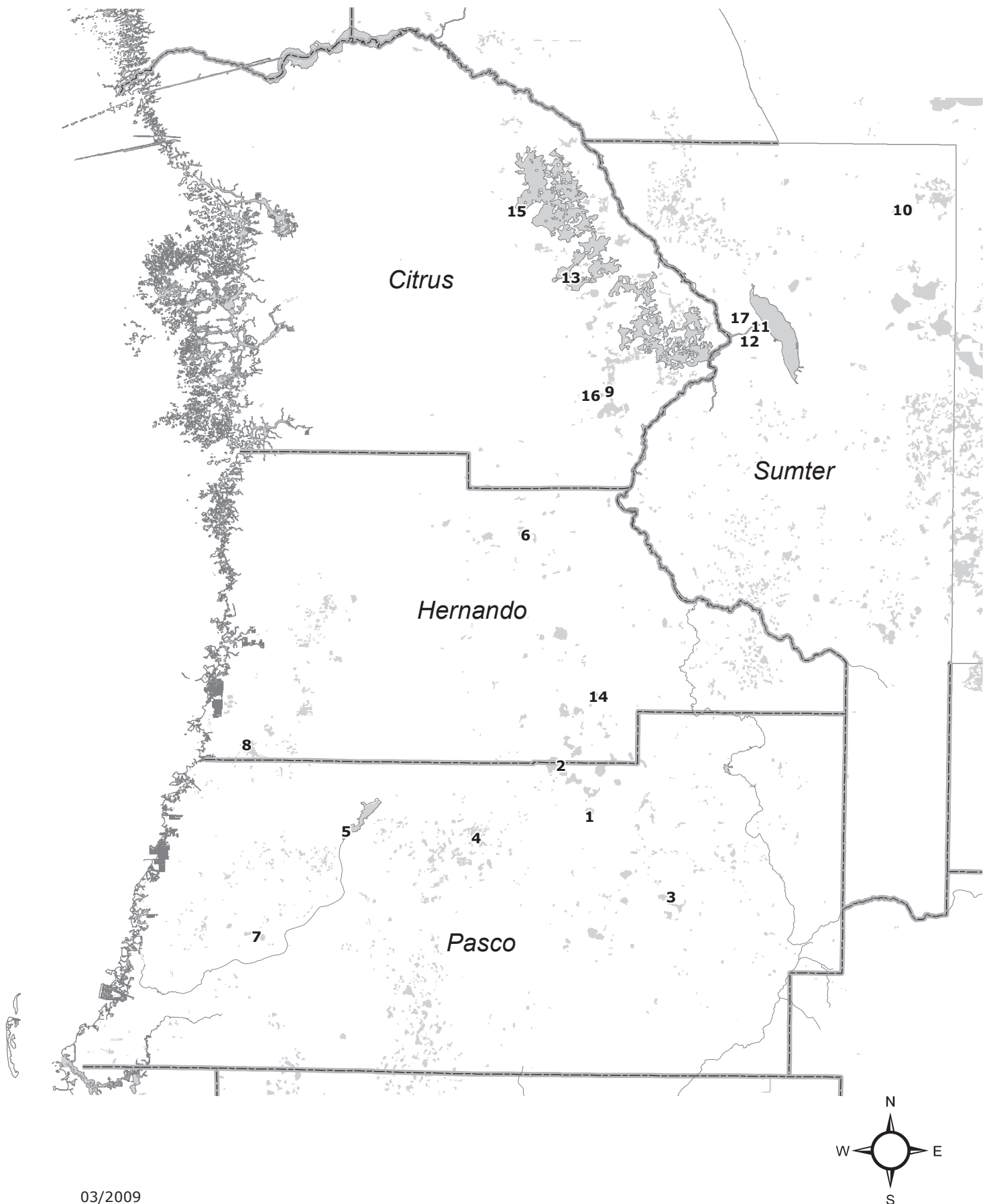
Rainfall characterization ranges

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

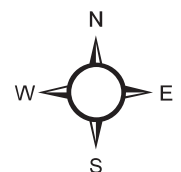
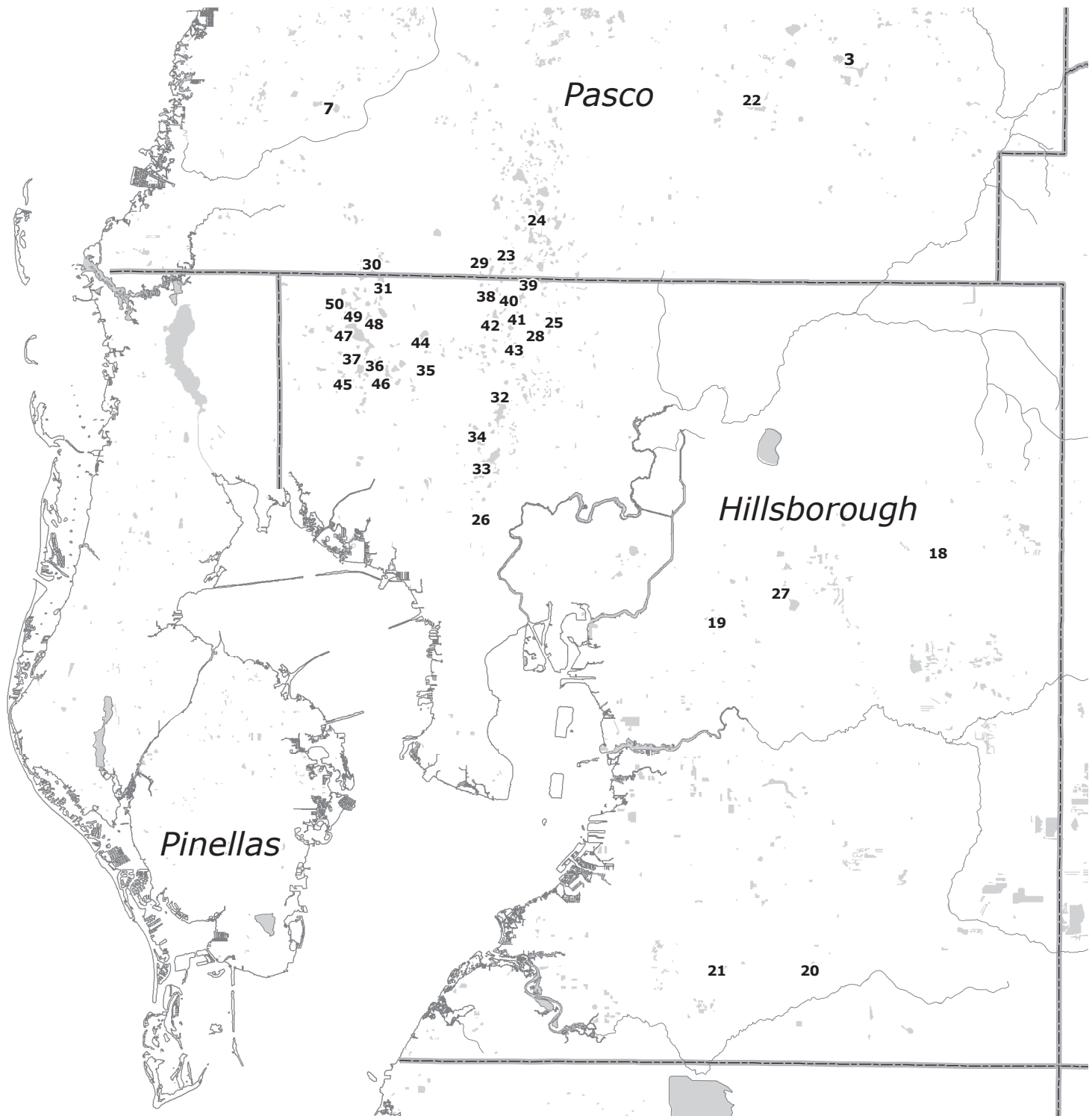
# RADAR Rainfall Estimate Grid System



# Selected Lake Monitoring Stations Northern Region

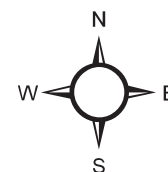
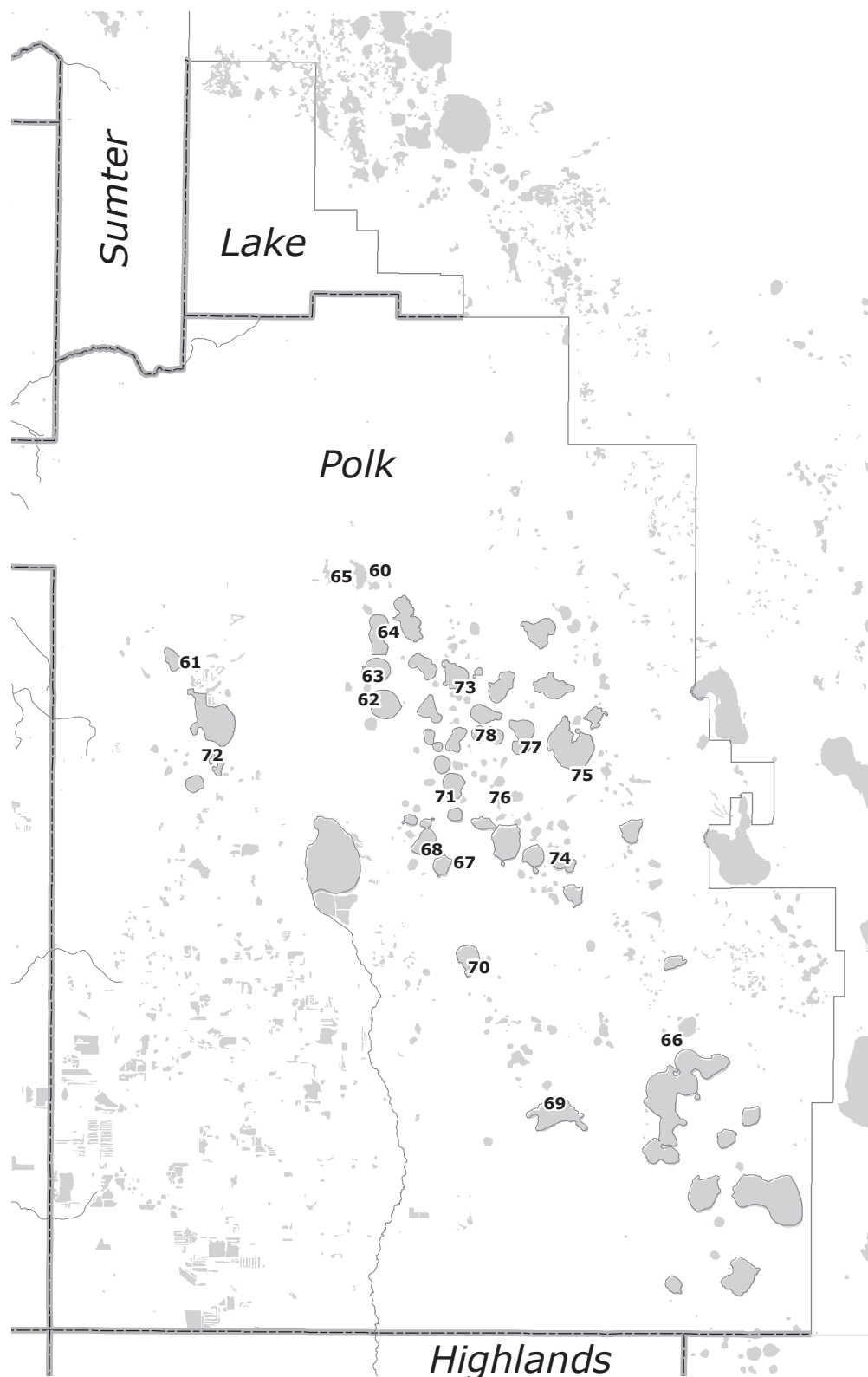


# Selected Lake Monitoring Stations Tampa Bay Region



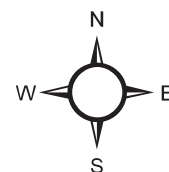
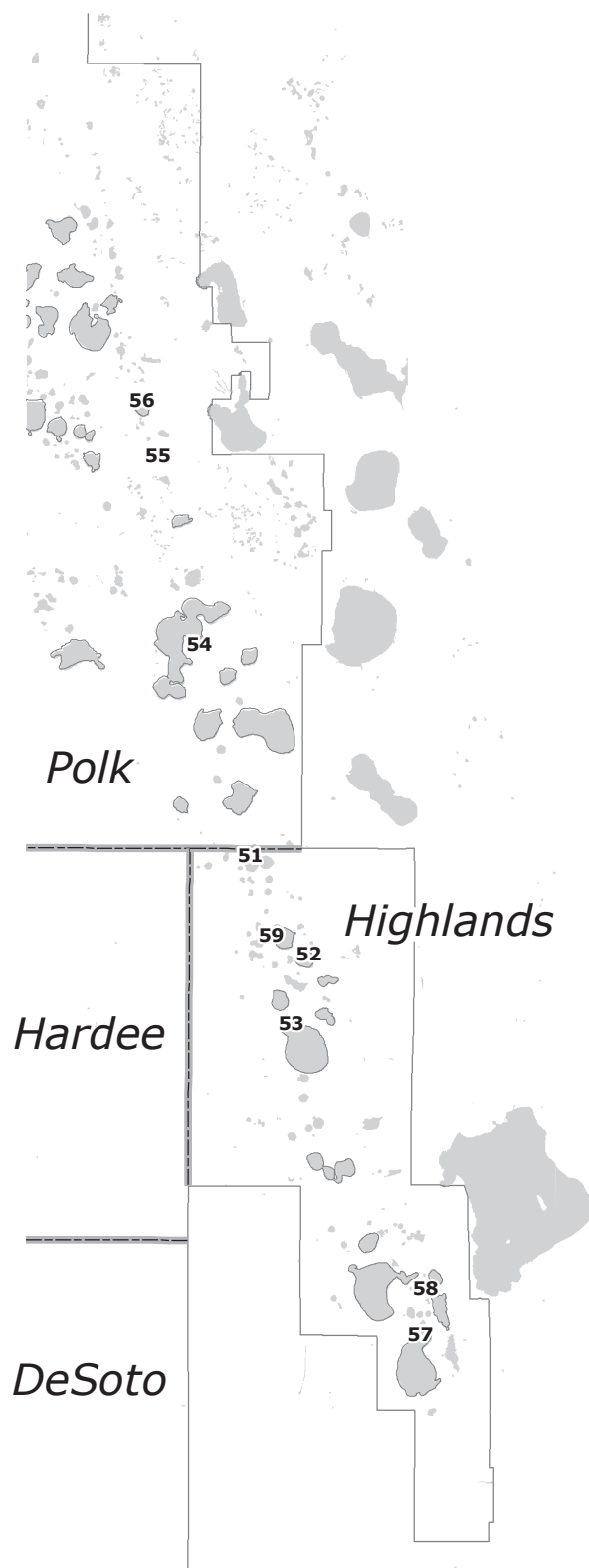
# Selected Lake Monitoring Stations

## Polk Uplands Region



# Selected Lake Monitoring Stations

## Lake Wales Ridge Region



## Selected Lake Monitoring Stations

### Northern Region

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

### Tampa Bay Region

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

## Selected Lake Monitoring Stations

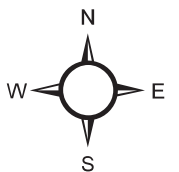
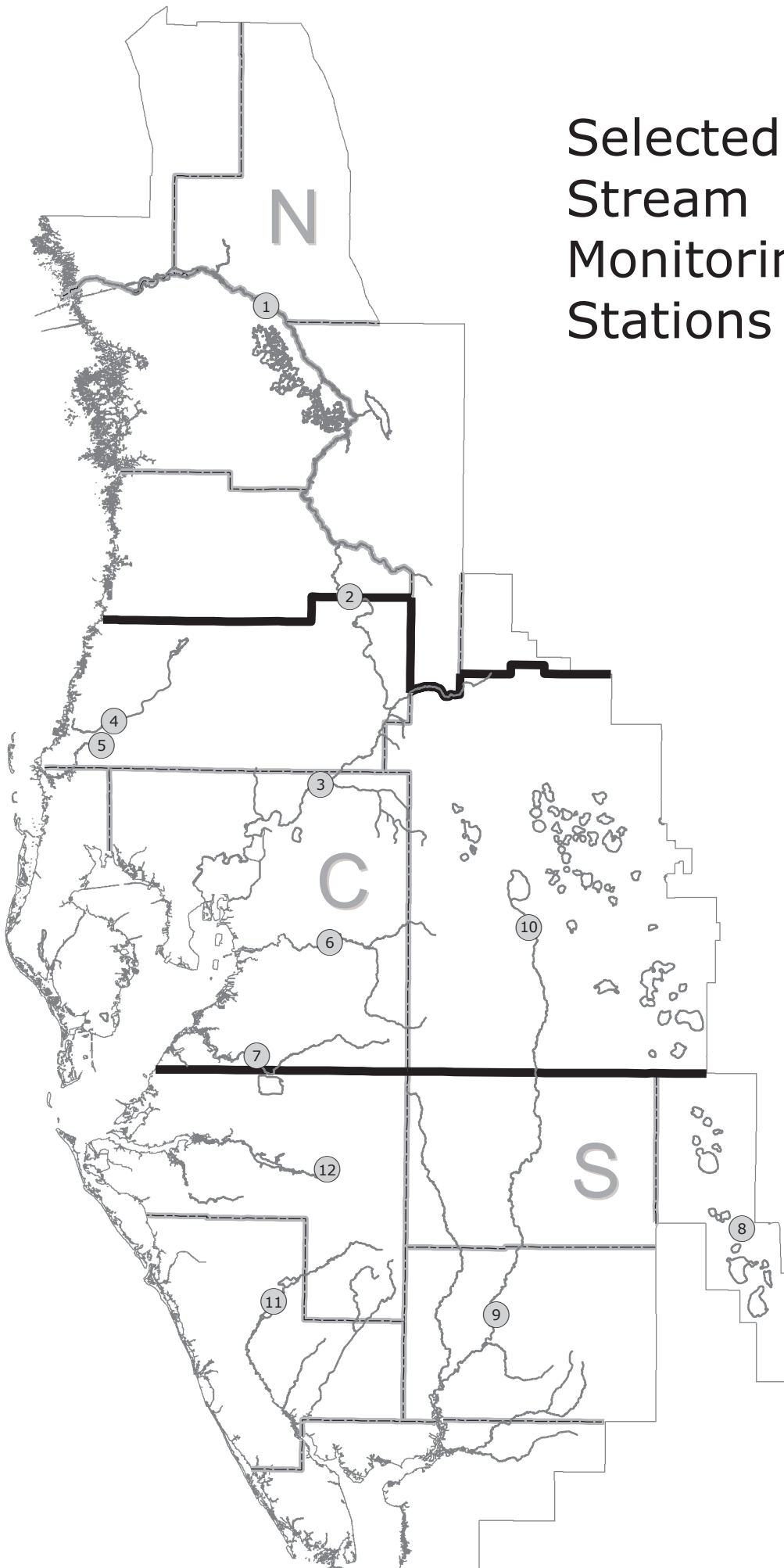
### Lake Wales Ridge Region

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

### Polk Uplands Region

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

# Selected Stream Monitoring Stations



## Selected Stream Monitoring Stations

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

## **STREAM MONITORING STATIONS**

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

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

#### **Holder Station**

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

#### **Trilby Station**

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

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

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

#### **Elfers Station**

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

**HILLSBOROUGH RIVER (Central Region)**

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

**Zephyrhills Station**

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

**PITHLACHASCOTEE RIVER (Central Region)**

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

**New Port Richey Station:**

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

**ALAFIA RIVER (Central Region)**

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

**Lithia Station:**

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

**LITTLE MANATEE RIVER (Central Region)**

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

**Wimauma Station:**

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

**JOSEPHINE CREEK (Southern Region)**

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

**DeSoto City Station:**

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

**MANATEE RIVER (Southern Region)**

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

**Myakka Head Station:**

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

**MYAKKA RIVER (Southern Region)**

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

**Sarasota Station:**

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

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

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

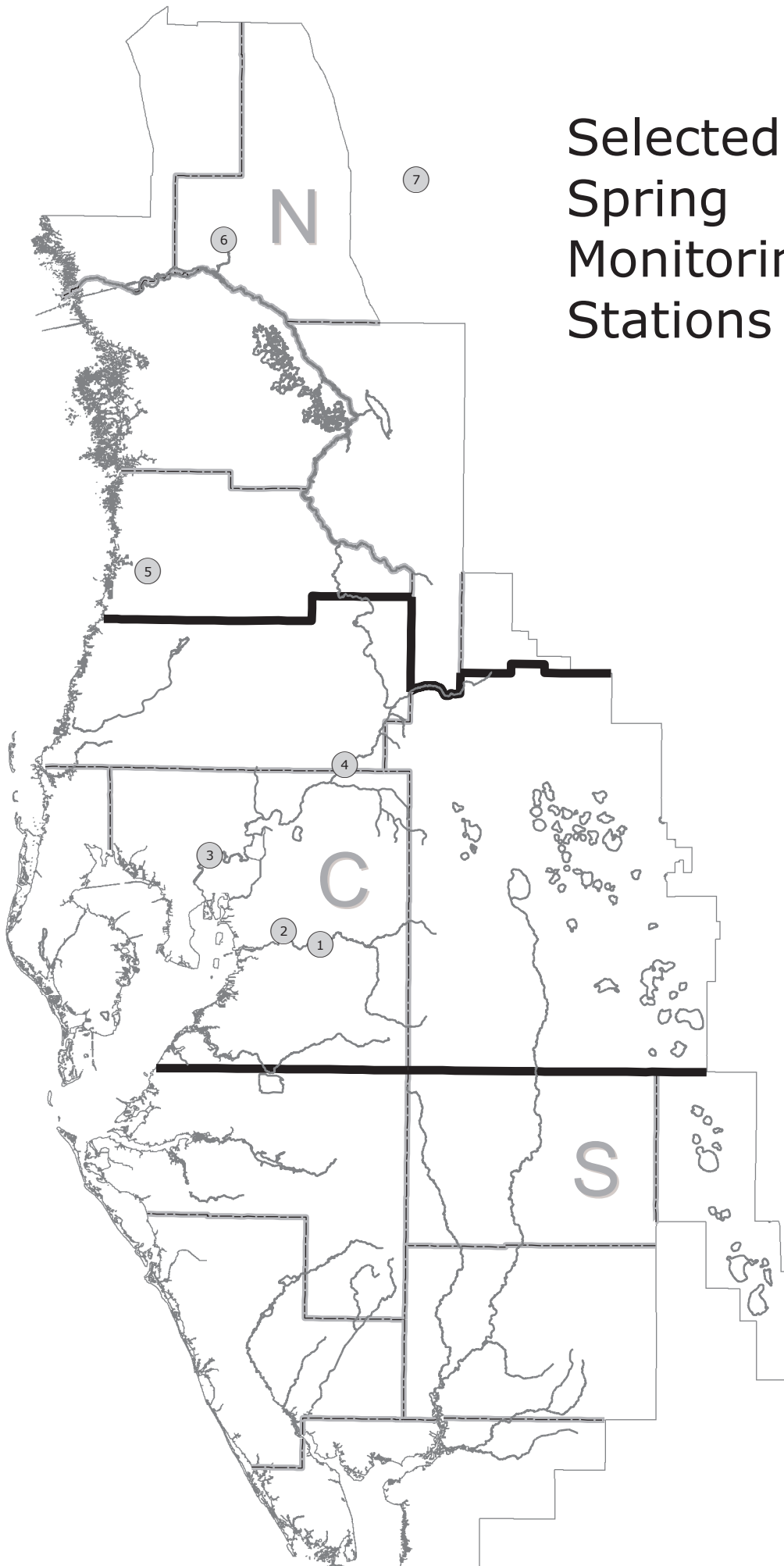
**Arcadia Station (Southern Region):**

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

**Bartow Station (Central Region):**

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

# Selected Spring Monitoring Stations



## Selected Spring Monitoring Stations

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

## **SPRINGS MONITORING STATIONS**

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

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

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

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

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

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

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

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

**SULPHUR SPRINGS (Central Region)**

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

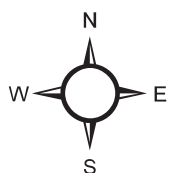
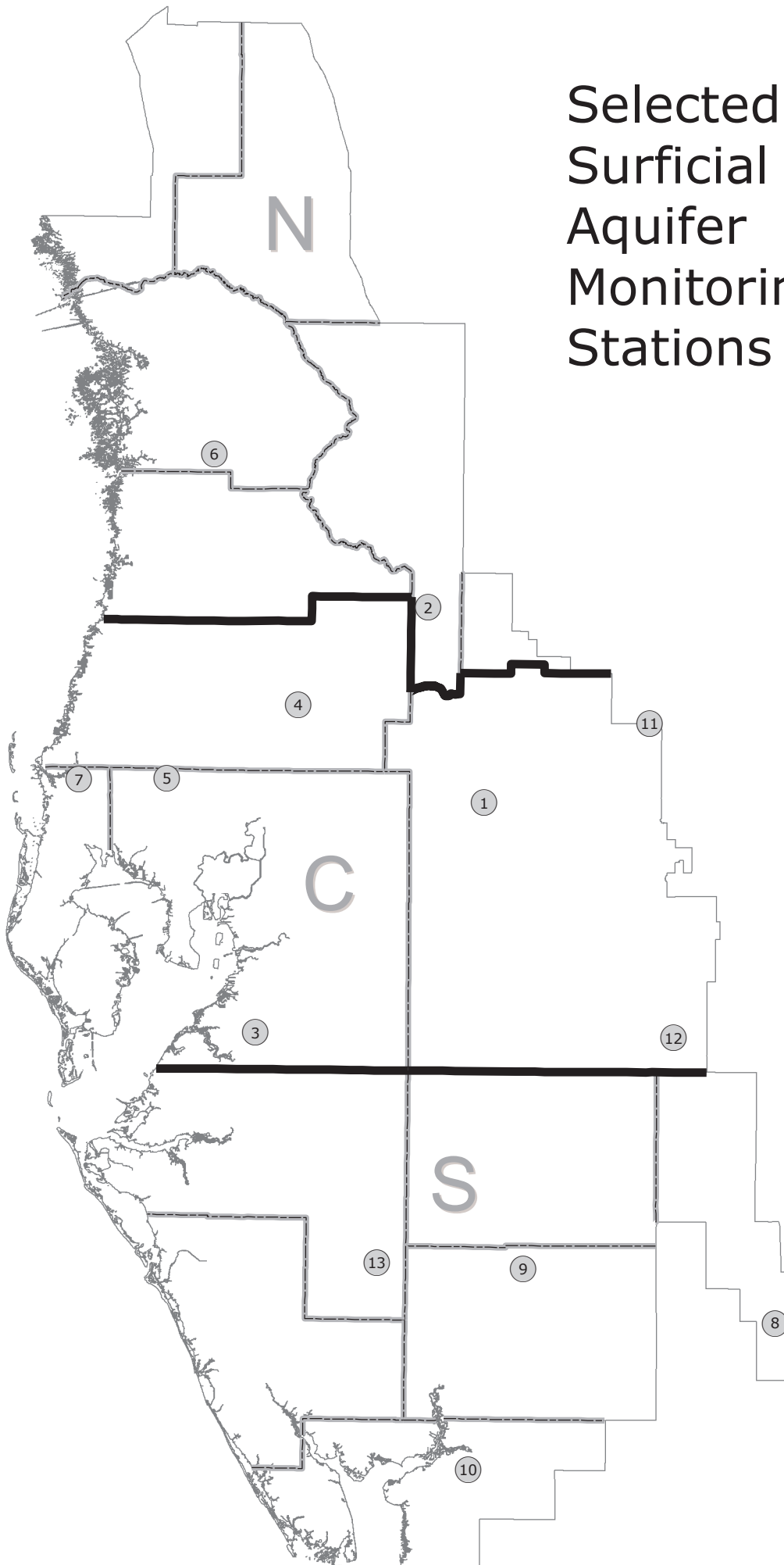
**BUCKHORN SPRINGS (Central Region)**

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

**LITHIA SPRINGS: (Central Region)**

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

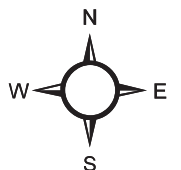
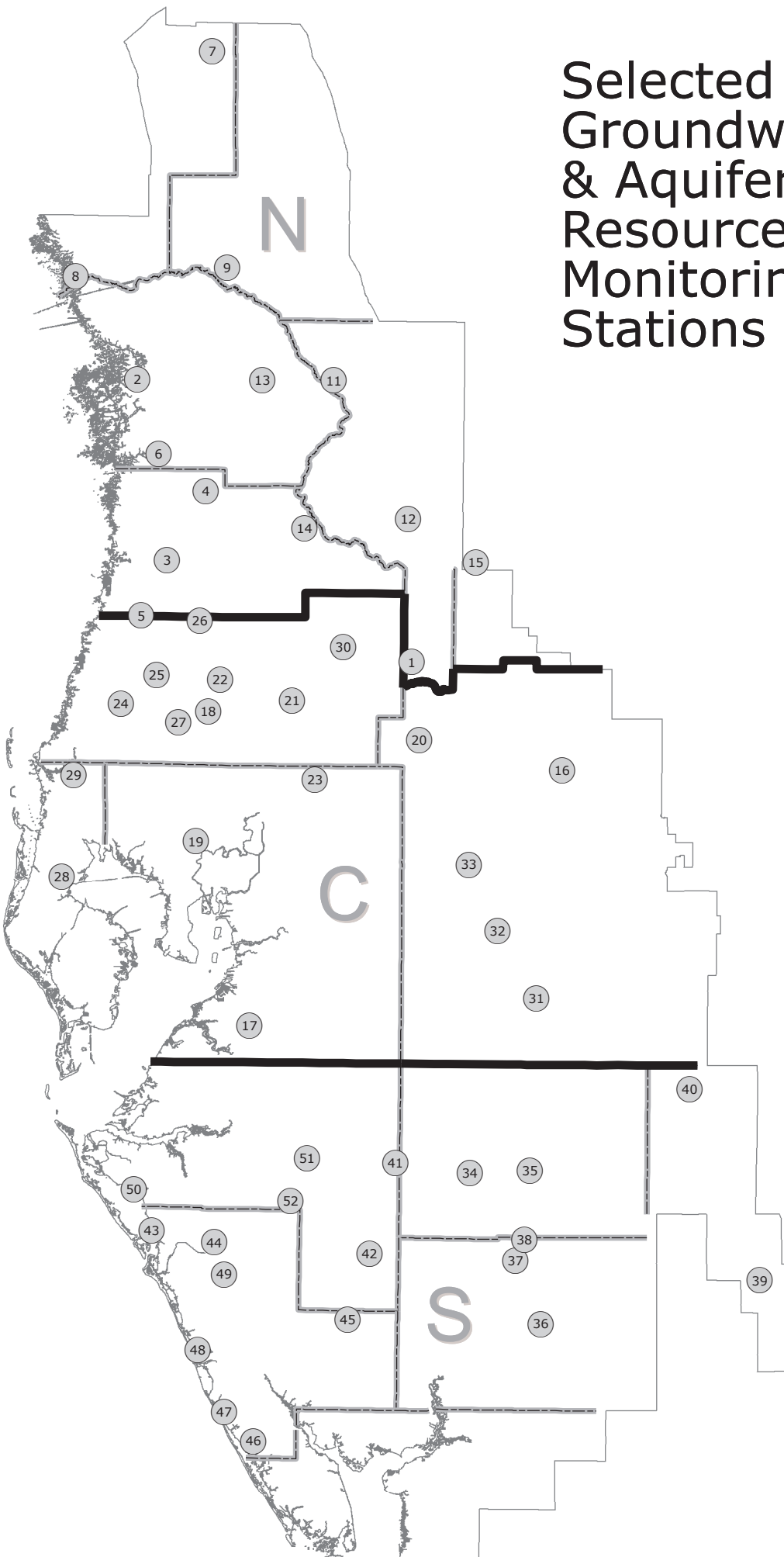
# Selected Surficial Aquifer Monitoring Stations



## Selected Surficial Aquifer Monitoring Stations

<u>Map ID</u>	<u>Site Name</u>
1	State Road 33/Combee Road Shallow
2	Green Swamp L12B Shallow
3	ROMP 50 Surficial
4	State Road 577 Shallow
5	Lutz-Lake Fern Shallow
6	Lecanto 2 Shallow
7	Tarpon Road Shallow
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

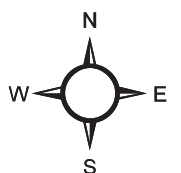
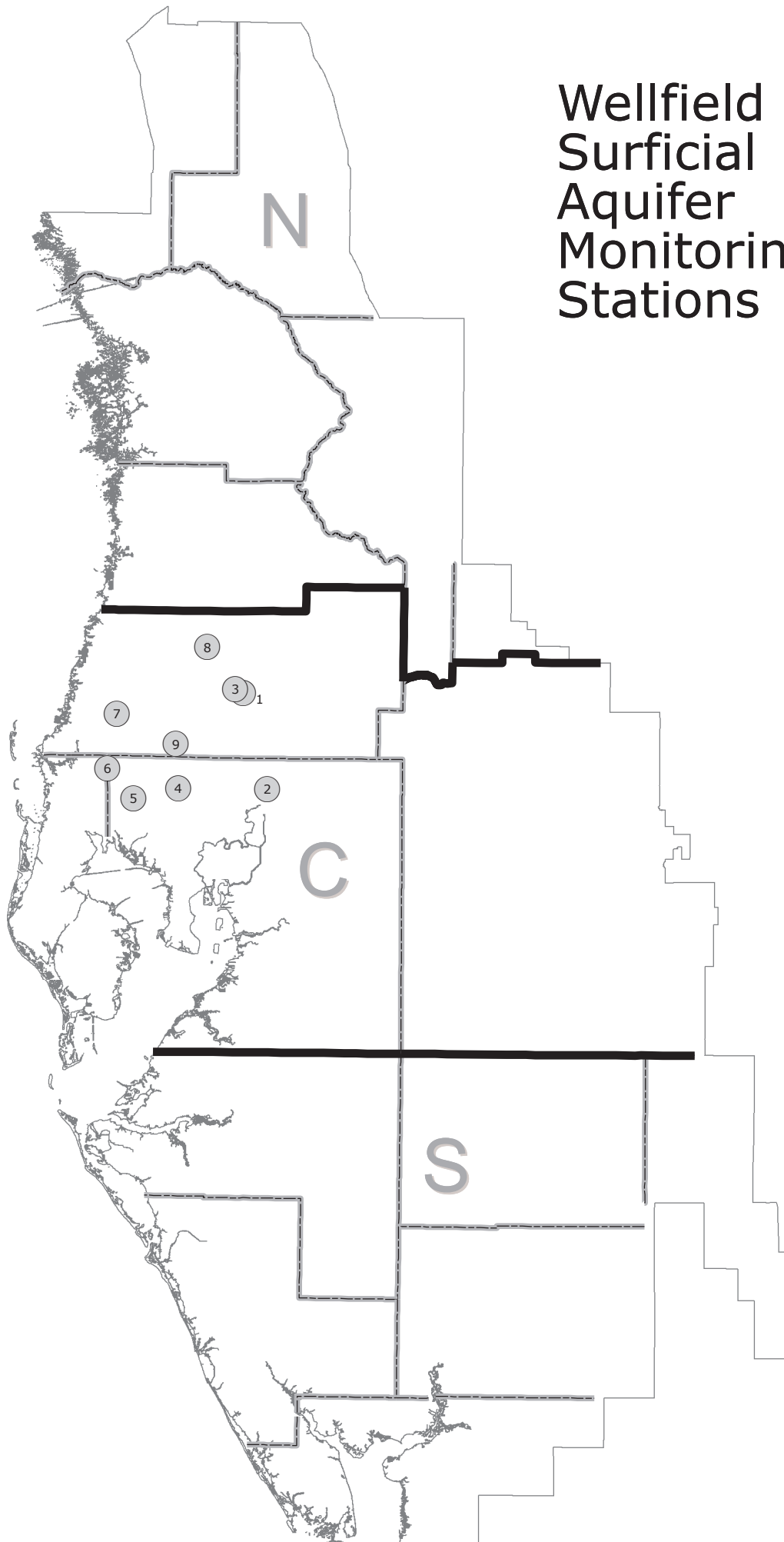
# Selected Groundwater & Aquifer Resource Monitoring Stations



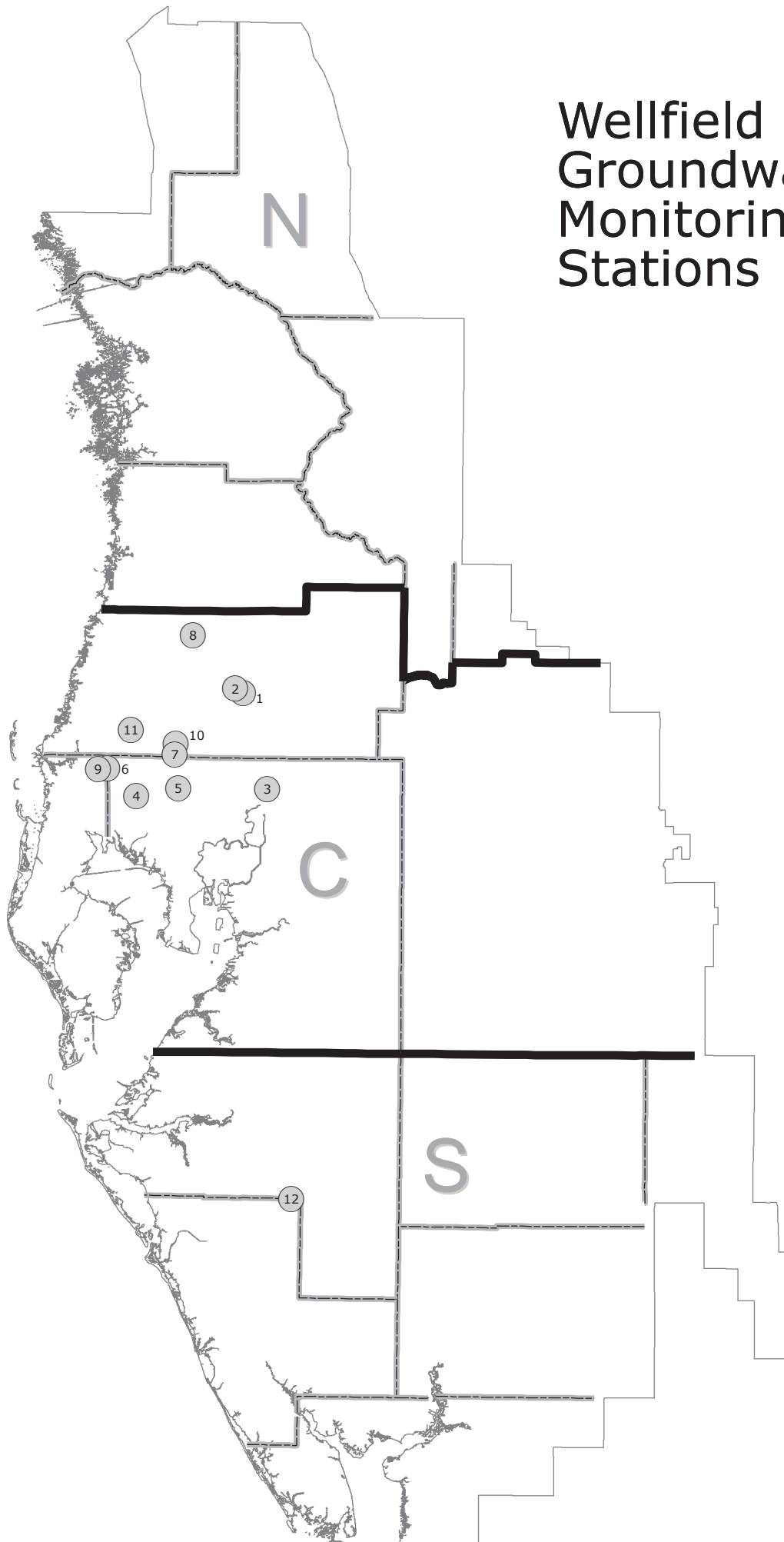
## Selected Groundwater & Aquifer Resource Monitoring Stations

<u>Map ID</u>	<u>Site Name</u>	<u>Map ID</u>	<u>Site Name</u>
1	ROMP 89 Ocala	43	Sarasota 11 <sup>th</sup> 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

